25th International Joint Conference

CENTRAL AND EASTERN EUROPE IN THE CHANGING BUSINESS ENVIRONMENT

PROCEEDINGS

Vydavateľstvo EKONÓM
Bratislava University of Economics and Business
2025

Prague, Czech Republic and Bratislava, Slovak Republic
22 - 23 May 2025

Prague University of Economics and Business

Faculty of International Relations, Department of International Business
Faculty of Business Administration, Department of Marketing

and

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25th International Joint Conference

Central and Eastern Europe in the Changing Business Environment

Proceedings

22 - 23 May 2025

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25th International Joint Conference Central and Eastern Europe in the Changing Business Environment : Proceedings

Compiled by:	Lucia Uderianová, Martin Schmidt
Conference web page:	http://ceeconference.vse.cz/
Published by:	Vydavateľstvo EKONÓM, Bratislava University of Economics and Business
Publishing year:	2025

ISBN 978-80-225-5225-7

ISSN 2453-6113

https://doi.org/10.53465/CEECBE.2025.9788022552257

Suggested citation:

Last Name, N. 2025. Title of the paper. In: *25th International Joint Conference Central and Eastern Europe in the Changing Business Environment : Proceedings.* Bratislava : Vydavateľstvo EKONÓM, 2025. pp. xxx-xxx, ISBN 978-80-225-5225-7. https://doi.org/10.53465/CEECBE.2025.9788022552257.xxx-xxx

The conference is jointly organized by the Bratislava University of Economics and Business and the Prague University of Economics and Business (namely the Department of International Business of the Faculty of International Relations and the Department of Marketing of the Faculty of Business Administration). The conference's main objectives are to identify and analyze ways and strategies whereby internationally operating businesses can maintain and raise their competitiveness. The conference also concerns sustainability and socially responsible strategies. The conference focuses on the whole Central and Eastern European region. For the last 25 years, it has constituted a valuable platform linking together excellent researchers and business representatives. It creates the opportunity to present recent research and to discuss the future and developments in the changing business environment in the CEE region.

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Intersectionality of the Common Agricultural Policy (CAP) and the Agri-Food Global Production Networks (GPN)

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https://doi.org/10.53465/CEECBE.2025.9788022552257.9-20

Abstract: This paper aims to examine the relationship between Common Agricultural Policy (CAP) and the agri-food global production network (GPN). The changing trend of the CAP decoupled direct payment by the introduction of eco-schemes/" greening" measures to farmers have significantly impacted the EU's participation into the GPN, particularly in the period from 2010 to 2022. This paper will start by explanation on the significance of agricultural subsidies in the agri-food sector of the European Union and its business activities. In the observed period, EU's participation in the agri-food GPN steadily increased. The paper comes into the conclusion that CAP through the introduction of eco-schemes measures has become the EU's "coupling" strategy into agri-food GPN, through priority on producer organizations. This paper used convergent mixed methods by combining interview findings and regression analysis to reach this conclusion.

Keywords: Global Production Network, Common Agricultural Policy, Agri-food

JEL Classification codes: F68, N54, Q18

INTRODUCTION

Discussions on the EU's Common Agricultural Policy (CAP) in the global agri-food sector have been around for decades. Since the CAP's establishment in 1962, debates regarding the CAP's impact towards the global agricultural market came from both multilateral and bilateral trade regimes. Previous literature and academic papers have analyzed CAP and its reforms from various points of view such as CAP's impacts on farmers' productivity and on developing countries. However, there's a gap to answer how the EU's domestic agricultural subsidies correlate with its performance in the agri-food global market.

Global Production Network (GPN) theory provides the analytical tool to connect a domestic policy such as the CAP and the global market. This paper's purpose is to investigate the CAP's role in promoting integration of EU in the agri-food GPN. Agricultural subsidies determine the landscape of European agri-food sector and are a highly political policy. To have a grounded understanding, this paper will focus on the implementation in the form of subsidy funding. Specifically, this paper will analyze the correlation between decoupled direct payment CAP subsidy (excluding the eco-scheme that started in 2016) and the processed food export, a type of agri-food product that is ideal for a longer value chain and the global production network.

1 LITERATURE REVIEW

In recent years, more studies have used the GPN theory in agricultural sector, particularly in relation to developing countries' "coupling" strategies into the global agricultural market. The coupling strategy that most countries use is by supplying to the lead firms that either move in food processing or multinational retail (Kalvelage et al., 2023; Krishnan, 2023). To meet the international standards imposed by the multinationals, primary producers/farmers then will need support to "upgrade" their business practices. Here, the role of state is usually important, providing the capacity building and protection for local producers to upgrade into global network (Thomas, 2024; Yang & Liu, 2022; Yeritsyan et al., 2024). CAP fills this role of extra-firm actor in GPN as the state intervention towards its agri-food sector. Through various subsidy instruments, the CAP intervenes with the value creation activities of European farmers and supports the integration into agri-food GPN (Coe & Yeung, 2015).

CAP is a significant extra-firm actor in the EU's agri-food sector. Not only farmers, but also other actors, such as food processors and land owners, are influenced to a certain extent by the CAP in the European agri-food production network (Coe & Yeung, 2015; Gorton & White, 2007; Valenti et al., 2021). The subsidy can create a trend amongst the agri-food value chain actors and direct them to certain behaviors. The subsidies are implemented through Pillar 1 (European Agricultural Guarantee Fund / EAGF) and Pillar 2 (European Agricultural Fund for Rural Development / EAFRD) (Burrell, 2009). Pillar 1 is direct payment, consists of subsidies for farmers' basic income (decoupled) and coupled subsidies that depend on the farmers' production output. Pillar 2 is mostly concerned with rural area development, such as infrastructure, support to areas with natural constraints, and training/education for young farmers. Through the two pillars, CAP attempts to address all aspects of agricultural challenges in the EU, and CAP interventions are so influential in shaping the trajectory of the EU's agri-food production network (Dudu & Kristkova, 2017; Kohut, 2023; Williams et al., 2023).

Not all subsidy instruments deliver the same result, which has been covered by previous literature that analyzed the subsidy impacts among farmers. Among all, decoupled payment of Pillar 1 has been found to be the subsidy that correlates positively with farmers' productivity (Garrone et al., 2019; Rizov et al., 2013), though this payment is not connected to their yield. It is also the subsidy that does not cause market distortion according to the WTO Green Box rules (WTO, n.d.).

For the observed period (2010-2022) the CAP experienced a reform in 2013. The final adoption of the reform was on 16 December 2013, it entered into force from January 2014, and the new measures were implemented into the CAP funding management from the fiscal year of 2015 onwards (European Council, 2019). The reformed CAP eco-scheme measures that are incorporated into the Pillar I decoupled payments. The reform of CAP Post-2013 has changed the implementation of this subsidy and attributed 25% of the decoupled payment into eco-schemes or "greening" measure (European Commission, 2024a). Eco-schemes introduced performance measures that must be attained by the CAP recipients if they wish to access the funding.

Together with eco-schemes measure, the reform also claimed to increase farmers' position in agri-food value chain by promoting shorter value chain that reduces "unfair trading practices" (European Commission, 2024b). The understanding is that concentration of food retailing in the agri-food sector will cause most of the value added to the brokers/intermediaries, and both consumers and farmers are less benefited (Gorton & White, 2007; Majewski et al., 2020; Mustapa & Kallas, 2025); so promoting shorter value chain in the agri-food GPN usually involves activities that will put producers/farmers and consumers into direct contact whether through spot market or farmers' online sale (Gorton & White, 2007; Majewski et al., 2020).

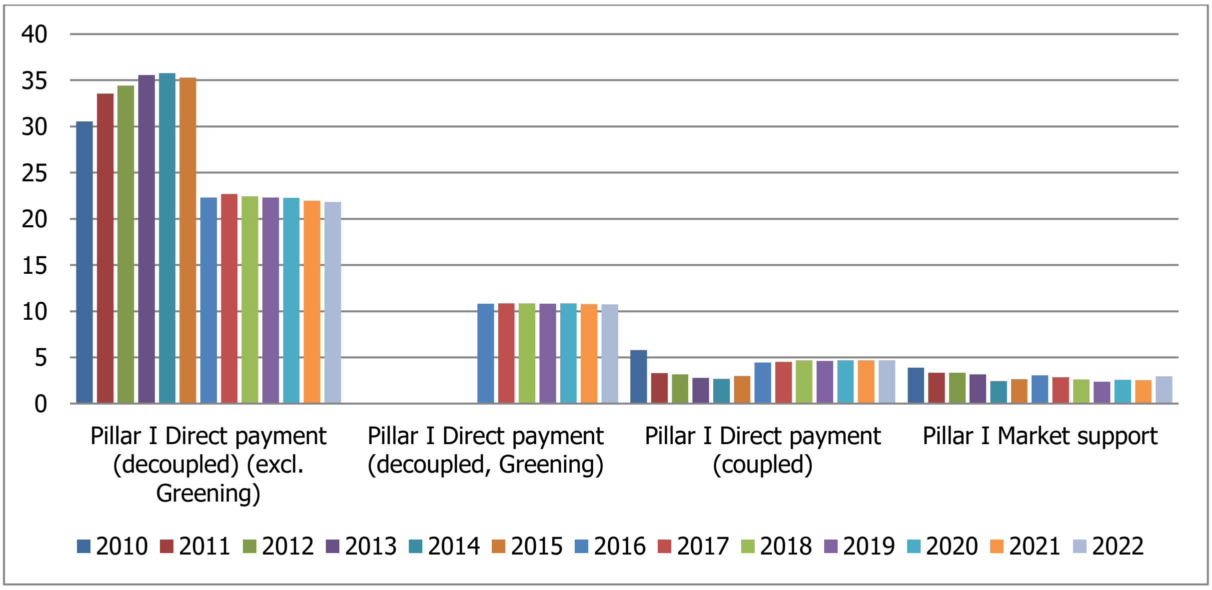
Hypothetically, if this were the goal, CAP is supposed to promote activities that will cause strategic decoupling in the agri-food GPN (Pavlínek, 2024). On the other hand, upgrading activities in agri-food GPN usually involves farmers supplying longer value chains in the form of processed food (Hansen, 2024; Yang & Liu, 2022). In the case of the EU, after the CAP introduced the eco-schemes, the export of processed food products steadily increased, together with an increase in the import of primary agriculture products. By analyzing this trend, the question this paper wants to answer is: "How does the Common Agricultural Policy (CAP) greening eco-schemes support EU's participation into the agri-food GPN?"

2 METHODOLOGY

The main goal of this paper is to find, explore, and establish the relationship between agricultural subsidy implementation domestically in the form of CAP and the integration of the EU in the agri-food GPN. To do so, the paper will use a convergent mixed method, consisting of qualitative and quantitative analysis (Creswell & Plano Clark, 2018). Semi-structured interview was done with nine CAP paying agency bureaucrats of eight different EU member states. The choice to interview the paying agencies is due to their authority in disbursing the Pillar 1 funding, especially the decoupled payment. The paying agencies provided contexts from different localities about how farmers operate and the role of the subsidy. Despite the various local conditions and strategies needed to increase farmers' position in the production network, the interviews shared a common theme that eco-schemes measures are putting an increased burden on farmers. This overarching theme is then used for the quantitative analysis by a statistical test on the data.

The purpose of doing the convergent mixed method is to capture the reality of the agricultural subsidy and to determine its role in EU's coupling strategy in agri-food GPN. By doing semi-structured interviews, the paper gathered the themes surrounding the implementation of the CAP funding. And then, these themes are put into statistical analysis, which confirms that the agricultural subsidies did not promote shortening of value chain but instead promoted activities that are for longer value chain after the implementation of eco-schemes measures.

Fig. 1 CAP Subsidy Expenses (2010-2022)



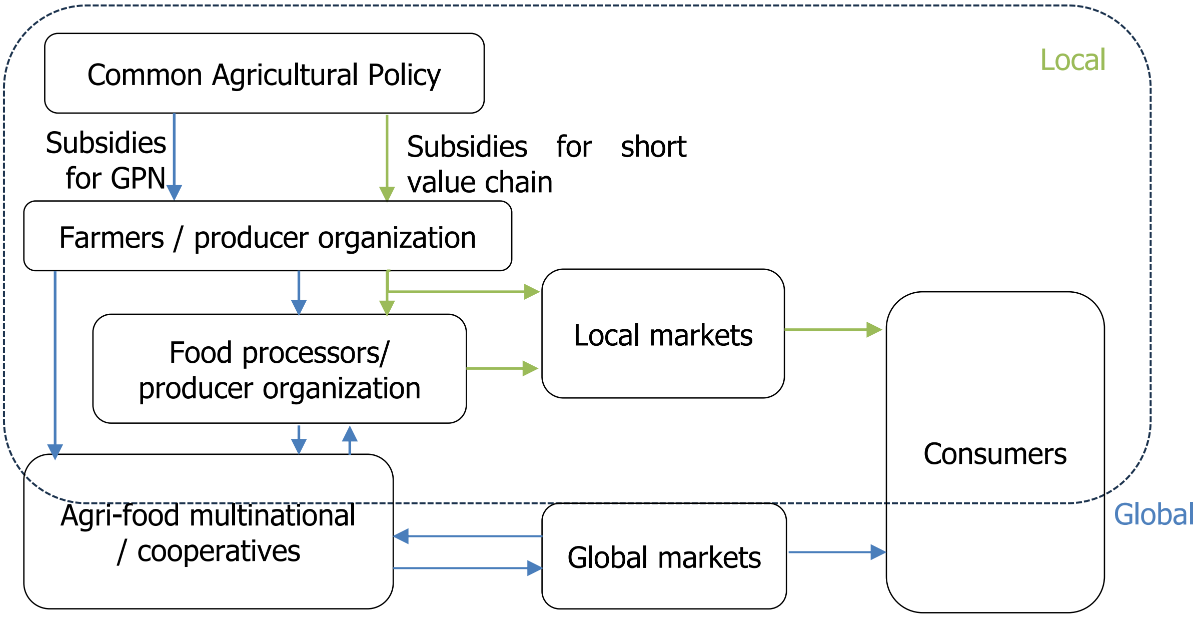
Source: Own elaboration according to European Commission financial reports

To operationalize CAP policies into numerical data, this paper will focus on Pillar 1, particularly the decoupled direct payment of CAP. After the introduction of eco-schemes, decoupled direct payment as the most significant subsidy instrument for farmers' productivity (Dudu & Kristkova, 2017; Garrone et al., 2019) was attributed to extra performance measures (European Commission, 2024a).

Based on the figure of CAP funding structure above, the most significant change happened between 2015 and 2016 with the implementation of "greening" / eco-schemes. It took up about EUR 10 billion, which means one third of the subsidy can only be accessed when farmers conduct "environmentally sound farming practices, such as crop diversification, and maintaining ecologically rich landscape features and a minimum area of permanent grassland" (European Council, 2019). Other than this, the other instruments of Pillar I have been in the same level. The statistical test involves the decoupled payment subsidy trend in 2010-2022 and the export of processed food.

3 RESULTS AND DISCUSSION

Fig. 2 EU's agri-food GPN participation scheme



Source: Own elaboration according to interviews; model by Yang, X. & Liu, W. 2022, p. 4

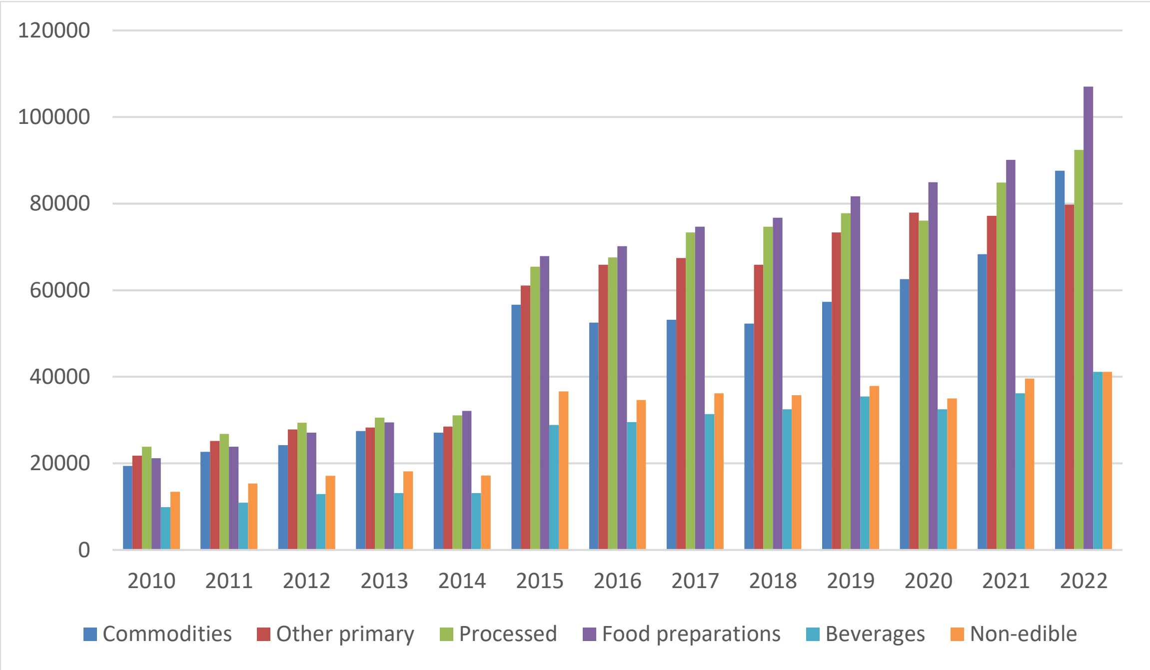
Based on the previous literature review and the qualitative data collection, there is a need to put the GPN theory into the context of the European Union. The EU's agricultural context is different from that of developing countries, where most agri-food GPN research is conducted in the study cases (Yang & Liu, 2022; Yeritsyan et al., 2024). The specificity of EU context is due to the existence of two entities: CAP as the strong support to agricultural sector (extra-firm actor) and European agri-food MNCs (lead firm) (Baldwin & Wyplosz, 2022; Mayer & Ottaviano, 2008).

Furthermore, to better suit the EU's agricultural context, according to the interview with participants from eight EU countries, CAP policies translate into subsidies for either short value chain or long value chain (GPN) for farmers/producer organizations (POs). Subsidies for GPN would support farmers & POs to engage with local suppliers to the agri-food multinational corporations (MNCs). Or, as an economy home to numerous agri-food MNCs, there are cases where lead firms (MNCs or cooperatives) interact directly with farmers and export the products to global market. Meanwhile, the farmers and POs that are not upgraded by the subsidies will stick to fulfilling EU domestic market demands.

At the global level, agri-food MNCs act as the bridge. MNCs channel the participation of the EU through both backward and forward participation (WTO, 2018), by importing from other countries (raw materials or finished products), exporting its own produce (such as piglets), or re-exporting processed food produce (such as packaged coffee). Taking the data from 2010-2022, there was an increasing participation in the agri-food GPN by the EU. Convergently, findings from the qualitative data collection also showed that the CAP subsidies are supporting the line of business that is designed for a longer value chain (food processing), instead of a shorter value chain. Finally, the paper will use regression analysis to check the correlation between trends of the agricultural subsidy and the food preparations export.

3.1 The increasing participation of EU to agri-food GPN

Fig. 2 Extra-EU exports (in million EUR)

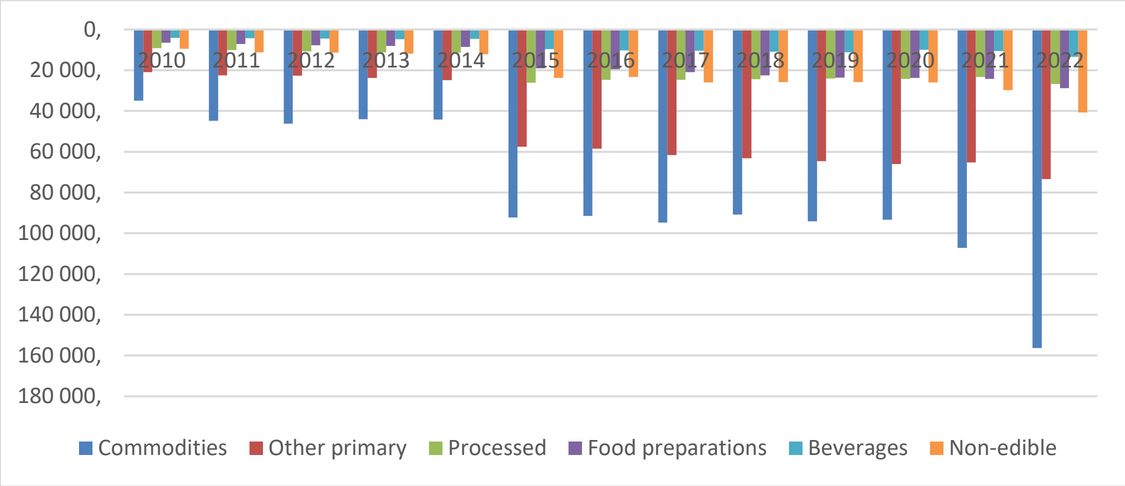


Source: Own elaboration according to European Commission DG AGRI (accessed on 20 February 2025)

For the period of 2010-2022, the EU has become more active in the agri-food GPN. Based on the data from EU's Market Orientation, the EU's agri-food export activities with external parties are increasing in all sub-sectors from 2015 to 2022, with more than 40% increase in total, using the export number in 2015 as the base. Specifically, sub-sectors "other primary", "processed", and "food preparation" enjoyed a steady increase over the years without any reduction in export activities.

The highest increase is enjoyed by "food preparations" sector, amounting to 57.68% increase from 2015 to 2022. Meanwhile, sub-sector "commodities" experienced a slight decrease in 2016-2018 then took off in 2019-2022, and sub-sectors "beverages" and "non-edible" had been fluctuating in steady, positive trends.

Fig. 3 Extra-EU imports (in millin EUR)

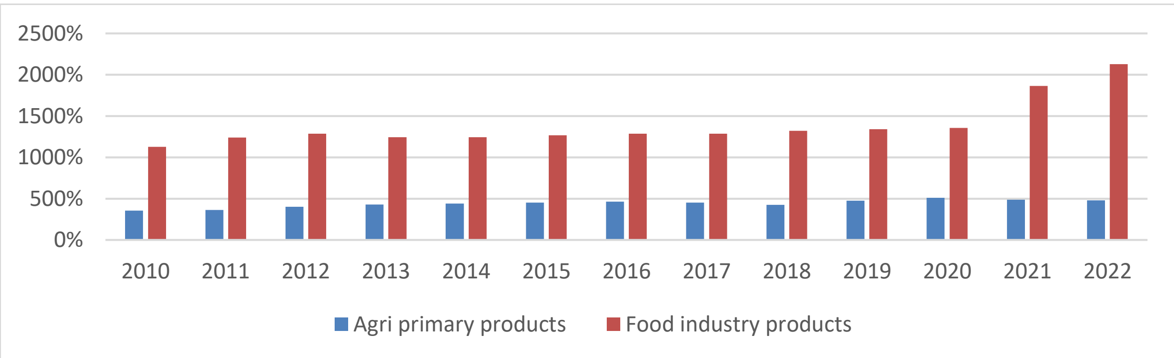


Source: Own elaboration according to European Commission DG AGRI (accessed on 20 February 2025)

Meanwhile, imports into the EU from non-EU countries are also seeing an increasing trend. The increase reached 48% from 2015 to 2022. Like the exports counterpart, EU imports, in general, experienced an increase across all sub-sectors. The difference, however, none of the sub-sectors experienced a steady increase, but all sub-sectors were fluctuating. The two sub-sectors that underwent the most increase are "commodities" and "non-edible". "Commodities" from extra-EU saw an increase of 69,32% from 2015 to 2022; and "non-edible" experienced an increase of 71.62% in the same period. There was an especially high increase of "non-edible" import from 2021 to 2022.

Both data above showed the apparent increase in agri-food trade between the EU and the rest of the world. Compared to other data regarding the exports in EU production value, it is also confirmed that the increase in exports comes from the food industry rather than primary agricultural products. Looking at the charts stated at Figure 2, 3, and 4 alone, there is an alleged scenario where food processing firms in the EU actively participated in the agri-food GPN by importing commodities and exporting them to other countries in the form of processed items.

Fig. 4 Exports in EU production value (%)



Source: Own elaboration according to European Commission DG AGRI (accessed on 20 February 2025)

3.2 The minimum support for short supply chain

Previous findings show that in 2015-2022, the EU increased its activity in agri-food GPN through food processing export, after the transfer of budget from the decoupled direct payment into eco-schemes measures. The eco-schemes measure is one of the attempts by the EU to fulfil its commitment to Green Deal, which then translates into increasing farmers' performance measures to access the CAP subsidy. This experience was mentioned by most of the respondents, signifying the transition from the decoupled payment before eco-schemes and after.

"Even though at EU level the, the call is always for more, for further simplification. There are many areas where this was not really achieved, in our opinion, cause the burden has always been on the increase…" (Maltese paying agency bureaucrat)

The need by farmers for CAP subsidy is often mentioned referring to small farmers to ensure their cashflow. However, the burden of bureaucracy seems to have driven a lot of farmers not to take on the subsidy. Out of 55.000 farmers in the Netherlands, 11.000 farmers chose not to get CAP subsidies to avoid the "red tape" that comes with it, and the Czech paying agency bureaucrat also gave the experience of farmers not willing to go through the bureaucracy and opted out of the subsidy.

These findings give an explanation of how the eco-scheme measures behave towards the farmers. By the increase of bureaucratic burdens on farmers, the CAP through eco-schemes indirectly reduces support for certain farmers. Reducing support for farmers is not only by putting more administrative bureaucracy on almost 30% of the decoupled income support, but also by minimum support towards farmers to establish business with short supply chain.

The minimum support by CAP towards a shorter value chain is apparent when the respondents were asked whether farmers are supported to conduct their own sales to consumers directly. The respondents noted the entrepreneurial activities that farmers do include opening small grocery, shops or cafes, participating at farmers' markets, and eco-tourism. The respondents also acknowledged that shorter value chains are better for the farmers, however, most participants do not think that the CAP subsidy has supported any of these activities. Another instance is regarding the CAP budget for farmers' promotion activities, where the respondents gave mixed answers about the utilization of this funding. Some member states acknowledged to having a small amount of promotion budget, but some said it is not permitted.

"Maybe something like an open farm where, you know, you have small animals and, you know, children go for birthday parties and, you know, kind of like an open zoo type thing. No, there, there may be small grants available. But not from CAP." (Irish paying agency bureaucrat)

3.3 The CAP subsidy that prioritizes producer organizations (POs) over farmers

The CAP after the introduction of eco-schemes has conditioned the agri-food sector in the EU to be a longer value chain with intermediaries. Intermediaries can be either big suppliers or producer organizations (POs). In the case of EU, POs have become more important in the EU's agri-food value chain. PO is an entity where farmers collaborate and pool together their capital, both physical and social, to help them in "the manufacturing and trading side of the food supply chain" (European Commission, 2025). POs are recognized by the CAP and are mostly given subsidies through industrial agriculture activities such as freezing, packaging, and logistics. Producer organizations are seen as the key players in supporting this objective, not only to facilitate the food processing activities, but also to negotiate better prices with the retailers.

"… we finance, we provide support to producer organization and association of producer organization that regroup that put together producers, different producers. So that they can negotiate in a bigger number with these big, big players on the globe, at the global level… they have a plan to do some investment in you know for example if it's a fresh products like salad or they need friger, frigidares, or some freezing or you know, packaging, freezer, packaging or logistics." (Italian paying agency bureaucrat)

This reality shows that farmers are still dependent on POs or other intermediaries. And the CAP's focus on giving extensive support to producer organizations is the driver of increasing GPN participation in the EU. This rationale is in line with the reality that there is a reduction of support to farmers, because the support of CAP is now directed to the producer organizations (POs). The priority of CAP is then towards longer value chain by support to producer organizations, not towards farmers nor shorter value chains.

"…the bigger and the more you can work via producers organization, the less you need direct support (for farmers)." (Belgian-Flanders paying agency bureaucrat)

This reality shows that farmers are still dependent on POs or other intermediaries. And the CAP's focus on giving extensive support to producer organizations is the driver of increasing GPN participation in the EU. This rationale is in line with the reality that there is a reduction of support to farmers, because the support of CAP is now directed to the producer organizations (POs). The priority of CAP is then towards longer value chain by support to producer organizations, not towards farmers nor shorter value chains.

"Because we didn't have enough producer organizations so, so it was a choice between other direct payment and subsidies for producer organizations." (Belgian-Wallonia paying agency bureaucrat)

There are two instances where farmers do not engage in producer organizations: farmers for niche products and animal farmers. Farmers for niche products (such as a Belgian farmer producing organic Hokkaido pumpkin and a Dutch farmer producing a certain type of cherry tomato) prefer to conduct their business activities by themselves and can negotiate with retail sector independently.

Meanwhile, member states with strong animal farming sectors often could not give clear answer as to why their farmers do not establish producer organizations. One paying agency bureaucrat said it's due to the older generation's mentality, another claimed it is cultural, meanwhile, others could not come up with any answer. In general, there seems to be a pushback against animal farmers not to establish producer organizations, despite POs being important intermediaries in the EU's agri-food sector.

The different treatment between animal farmers and fruit & vegetable farmers is also visible in the different understanding regarding POs amongst the EU members. Respondents from member states with strong animal farming differentiate POs from cooperative companies and refer to PO as nonprofit organization of farmers. Meanwhile, coming from another region that has a strong fruit & vegetable sector, the respondent claimed that POs are basically private, profitable companies that also claims CAP subsidy.

"Well, I think the producer organizations, they can receive a subsidy, but that's, we only have the produce organisations within the vegetable

sector… I think we only have two producer organizations in Denmark. And that's, I think, I think it's because we, we do not see the cooperatives within the vegetable sector as we do in the pork sector and the dairy sector." (Danish paying agency bureaucrat)

"We have, we have, there are support schemes towards producer organizations, but that is, I think, it's for fruit and vegetables only, really." (Swedish paying agency bureaucrat)

One example is in the case of Denmark, with a strong pork farming. The pork farmers' cooperative comprised of a lot of pork farmers in Denmark and has become a global player that export to various countries. Despite the pooling of farmers into one entity, this cooperative is not functioning as a producer organization and cannot ask for the CAP subsidy. Instead, Denmark only has producer organizations in the vegetable sector, even though that is not their most competitive product.

To investigate the impact between the eco-schemes towards the EU's participation into the agri-food global production network (GPN) in the form of processed food, this paper does correlation analysis. To fulfill the required minimum number of data for regression analysis, this paper uses the data on decoupled payment (excluding eco-schemes) from 2010-2022 as the independent variable and the EU's export of processed products from 2010-2022 as the dependent variable. The data showed a strong correlation of -0.84, meaning that the reduction of decoupled income support by eco-schemes led to the increased export of processed food / longer value chain products.

Fig. 5 Regression analysis on Pillar I Direct Payment (decoupled, excl. eco-schemes) subsidy and processed food exports

Correlation

	Pillar I Direct payment (decoupled) (excl. eco-schemes)	*Processed*
Pillar I Direct payment (decoupled) (excl. eco-schemes)	1	
Processed	-0.844728879	1

Regression Statistics	
Multiple R	0.844728879
R Square	0.713566879
Adjusted R Square	0.687527505
Standard Error	14176.31136
Observations	13

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	5507197110	5507197110	27.40338	0.000279043
Residual	11	2210645841	200967803.7		
Total	12	7717842950			

	Coefficients	Standard Error	t Stat	P-value
Intercept	152041.4559	18390.22209	8.267516028	4.77E-06
Pillar I Direct payment (decoupled) (excl. Greening)	-3386.371679	646.8931556	-5.234823787	0.000279

Source: own processing

By the negative correlation of decoupled payment without eco-schemes to the processed food export, the deduction to answer the research question: the introduction of eco-schemes in the CAP subsidy promoted the EU's participation in agri-food GPN through increasing producer organizations (POs)'s capacity in processed food sector by industrializing the farming activity.

"...so the CAP is not supporting the farmer, the CAP is supporting the food processors." (Dutch paying agency bureaucrat)

CONCLUSION

The paper's main purpose was to show how the Common Agricultural Policy (CAP) after the eco-schemes contributed to the EU's participation in the agri-food global production network (GPN) through processed food products. By the performance measures of the decoupled payment, CAP eco-schemes conditioned the agri-food sector to move to a longer value chain activity. On the political level, CAP states increasing farmers' position in the value chain is one of its objectives; however, the CAP after eco-schemes is implemented to support business activities that are for longer value chains.

The coupling strategy of the EU through CAP eco-schemes translates into reducing support for farmers and instead to direct the support towards producer organizations (POs). POs have gained very crucial position among EU countries to facilitate the farmers' integration into the GPN, and these actors are funded by the CAP funding to facilitate the upgrading through incorporating technology and industrialization of agri-food. There is, however, different treatment on POs amongst the EU member states, depending on their farming type. POs seem to be prioritized towards fruit & vegetable produce, meanwhile, animal farming POs are less available.

These findings answered the question of how the CAP eco-schemes measures promote the EU's participation in agri-food GPN. The CAP's funding after eco-schemes prioritized supporting POs in fruit & vegetable produce and this resulted in the increased food processing activity of that sector. The result is seen from the strong statistical correlation between lowering decoupled basic income support for farmers and a steady increase in processed food exports. Despite the findings, however, the paper still has limitations due to the available data on processed food export that does not differentiate between animal or food & vegetable produce.

This paper serves as a beginning to a deeper analysis of the CAP using the GPN framework to find the dynamics and organization of the EU's agri-food sector. Further research needs to be done to analyse the CAP from multiple perspectives and possibly to look at the specific products and localities that received the benefits from eco-schemes measures as the EU's coupling strategies.

ACKNOWLEDGEMENT

Special thanks to all respondents who willingly gave important insights into their respective national agricultural landscape and to Prof. Hana Rezankova for the consultation on statistical analysis.

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Delivery By Drone: A Bibliometric Analysis

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https://doi.org/10.53465/CEECBE.2025.9788022552257.21-35

Abstract: The world is living in an era of rapid technological development. This rapid evolution is having a profound impact on the business world, forcing many sectors to keep pace with change. Technological innovation is essential for efficiency, sustainability and competitiveness. One of the most prominent areas in this context is drone technology. Drones are attracting attention for both military and civilian applications, and one of the most important applications is drone delivery. This innovative mode of transport is being discussed by many sectors due to the benefits it offers and the risks it poses. In this study, a bibliometric analysis method was used to explore the issue of drone delivery in more depth. For the analysis, the Scopus database was searched and the publications obtained were evaluated using bibliometric methods such as basic statistics such as distribution by years and clustering relationships between words. The data used in the study covers the years 2012-2025, which shows that drone delivery is a relatively new area of research. However, the 1038 academic publications obtained show that interest in the topic is quite high. These publications appear in a total of 538 different sources and 2780 different researchers are working on drone delivery. In addition, the rate of international collaboration among authors is 22.45%. This rate indicates significant potential for collaboration for academics wishing to conduct research on a global scale. This review is a valuable resource for both researchers and policymakers, providing important insights into the field of drone delivery. At the same time, it contributes to the literature by highlighting general trends in the drone delivery sector.

Keywords: Drone, Drone Delivery, Transportation, Scopus

JEL Classification codes: 014, 033

INTRODUCTION

There are some studies that examine the issue of drones through bibliometric analysis. One of these studies focuses on drone journalism (Pathak, 2024). Another example explores the use of drones to facilitate agricultural practices (Gokool et al., 2023). These examples show that drone technologies have the potential to be used in many different areas.

Drone technology is exciting in many ways. They offer benefits such as rapid delivery of sensitive cargo such as medicines without disrupting traffic, environmentally friendly transport with low carbon emissions, reduced costs and access to hard-to-reach areas. Another important advantage is that they can be used effectively in disaster situations. Given all these features, drone technology is expected to become more widespread in the future. In particular, developments in the field of artificial intelligence could make this technology even more interesting. This research discusses the issue of drone delivery, identifies its basic characteristics and provides a theoretical contribution to the literature.

The Bibliometrix package in the R programming language was used to process the data imported from Scopus and to obtain bibliometric indicators to visualise the scientific, thematic and research evolution in the field of drone transport. These indicators include basic statistics, the evolution of the number of scientific publications over time, the most influential journals and institutions, the most cited studies at a global level, the most used keywords and collaborative networks between countries.

This research consists of five chapters in total. The first chapter contains the literature review, the second chapter contains the explanation of the methodology, the third chapter contains the research data, the fourth chapter contains the discussion, and the fifth chapter contains the results.

1 LITERATURE REVIEW

There are very few studies that address the issue of drones using bibliometric methods. Some examples of existing studies in this area are presented below:

- With the development of e-commerce, logistics companies need to rethink last-mile delivery. In this context, a delivery model is being explored that uses a combination of trucks and drones to minimise the challenges of last-mile delivery (Madani & Ndiaye, 2022).
- One of the technologies on the sustainable agriculture agenda is drone technology (Gamage et al., 2024).
- Drones can be used to make dendrometric estimates in forests (Silva et al., 2024).
- Drone technologies are important for sustainable logistics (Ferraro et al., 2024).
- The use of Unmanned Aerial Vehicles (UAVs) is growing rapidly, but there is still a lack of scientific research in this area. In this context, the mobility of UAVs will be analysed (Purtell et al., 2024).
- The use of drones is part of a revolution in urban logistics (Pérez Carrera et al., 2024).
- Drones can be used to monitor air quality. Since 2017, there has been an increase in the number of publications on air pollution, drones and sensors. Interest in this topic has increased over the last five years. Bibliometric reviews show that sensor technology is developing rapidly (Marin et al., 2023).

In addition to the studies mentioned above, there are other bibliometric studies that focus on drones in the analysis sections of the research. (1) In a study on animal-centred unmanned vehicle systems, it was observed that the terms "drone", "UAV" and "AUV" were mentioned with almost equal frequency. This situation shows that these technologies are prominent for exploration purposes in aquatic animal-oriented studies (X. Liu et al., 2025). (2) Drone technology can also be used to map mangrove forests (Y. Wu et al., 2025). (3) Drone technologies can also be used for shallow bathymetric mapping (He et al., 2024). (4) However, the unmanned aerial vehicles that have become popular for all these applications bring with them the problem of noise, and this is an important issue that needs to be addressed (Yang et al., 2024).

2 METHODOLOGY

2.1 Bibliometric analysis

Bibliometric analysis is used to analyse the scientific and thematic development of a scientific field (Bello-Yañez et al., 2025). Bibliometric methodology is an effective way of dealing with large data sets and plays an important role in revealing the overall perspective of a field.

Thanks to this analysis, it is possible to provide a comprehensive and in-depth view of all disciplines (Donthu et al., 2021).

Bibliometric analysis includes various analyses such as the number of publications by year, the number of citations received by the publications, the institutions interested in the subject, the countries of the authors and the co-occurrence of words (Sánchez-Cañón et al., 2025). As can be seen from these examples, bibliometric analysis offers the possibility of classifying and evaluating publications numerically.

Bibliometric analysis offers the possibility to visualise and evaluate collaborations between data. For example, collaborative networks between institutions and researchers can be analysed. In addition, by identifying the most popular journals in a field, researchers can make information about these journals a valuable resource for other researchers working on the same topic. The characteristics identified for a field serve as a guide for new studies. Bibliometric analysis is becoming increasingly popular, and even consultancies can use it to gain a competitive edge in the business world (Q. Liu et al., 2025).

2.2 Obtaining data

On 02.02.2025, the Scopus database was searched using the keywords ("drone delivery" OR "delivery drone" OR "drones delivery" OR "delivery drones"). The query returned 1038 publications.

The Scopus database was used in a study that examined drone technologies from a sustainable development perspective. The study analysed 278 publications covering the years 2014-2023 (Saini & Jain, 2023). This example shows that 1038 publications are sufficient for a bibliometric study.

2.3 Research questions

Toktaş et al. (2024) examined urban logistics from an environmental perspective through bibliometric analysis. Inspired by the research questions of this study, the questions of this research were defined. These are

- RQ1: What is the current state of research on drone transport?
- RQ2: What are the approaches to drone transport?

2.4 Why Scopus database?

The Scopus database can be used in bibliometric analysis studies because it has a data model suitable for bibliometric analysis. for example, it can be seen that this database is also preferred in bibliometric analysis studies carried out by Vinueza-Naranjo et al. (2025) and Bulto et al. (2025).

2.5 Software

In this research, the Bibliometrix library of the R programming language was used. This library, developed by (Aria & Cuccurullo, 2017), is widely used in academic research. It can be seen that the Bibliometrix library is used in academic studies carried out by Afonso et al. (2025) and Jia et al. (2025).

3 RESULTS AND DISCUSSION

This section addresses questions RQ1 and RQ2 and presents the current state of drone transport research by analysing and reporting the general statistics of the reviewed articles, publication years, publication sources, supporting institutions, most cited research, most used keywords and related countries.

3.1 Basic statistics

Basic statistics are presented in Table 1. Accordingly, drone survival is a new topic. Publications on this topic started in 2012. This situation provides an opportunity for academics who want to work in this field to gain an important position in the sector. There are 1038 publications from 582 different sources. This shows that there is widespread interest in the subject. The annual growth rate of publications is 26.39 and this level shows that this research area continues to attract rapid interest. 2780 researchers have an international collaboration rate of 22.45%. In addition, the culture of collaboration in the field is high.

Tab. 1 Basic statistics

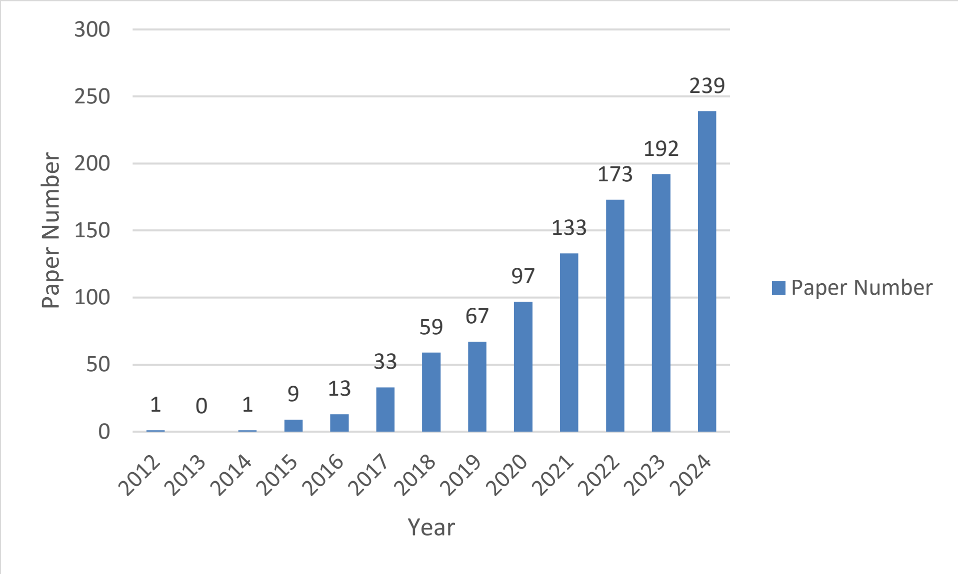
Description	**Results**	**Description**	**Results**
MAIN INFORMATION ABOUT DATA		AUTHORS	
Timespan	2012:2025	Authors	2780
Sources (Journals, Books, etc)	582	Authors of single-authored docs	66
Documents	1038	AUTHORS COLLABORATION	
Annual Growth Rate %	26.39	Single-authored docs	77
Document Average Age	3.34	Co-Authors per Doc	3.63
Average citations per doc	17.33	International co-authorships %	22.45
References	30508		
DOCUMENT CONTENTS			
Keywords Plus (ID)	5457		
Author's Keywords (DE)	2358		

Source: These data were obtained by the author using the Bibliometrix package

3.2 Number of publications per year

Figure 1 shows the annual distribution of publications on drone transport in the Scopus database. Although the history of publications on the subject is still young, it can be seen that it is developing rapidly. This situation offers important opportunities for both researchers and the drone industry. Researchers and industry representatives conducting studies on drone technologies are likely to attract interest from both the academic and business communities.

Fig. 1 Number of publications per year



Source: Scopus, 2025

3.3 Most relevant sources

Table 2 lists the sources with the highest number of publications on drone transport. The journal "Drones" stands out as the source with the most publications in this area. This journal and others on the list are also potential sources of publications for researchers interested in drone transport.

Tab. 2 Most relevant sources

Sources	**Articles**
Drones	35
Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)	27
Transportation Research Part C: Emerging Technologies	19
Expert Systems with Applications	17
IEEE Transactions on Intelligent Transportation Systems	15
Lecture Notes in Networks and Systems	14
Computers and Industrial Engineering	13
Transportation Research Part E: Logistics and Transportation Review	13
Sustainability (Switzerland)	12
ACM International Conference Proceeding Series	11

Source: These data were obtained by the author using the Bibliometrix package

3.4 Most relevant affiliations

Table 3 shows the organisations most supportive of drone transport research and the countries to which these organisations belong. Organisations in Singapore, China and the USA show a strong interest in this area. Australia and Japan also stand out alongside these countries. It is likely that these countries will take the lead in drone transport in the future and make a bigger name for themselves.

Tab. 3 Most relevant affiliations

Affiliation	Country	Articles
Nanyang Technological University	Singapore	31
Tsinghua University	China	30
National University of Singapore	Singapore	29
Purdue University	USA	23
The University of Sydney	Australia	23
Carnegie Mellon University	USA	22
Hefei University of Technology	China	19
University Of Sydney	Australia	19
Central South University	China	16
Ritsumeikan University	Japan	16

Source: These data were obtained by the author using the Bibliometrix package

3.5 Most global cited documents

Table 4 shows the most cited studies. The most cited study on drone transport examines the issue of vehicle routing. There are two other studies in this area that address this issue. Popular studies tend to focus on optimisation, innovation and efficiency.

Tab. 4 Most global cited documents

Author	Title	Total Citations	TC per Year	Normalized TC
(Dorling et al., 2017)	"Vehicle Routing Problems for Drone Delivery"	891	99.00	15.66
(D. Wu et al., 2015)	"…digital manufacturing and design innovation"	585	53.18	7.58
(Stolaroff et al., 2018)	"…gas emissions of drones for commercial package delivery"	374	46.75	7.61
(Sacramento et al., 2019)	"…vehicle routing problem with drones"	321	45.86	6.85
(Mourelo Ferrandez et al., 2016)	"Optimization of a truck-drone …"	270	27.00	8.30

Author	Title	Total Citations	TC per Year	Normalized TC
(Kitjacharoenchai et al., 2019)	"…traveling salesman problem with drones …"	264	37.71	5.63
(Poikonen et al., 2017)	"The vehicle routing problem with drones …"	252	28.00	4.43
(Chiang et al., 2019)	"Impact of drone delivery on sustainability and cost …"	242	34.57	5.16
(Kellermann et al., 2020)	"Drones for parcel and passenger transportation …"	225	37.50	8.78
(Aurambout et al., 2019)	"Last mile delivery by drones …"	209	29.86	4.46

Source: These data were obtained by the author using the Bibliometrix package

3.6 Most frequent words

Table 5 shows the 50 most frequently used words related to drone transport. When determining the frequently used words, drone-drones, delivery drone-delivery drones, "unmanned aerial vehicle-uav, unmanned aerial vehicle-uavs, internet of things-iot and drone delivery-drone deliveries" were taken as synonyms.

In addition to general concepts, there are also specific terms that shed light on the topic of drone transport. For example, last-mile delivery, optimisation, parcel delivery, routing, e-commerce, IoT, genetic algorithm, humanitarian logistics, urban air mobility, energy consumption and city logistics. These concepts are important to provide an overview of the drone transport literature and to show the areas of interest in the literature.

Tab. 5 Most frequent words

SN	Words	Occurrences	SN	Words	Occurrences
1	drone delivery	222	26	reinforcement learning	11
2	drone	195	27	transportation	11
3	unmanned aerial vehicle	154	28	blockchain	10
4	last-mile delivery	55	29	privacy	10
5	delivery drone	38	30	security	10
6	optimization	31	31	city logistics	9
7	logistics	30	32	dynamic programming	9
8	delivery	26	33	deep learning	8
9	vehicle routing problem	26	34	drone delivery service	8
10	routing	24	35	drone routing	8
11	parcel delivery	20	36	drone technology	8
12	path planning	19	37	robust optimization	8
13	e-commerce	18	38	smart cities	8

SN	Words	Occurrences	SN	Words	Occurrences
14	internet of things	17	39	variable neighborhood search	8
15	last mile delivery	16	40	artificial intelligence	7
16	genetic algorithm	15	41	autonomous drone	7
17	vehicle routing	15	42	drone delivery system	7
18	covid-19	13	43	simulation	7
19	heuristics	12	44	skyway network	7
20	humanitarian logistics	12	45	truck-drone delivery	7
21	machine learning	12	46	uas	7
22	traveling salesman problem	12	47	collision avoidance	6
23	urban air mobility	12	48	deep reinforcement learning	6
24	energy consumption	11	49	drone routing problem	6
25	quadcopter	11	50	drone service	6

Source: These data were obtained by the author using the Bibliometrix package

3.7 Collaboration network

Table 6 shows the results of the collaboration network analysis by country. In this analysis the following values were used: network layout "automatic layout", clustering algorithm "walktrap", normalisation "association", number of nodes "50", repulsion force "0.1", remove isolated nodes "yes", minimum number of edges "1".

According to the country cooperation network analysis, the most influential country is the USA. The second most influential country is China and the third is Korea. The three most influential countries are in cluster two. The other members of this cluster are Japan, Singapore, Canada, Hong Kong, Thailand and Mozambique.

Group 7 is also noteworthy. This group is headed by India, the United Kingdom and Germany. They are followed by the Netherlands, the United Arab Emirates, Turkey, Finland and Austria.

Ghana, Ireland, Egypt, Colombia and Rwanda formed a separate group and did not interact with other countries.

Tab. 6 Collaboration network

Node	Cluster	Betweenness	Closeness	PageRank	Node	Cluster	Betweenness	Closeness	PageRank
Saudi Arabia	1	60.229	0.012	0.027	Germany	7	20.498	0.012	0.031
Tunisia	1	7.505	0.01	0.018	Netherlands	7	5.962	0.012	0.022

Node	Cluster	Betweenness	Closeness	PageRank	Node	Cluster	Betweenness	Closeness	PageRank
Jordan	1	0	0.01	0.008	United Arab Emirates	7	2.377	0.012	0.016
USA	2	428.994	0.017	0.148	Turkiye	7	0	0.01	0.018
China	2	93.873	0.014	0.084	Finland	7	0.528	0.011	0.013
Korea	2	12.948	0.012	0.033	Austria	7	0.064	0.009	0.007
Japan	2	0.239	0.009	0.007	Malaysia	8	9.27	0.011	0.018
Singapore	2	9.475	0.011	0.04	Indonesia	8	0.237	0.01	0.009
Canada	2	60.646	0.013	0.038	Pakistan	8	4.553	0.011	0.014
Hong Kong	2	12.966	0.012	0.027	Italy	9	115.575	0.014	0.05
Thailand	2	0.024	0.011	0.017	Australia	9	49.192	0.013	0.029
Mozambique	2	0	0.01	0.006	Brazil	9	0.628	0.01	0.011
Switzerland	3	5.538	0.01	0.015	France	9	16.191	0.012	0.026
South Africa	3	4.3	0.011	0.012	Iran	9	0.056	0.011	0.01
Czech Republic	3	0.561	0.009	0.01	Portugal	9	8.663	0.012	0.018
Hungary	4	4.489	0.009	0.011	Sweden	10	0.849	0.011	0.012
Slovakia	4	1.449	0.009	0.007	Poland	10	3.025	0.01	0.013
Greece	5	9.168	0.01	0.015	Qatar	10	0.193	0.01	0.007
New Zealand	5	0.354	0.009	0.006	Ghana	11	0	0.01	0.006
Spain	6	1.948	0.011	0.012	Ireland	12	9.278	0.009	0.011
Belgium	6	1.025	0.01	0.012	Colombia	13	0	0.008	0.005
India	7	97.808	0.013	0.035	Egypt	14	2.68	0.008	0.01
United Kingdom	7	79.644	0.014	0.054	Rwanda	15	0	0.008	0.005

Source: These data were obtained by the author using the Bibliometrix package

In this section, the literature is reviewed in relation to the most frequently used words in the publications on drone transport in Table 5 and Table 6. As a result of the review, the trends identified in the literature are discussed.

Drone technologies can be used in many different areas. Another important issue surrounding drone technology is safety. Examples of these applications are presented below:

- Drone technologies can be used in many different areas:

  - Drone technology can be used to study air pollution (Liao & Kim, 2024).
  - Artificial intelligence and drone technology could revolutionise farming (Slimani et al., 2024).
  - The use of drones offers significant benefits in modern agriculture. It promotes environmentally friendly practices, increases productivity and contributes to sustainable food production (Patil et al., 2024).
  - The global agricultural drone market is expected to be worth $5.7 billion in 2025 (Chandel et al., 2024).
  - Landslide mapping is an important application that can benefit from drone technologies to monitor and analyse landslides (Ilinca & Şandric, 2025).
  - Drones, big data and artificial intelligence will be crucial in future urban firefighting applications (Song & Xu, 2023).
  - Drones can be used in natural disasters, for example to monitor flooding (Iqbal et al., 2023).
  - The use of drones in emergency medical services offers significant opportunities (Pulsiri & Vatananan-Thesenvitz, 2021).
- Drone technology has also brought with it some risks.
  - Cybersecurity procedures and legislation are very important in drone technologies (Bhattacharya et al., 2023).
  - This is why scientists need to continue to discuss the risks of drone use (Tubis et al., 2024):
    - Drone technologies should be assessed in separate military and civilian categories.
    - Risk assessment methodologies for drone technologies should be identified.
- Countries in publications on drones:
  - The countries with the highest number of publications on the relationship between drones and the environment are the US, China and the UK (Suryani et al., 2023).
  - In Malaysia, drone technology is mainly used in agriculture and mapping (Gohari et al., 2023).

According to the literature, drone technologies have the potential to be used in many areas. Examples include air pollution monitoring, agriculture, firefighting, urban logistics, e-commerce logistics, last-mile delivery and mapping. However, there are risks associated with the use of drones that need to be further investigated by scientists. In this context, drone technologies should be evaluated in two separate categories: military and civil. It is also important to develop appropriate policies to address the risks of drones. As in this study, the US and China are among the most prominent countries in various drone studies.

CONCLUSION

Drone technologies are being used in many areas. Interest in these technologies is growing due to their speed, efficiency, cost advantage, environmental impact, accessibility and future potential. Due to the importance of the topic, this study examines drone transport using a bibliometric analysis method. This study reveals the basic dynamics of the drone transport literature and makes a theoretical contribution to the literature.

This research seeks to answer questions RQ1 and RQ2. Accordingly:

RQ1: Although the literature on drone transport is still new, it is developing rapidly. The 1,038 publications obtained from the Scopus database are included in 582 different sources, indicating that the topic is attracting widespread interest. There are 2,780 researchers working in the field of drone transport and the rate of international collaboration is 22.45%. Research on the topic started with only one publication in 2012, but has shown a remarkable increase, reaching 239 publications in 2024. The general trend shows that the topic is attracting more and more attention. The journal "Drones" is the source of most publications and "Nanyang Technological University" in Singapore stands out as the institution supporting the most publications.

RQ2: In the analysis of drone transport, in addition to general concepts, some terms specific to the field attract attention. For example, last mile delivery, optimisation, package delivery, routing, e-commerce, IoT, genetic algorithm, humanitarian logistics, urban air mobility, energy consumption and urban logistics. These terms are very important to provide an overview of the literature on drone transport and to show the areas of interest in the literature. According to the country analysis, the USA, China and Korea stand out. These countries and others that stand out for their research have the potential to have a say in the drone transport sector.

This research shows that although the topic of drone transport is new, it has attracted a great deal of interest. The literature on drone transport is closely related to e-commerce, urban logistics and last-mile delivery. Technologies such as artificial intelligence and IoT are frequently mentioned in the literature. Drone transport offers important opportunities in current discussions on the economic agenda, such as sustainability, efficiency and energy.

In disaster logistics, drone technologies are essential to reach inaccessible areas and deliver products without getting stuck in city traffic. E-commerce is growing by the day, and drones are on the agenda as an interesting option for last mile delivery. In addition, drones offer an important alternative in terms of sustainable living, energy efficiency and cost reduction.

In this study, only the Scopus database was used because it provides sufficient data for bibliometric analysis. However, the research can be updated by collecting data from different databases. In addition, the focus of the research can be changed by changing the keywords used to search for publications. Finally, the content of the research can be enriched by using different bibliometric analysis methods.

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Bean-to-Bar or How to Combine Sustainability and Creativity: The Example of an Iconic Austrian Chocolate Manufacturer

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https://doi.org/10.53465/CEECBE.2025.9788022552257.36-49

Abstract: Bean-to-bar is a movement born in San Francisco (USA) in the first decade of the 2000s. For the chocolate industry, it is a kind of modern re-interpretation of the ancestral craftsmanship of the chocolatier-torréfacteur, who controlled the whole production process from the bean to the bar. The Austrian chocolate manufacturer and family business Zotter, established in 1999 in Bergl, in the region of Styria in southern Austria, is equally committed to the bean-to-bar concept. The purpose of this paper is to investigate Josef Zotter's bean-to-bar philosophy and to understand the firm's founder's reasons for distancing himself from certain conventional sustainability certification schemes. The method is a case study following the principle of theoretical sampling, combined with a socio-semiotic study of the narratives of the company. The most significant findings concern the way that Zotter's model successfully combines sustainability and creativity issues, and how the company's commitment to sustainability outperforms traditional certification standards.

Keywords: Bean-to-bar, Certifications, Cacao, Craft Chocolate, Fairtrade, Sustainability

JEL Classification codes: L66, M31, Q01

INTRODUCTION

The emergence of bean-to-bar chocolate (also called „craft chocolate", or „small batch chocolate") is linked to a movement born in San Francisco (USA) in the first decade of the 2000s (Gallo et al., 2018). For the chocolate industry, it is a kind of modern re-interpretation of the ancestral craftsmanship of the chocolatier-torréfacteur, who controlled the whole production process from the bean to the bar. Starting in the 16th century, chocolate manufacturing began to develop in Europe, first in Spain, then in England, France and Switzerland. The beans were imported from the New World, and all processing was carried out by small-scale craftsmen, located as close as possible to the consumer (Ma ville en Chocolat). The industrial era contributed considerably to the emergence of a chocolate industry, accompanied by specialization and the appearance of new cocoa professions like traders, grinders and cover-makers (ibid.). Between the 19th and the 20th centuries, the chocolate industry was reorganized in such a way that the consumer had little or no contact with chocolatiers-torréfacteurs (ibid.).

The bean-to-bar sector, representing 4% of the global chocolate production industry (Boegman et al., 2023), is striving to reverse this trend. It is driven by the emergence of new consumers who are keen on organic, short-distance, Fairtrade and slow-food products, and who appreciate quality food with a supposed positive impact on health and environment (Ma ville en Chocolat). Conventional chocolate, particularly white chocolate, but also milk chocolate, is often accused of being too high in fat (saturated fats), increasing the risk of cardiovascular diseases, obesity and metabolic disorders, but it is also criticised for containing too much sugar (Kommander, 2017). The widespread use of palm oil in lower-quality mass chocolate production (less expensive than cocoa butter) is blamed for extensive deforestation and considered one of the causes of climate disruption (Hutabarat et al., 2019).

In this context, bean-to-bar has become a synonym for high-quality and tasty chocolate made from fine cacao, often associated with fairly or directly traded products, focused on complete supply chain transparency (Bean-To-Bar World). This means that during the bean-to-bar production process, manufacturers control all stages from the acquisition of the cocoa beans for the fabrication of cocoa mass, to the obtention of the final chocolate bar (Kolaritsch, 2010; Kommander, ibid.p. 22; Provasnek, 2015).

The chocolate manufacturer and family business Zotter, established 1999 in Riegersburg/Bergl, in the province of Styria, in the southern part of Austria, is committed to the bean-to-bar concept, in processing everything in-house, from the first step to the last, making the company „one of the very few bean-to-bar producers in Europe" (Zotter Austria; Zotter, 2010; Gutmann et al., 2020). In 1992, Zotter introduced the principle of layers of different ingredients to a single chocolate bar (Zotter.at; Zotter & Lintschinger, 2006; Zotter, 2010), but in 1996 the company went bankrupt and Zotter reorganized his business within three years (Zotter & Wildner, ibid.). The company expanded to the United States, with an importer and distributor in Florida, and to Shanghai with a Zotter Chocolate Theatre, where people can create their own candy and sample chocolates (zotter.cn; Brix, 2015; Köppl, 2017). Today, Zotter employs around 220 people, has a production volume of about 1000 tonnes of chocolate per year, and a turnover of 29 million euros (Zotter).

Several prizes recognized the long-lasting sustainability efforts of the company (Kolaritsch, 2010; Freiberger, 2014; Provasnek, ibid.; Köppl, ibid.). But Zotter is also famous for its original product innovations accompanied by artistic packaging (Zotter, 2010).

The present paper will explore the most important sustainability goals of Zotter's bean-to-bar model and investigate sustainability and creativity issues in product innovation and packaging.

It will further explain Josef Zotter's stated reasons for distancing himself from certain conventional certification schemes. To facilitate reading, the German and French quotations are directly translated into English.

The research questions are:

- What are the sustainability and creativity issues of Zotter's *bean-to-bar* model?
- What are Josef Zotter's reasons for distancing himself from certain conventional certification schemes?

1 LITERATURE REVIEW

1.1 Certification schemes and their limits

The pressure of different stakeholder groups like „consumer organizations, environmental advocacy groups, policymakers, etc." on food industries and retailers is growing „to assess and improve the ecological and social performance of their food supply chains" (Lalwani et al., 2018; p. 3994; see also Cadby et al., 2021 and Boegman et al., 2023). Responsible cacao cultivation is therefore crucial to guarantee consumers that they are buying and consuming products without any risk (Long, 2008). The cocoa supply chain is made up of „an extensive network of actors, the majority of which are invisible to consumers" (Lalwani et al., 2018; p. 3994). Political instability, unacceptable working conditions, low income of farmers, child labour and child trafficking on cacao plantations, climate change, deforestation, disappearance of farmland, pests and diseases, and the presence of heavy metals in cacao beans constitute incalculable risks for a sustainable value chain. Food suppliers therefore have to prove to buyers that their products come from supply chains that are „socially equitable and environmentally sustainable" (Lock & Alexander, 2023; p. 692). A truly sustainable supply chain can only be established when industry and cacao providers work together in partnerships and can trust each other (Lalwani et al., 2018; p. 3995, referring to Long, 2008). Regardless of criticism, certifications seem to remain the most adapted method of „approaching sustainability" (Lalwani et al., 2018; p. 3995). In focusing on the three certification schemes, Fairtrade, Rainforest Alliance, and Organic, Krumbiegel and Tillie (2024) develop a scale that incorporates dimensions of „agroforestry, soil conservation, pest and disease management and farm sanitation" (ibid, p. 1).

Sustainability certification may be positive for certain farmers, but provides no benefit, or may even have a negative impact on others (Oberlack et al., 2023; p. 3). In Peru, for example, certification is more widespread among large, agro-industrial farms (13-21% in 2018) than among small family farms (0.7-0.9% in 2018) because of „low levels of interest and awareness" of small-scale farmers, and „lack of education, ability to invest land, land titling" etc. (Oberlack et al., 2023; p. 3; referring to Brandi et al., 2015; Hutabarat et al., 2019; Elder et al., 2021). Female cacao farmers in the Ivory Coast and Ghana participate less in certification schemes, perhaps due to limited access to information or networks (Krumbiegel et al., 2024; p. 8). The joint participation of farmers in both, certification schemes and farmer cooperatives, is associated with a significantly higher sustainability score.

Increased production and the quest for certification can lead smallholders to establish themselves in forest frontier areas, thereby illegally contributing to more deforestation [which has been growing continuously since 2000], ecological degradation and economic instability (Lock & Alexander 2023; p. 691). Farmers are looking for cheap forestland in freshly cleared areas of tropical forest, where they find natural shade and relative soil fertility, but the benefits disappear within 20-25 years, leaving room for pests, plagues, and depleted soils (ibid.) The two largest cacao-producing provinces, both with large Fairtrade and Organic certified exporters, have among the highest rates of deforestation in the region that was studied in Peru (ibid.,p. 703).

A key obstacle for certifications may be the cost of certification and certified production, or a lack of compensation of farmers by price premiums (Oberlack 2023; p. 3). The „oversupply" of certified agricultural products compels farmers to sell their certified products on the general market, thereby compromising the price premium they could otherwise charge (Krumbiegel et al., 2024, p. 10, see also De Janvry et al., 2015). The proliferation of certification labels can likewise put pressure on producer organizations to strive for the obtention of multiple certifications, the impact of which is often limited. The structure of the value chain may equally be an obstacle to the well-being impacts of certifications, if producers depend on only a few buyers, or unstable supply chain relations (Oberlack, 2023, p. 4; see also Bray & Neilson, 2017; Elder et al., 2021).

Another problem may be the limited effectiveness of certain assessments because of a lack of transparency, or „accountability and context-sensitivity of auditing procedures", or by manipulation of auditing processes by „producers, producer organizations and exporters" (Oberlack et al., 2023; p. 4). Some researchers (Boegman et al., 2023; p. 9) deplore a lack of standardized definitions in the sector. Craft chocolate makers often reject sustainability certifications because they believe „that direct trade is preferable and a sustainability certification would dilute their brand" (Brown et al., 2020; p. 3).

1.2 Bean-to-bar, a business model dedicated to sustainability issues

Cacao production takes place in the Global South, whereas chocolate consumption mostly occurs in the Global North, where consumers are increasingly demanding information about what they eat, who produced the cacao and how (Schaltegger et al., 2016; Cadby et al., 2021). Certain consumers have become aware of the negative impacts of mass chocolate production, and are willing to pay more for high-quality chocolate, ethical commitment and sustainability initiatives (Schrobback et al., 2023).

In the last few decades, different types of innovative business models have emerged, like the so-called sustainable business model adopted by firms looking for „long-term social and environmental sustainability" (Gallo et al., 2018; p. 905). This type of business model is particularly valuable in regions like West Africa that are still struggling to overcome numerous challenges, such as poor infrastructure or fluctuating cacao prices. Bean-to-bar has its place in this context, because this model provides innovative solutions concerning, for example, „income inequality between chocolate markets and cacao farmers" (Gallo et al., 2018; p. 908).

Bean-to-bar has become an industry in its own, a „small-scale production of superior chocolate products" (Cadby et al. 2021, p.1) based on a „values-driven" business model, differentiating itself from the bulk chocolate model (Boegman et al., 2023; see also Gallo et al., 2018; Woolley et al., 2021). Bean-to-bar chocolate companies emphasize ethical and moral issues as motivating factors for their transparency efforts. Virtuous values (equity, sustainability) are considered more important than money (Boegman et al., 2023; p. 7). However, Boegman et al. (2023) found that sustainability-conscious consumers often buy bean-to-bar chocolate for reasons other than transparency such as better taste.

Craft chocolate producers see themselves as „the drivers of their own corporate transparency, but also the primary source of education of consumers" (Boegman et al., 2023; p. 9). Cacao origin location, „arguably the most basic kind of information", is the data most frequently shared with consumers (ibid.). Manufacturers intend to meet consumers' expectations by offering a high level of transparency, particularly through three fields of information: traceability, transaction and ecological and social impact (Boegman et al., 2023; p. 3). Traceability ranges from cacao origin indication (country, community, farmer cooperative or precise farm), usually of great interest to consumers, up to farm relationship, in sharing details about the farm, the cooperation with cacao growers, etc. (ibid., p. 4). Transaction information (like about different prices) is generally less frequently shared, justified by the bean-to-bar makers by a lack of data and a supposed fear of overwhelming consumers (ibid., p. 4). They essentially communicate about the high amount they pay for their best-quality cacao beans, thereby justifying the relatively high price of their products. Ecological impact information frequently concerns agricultural practices that neutralise ecological damage (71%), and social impact is illustrated by development projects, mostly farmer business investments (57%) (ibid., 5). Craft chocolate processors employ a variety of digital and analogue communication channels to convey information to consumers: social media (80%), websites (79%), packaging (66%), QR codes, blockchain, word of mouth (57%), transparency reports (much more popular among larger companies), and external certifications (45%) (Boegman et al., 2023; p. 4).

2 METHODOLOGY

This research is a case study of the Austrian bean-to-bar chocolate manufacturer Zotter, following the principle of theoretical sampling (Eisenhardt & Graebner, 2007; Yin, 2009), combined with a socio-semiotic investigation of the narratives of the company (Bartel & Garud, 2009). The study was carried out between November 2024 and February 2025.

The first step of the research was a general familiarisation with the global cocoa sector and its current challenges and threats, followed by collecting and analysing information about the chocolatier Zotter and the operational process of the bean-to-bar model. Academic articles provided more detailed and also critical information about sustainable social and environmental practices, and the (sometimes questionable) benefits of sustainability certification schemes. A variety of sources like firm websites, blogs, social media platforms, YouTube videos and recorded interviews, archival data, press articles, press release reports, and industry-related articles provided numerous insights.

A certain number of (older) publications by the firm founder Josef Zotter himself, often authored in cooperation with other company managers, provided precious insights into Zotter's chocolate innovation and firm philosophy. To give a few examples of these books (only published in German), there are (in chronological order): „Schokol'art: das Buch zur Schokolade" (2004), a cooperation with Zotter's wife and his Art Director A.H. Gratze; or, a very personal portrait of Zotter and the origin of his chocolate creations, including some recipes around chocolate: „Schokolade: die süssen Seiten des Lebens" (Zotter & Lintschinger, 2006), where the company founder takes the reader with him to visit one of the cacao plantations in Latin America, and where he explains the importance of a sustainable and responsible business. In „Innovationsherd der Schokoladenwelt. Über das Spriessen und Gedeihen meiner Schokoladenvisionen und ihrer Wurzeln" (Zotter, 2010), Zotter describes his path from farmer's son to top chocolatier. „Kopfstand mit frischen Fischen: mein Weg aus der Krise" (Zotter & Wildner, 2012) explains to the reader how Zotter overcame his professional crisis after his bankruptcy. The most recent publication, a book entitled „Eine neue Wirtschaft. Zurück zum Sinn" (2020), authored with the founder of the Austrian sustainable food company Sonnentor, Johannes Gutmann, and the investment banker Robert Rogner, considers how to align economic mechanisms with broader societal values.

Additionally, some Austrian master´s theses have examined the topic, mostly academic work completed at the University of Graz, the capital of the region of Styria, where Zotter's head office is located. They deal with management goals like CSR (Corporate Social Responsibility) commitments of Austrian companies, including Zotter (Kolaritsch, 2010), Zotter's decision to open a subsidiary in Shanghai (Brix, 2015), general management decisions of the firm (Köppl, 2017), an energy analysis of the company (Freiberger, 2014), scientific outcomes of chocolate like the analysis of raw material of Zotter chocolates (Provasnek, 2015), and a study about the physical qualities of chocolate, combined with a visit to the company headquarters (Kommander, 2017).

No academic journal publication could be found, in spite of enquiries at the Austrian National Library in Vienna.

As part of this research, Zotter was contacted in February 2025 by e-mail to request online interviews with some company managers, but because of time constraints, semi-structured interviews could not be carried out. One of the company managers did, however, offer to answer a list of written questions. A rather exhaustive questionnaire (about 50 questions) divided into different topics was sent to the company and then distributed internally to different managers according to their responsibilities.

Tab. 1 Company questionnaire (about 50 questions, February 2025)

Topics	**Details**
Bean-to-bar	Definition of bean-to-bar and its introduction by Zotter, and other Austrian or international bean-to-bar manufacturers.
Sustainability certifications/logos	Conditions for bearing the bean-to-bar seal, Fair Trade, Fair logo, WFTO (World Fair Trade Organisation), Mass Balance.
High-quality cacao bean countries of origin	Why do they mention certain countries of origin for their cocoa, but not the Ivory Coast? How do they find high-quality cocoa growers? The case of Belize, and transport by ship, „Labooko" origin chocolate, the consumer as a chocolate connoisseur, Zotter's personal visits to cocoa farmers.
Creativity and sustainability	Factors of sustainability and creativity in chocolate innovations, particularly „hand-scooped" chocolates.
Chocolate wrappers and their messages	Creative, artistic packaging, chocolate messages, sustainability and art.
Relationship with the final consumer	Distribution points, targets/consumers.

Source: own processing

The written answers to the questionnaire were returned by e-mail. They figure in the article anonymously, without differentiating the authors, under the name Zotter (in brackets).

Zotter's headquarters are in Austria, and all products except chocolates mixed by the visitors themselves are manufactured at the company's headquarters in Austria. The independent American importer has its own, self-designed website, whereas the „Chocolate Theatre Shanghai" and the Zotter shop in Shanghai, originally managed by Zotter's daughter Julia, are managed directly from the company headquarters in Styria. In this paper, the Austrian Zotter website is indicated in brackets as Zotter.at whereas the American importer is mentioned as Zotterusa, and the Chinese factory as Zotter.cn (in brackets).

3 RESULTS AND DISCUSSION

3.1 Bean-to-bar, sustainability, Mass Balance and certifications

Zotter has been focusing on sustainability since the early years of the chocolate factory's existence, and in 2004, it switched the entire product line to Fairtrade. In 2006, the range was converted to organic, in order to have more control over the production process (Zotter), and in 2007, the bean-to-bar plant opened. In this way, the company controls formulation and production itself, which makes it entirely independent (Zotter). In 2009 Zotter initiated the 'Bad Blumau Manifesto for Sustainable Management'. Numerous certifications followed, such as ISO 14001 and EMAS (Eco-Management and Audit Scheme) certification in 2014, which analysed the sustainability measures of the whole company. In 2018, the firm won the Energy Globe Styria Award, and some weeks later, the Energy Globe Austria Award. In the same year, Zotter renounced the conventional Fairtrade seal and started applying its own fair 'hand sign' to packaging. The decision to use this independent logo has been made to demonstrate that the firm goes further than the commonly used Fairtrade seal: Zotter pays its suppliers several times more than the world market price for raw materials, closely knows the suppliers themselves, and practices physical traceability (Zotter.at).

Fig. 1 Zotter's self-created Fair logo

Source: Zotter Austria: https://www.zotter.at/en/about-zotter/organic-fair-trade-green

The company took this step to separate itself from the mass balancing principle in the certification system, and in 2019, it became a member of the WFTO. Zotter was the first chocolate company in Europe to do so, and for a long time the only one, to produce chocolate from the bean to the bar exclusively with 100% organic quality and Fairtrade (Zotter.at).

The company has long been concerned with the well-being of the people who produce the raw material it uses (Zotter). Since 2001, Josef Zotter has travelled regularly (often accompanied by his daughter Julia) to cacao-growing regions to establish direct trade relations with farmers and purchase the best quality cacao beans (Zotter). The chocolate they source must also taste better than conventional alternatives (Zotter.at). Zotter pays up to 12,000 dollars per tonne of cacao beans, which is around four times the price of bulk cacao, mainly grown in Africa (Dohmen, 2016). Fairtrade can only work if it is transparent with consumers, and if farmers receive a fair wage for their hard work (Zotter.at).

Mass balance is a practice that Zotter rejects. This method means that while the quantity of ingredients required for a fair product must be certified fair, these ingredients are not necessarily physically present in the product. They can be mixed with conventional (non-Fairtrade-certified) ingredients during processing. Example: A chocolate producer buys certified cacao for 10 bars and conventional, non-certified cacao for 90 bars. The cocoa is blended, 100 bars are produced, 10 of which bear the Fairtrade logo, although in purely mathematical terms each bar contains 10% Fairtrade cacao beans and 90% conventional cacao beans (Zotter.at). As a bean-to-bar manufacturer, Zotter attaches great importance to the traceability of the raw materials (cacao beans), but this is no longer possible if mass balance sourcing is used (Zotter).

On the company website, Zotter provides a comprehensive comparison of the three major chocolate certification labels UTZ Certified (UTZ Kapeh, meaning 'Good Coffee' in the Mayan language Quiché; UTZ Certified merged with Rainforest Allliance in 2018), Rainforest Alliance and Fairtrade, highlighting their respective advantages and disadvantages. The following summary briefly notes the negative aspects in an attempt to explain Zotter's distancing from certain certifications.

- UTZ Certified: Highly market driven and interested in production growth. UTZ labelled products do not have to contain 100% certified ingredients. For cocoa, the percentage is 90. UTZ allows mass balance.
- Rainforest Alliance: An NGO (non-governmental organization), that has faced criticism for being close to the industry and helping companies manage their image. There is no cost to the industry to obtain the label, but farmers do have to pay for auditing and

administration. 90% of ingredients must be certified to carry the label. If only 30% are certified, this fact has to be indicated on the label. Mass balance is allowed.

- Fairtrade: All ingredients of a product must be certified. In the case of chocolate, the sugar must be 100% certified as well. Fairtrade was the last of the three organisations to introduce mass balance.

In 2018, Josef Zotter abandoned the Fairtrade seal system because he was not willing to accept the mass balance tolerance. Nevertheless, for Zotter, Fairtrade is the most rigorous and trusted fair labelling system. Zotter is a member of the WFTO, „the only global network that brings together stakeholders across the Fairtrade value chain, from production to retail" (Zotter.at). WFTO audits the entire company, not only individual products, respecting ten principles like „transparency, respect for the environment, the payment of fair prices and no use of child labour" (Zotter.at).

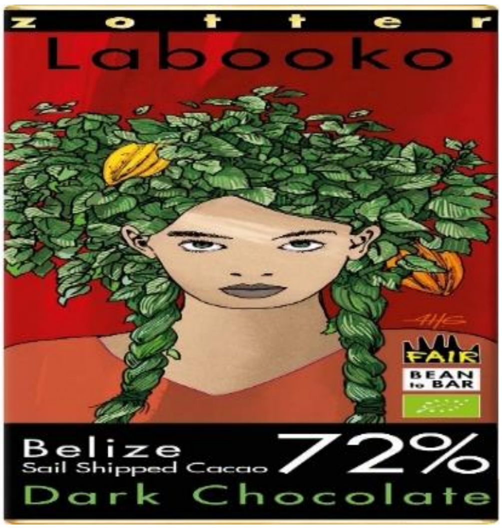
3.2 A focus on high-quality cacao origins

Each region of origin has special characteristics that are reflected in the aroma profile of the cacao. Like the features of wine, cacao - and therefore chocolate - is influenced by the soil in which it is grown (Zotter). Only the bean-to-bar manufacturing process, where cacao beans with diverse origins are processed separately, makes it possible to take these differences into account (Zotter). Zotter's cacao beans mainly originate from countries in Latin and Central America, like Peru, Bolivia, Nicaragua, Panama, Ecuador, Guatemala, Brazil, Belize, but also from other countries like the Dominican Republic, Madagascar, Togo, Ghana, Tanzania and Uganda. Nevertheless, supplier countries may also change depending on the availability and quality of cacao (Zotter). In India, for example, Zotter's partners experienced crop failures, so that the Indian version of the original chocolate is not available for the moment (Zotter). Zotter deliberately avoids sourcing cacao from the Ivory Coast, citing the country's predominant focus on mass production methods (which do not align with the values they seek to promote) (Zotter).

Zotter's „Labooko" origin chocolate range (milk, dark and white) clearly specifies the country of origin and the cocoa percentage, which is considered to be proof of high quality. On the front of each original chocolate wrapper, there is a hand-painted face, representing the mentioned country, designed by Zotter's Art Director, Andreas H. Gratze. The three certification labels that are visible on the wrapper emphasize the sustainability of the product. Inside the wrapper, there is a product description (written by Gratze's wife, Yvonne Quella), praising the characteristics of each cacao variety, the place of origin, and the reasons for the high quality of the chocolate. Aromas and taste notes, reminiscent of wine tasting, help consumers to train their gustatory skills. A detailed listing of ingredients and nutritional information is also included. Those who want to enhance their tasting skills can also watch training videos with Julia Zotter on the website, in which she guides consumers on how to taste the chocolate.

The packaging of the „Belize" chocolate bar highlights the special feature of this chocolate, containing the only cacao beans shipped by sailboat, which makes the product even more sustainable. The project is the result of Timbercoast/Avontuur's restoration of an old cargo ship and the sale of cargo volumes (Zotter). Cacao beans can be safely transported and stored for considerable periods of time under dry conditions, so Zotter started the experiment with an initial three tons of cacao. They now source six tonnes of cocoa a year (Zotter).

Fig. 2 The „Labooko" origin chocolate wrapper for „Belize" chocolate



Source: Zotter Austria: https://www.zotter.a

The most recent „Labooko" origin chocolate creation is „Tansania", a 50% milk chocolate bar, that even mentions the hospitality of the cacao farmers, thus testifying to the company's objective of having a personal relationship with its suppliers.

3.3 An iconic chocolate based on creativity

Within the bean-to-bar community, the company is regarded as one of the „beacons" of innovation when it comes to new ingredients, processing methods, etc. (Zotter). The Austrian manufacturer offers over 500 different chocolate flavours, and processes around 400 organic ingredients, so that Zotter considers himself a „pioneer in creativity and sustainability" (Zotter & Lintschinger, 2006). Josef Zotter is the inventor of the „hand-scooped" chocolates, first experimented with in 1992, which led him to claim that he had re-invented chocolate (Zotter, Schreiner et al., 2004). Chocolate and fillings are spread by hand, layer by layer, on long strips, without the usual mould, to develop new flavours. This method of „hand-scooped" chocolate manufacturing was completely new at the time, and is still practiced today, perfected year after year with ongoing innovations. It seems as if the typical Zotter consumers are looking for novelty and expecting to see unusual creations (Zotter). Several new varieties for the 2024/25 edition, introduced with the motto „Let it crack!", contain, for example, innovations such as „Caramel Nougat Crunch", „Cherry on Nut Wafer", „Wafer Brittle", „Cheesecake" or „Peanut Caramel". With „Mandarine Tonka Caramel" Zotter provides a vegan, super-soft caramel bar. The small bars (70g), which clearly distinguish this chocolate from the classic 100g bar in terms of format and weight, have more in common with pralines and premium products (Zotter), and are sold for three times the price of a standard chocolate bar (Zotter.at).

Andreas H. Gratze, Zotter's Art Director, has collaborated with Josef Zotter since 1994 (Schreiner et al. ibid.). His first packaging designs stood out for their simplicity and humor, and were a breakthrough in the chocolate sector, winning several awards (Zotter.at). The wrappers are recyclable and printed with sustainable paints, and the company tries to avoid unnecessary packaging material (Zotter).

The following example of chocolate packaging for „hand-scooped" chocolate illustrates the creativity of the firm.

Fig. 3 Wrapper of a „Seaweed/caramel/pineapple" „hand-scooped" chocolate bar

Source: Zotter Austria: https://www.zotter.at

3.4 What are the sustainability and creativity issues of Zotter's bean-to-bar model?

As illustrated in chapters 3.1.2 and 3.1.3, Zotter considers itself „a pioneer in creativity and sustainability". This assertion can be confirmed and reinforced when its chocolate packaging is considered. The wrappers of Zotter's product range „Labooko" origin chocolates, and „hand scooped" chocolates, distinguish themselves by the particular focus on either sustainability or creativity. The „Labooko" storytelling puts the accent on the origin of the cacao beans, the taste of pure chocolate, and the close relationship between producer and processor. „Hand-scooped" chocolates are characterized by their creativity and proximity to the final consumer. They are „small works of art" and an „advertising medium", taking over the task of „seducing" the buyer (Zotter). They achieve this via the creativity of their design and the messages expressed through humour, wordplay, idioms, colloquial speech, rhymes, neologisms or anglicisms.

3.5 What are Zotter's reasons to distance himself from certain conventional certification schemes?

As extensively explained in chapter 3.1.1, with mass balance, there is no longer a guarantee that the consumer is buying and eating 100% sustainable chocolate, even if the bar carries a sustainability certification label. In an effort to avoid consumer confusion and to ensure full traceability of the value chain, Zotter has abandoned the Fairtrade Label, used between 2004 and 2018, in favour of becoming a member of the WFTO. The bean-to-bar concept is not a certification program, and does not need any certification label to be valid (Zotter). It is a „values-driven" business model, differentiating itself from the mass-chocolate model (Boegman et al., 2023; Gallo et al., 2018; Woolley et al., 2021). The self-declared values Zotter stands for are „variety, quality, innovation, creativity and sustainability" (Zotter.at). Zotter's ingredients have to meet its own quality requirements (Boegman et al., ibid.). Chocolate wrappers, video tasting sessions on their own website and YouTube, and chocolate pairing sessions seem to have the educational objective mentioned by Boegman et al. (2023). Another crucial objective is transparency (Zotter.at), a value targeted by bean-to-bar processors with regard to traceability, transaction and ecological and social impact (Boegman et al., ibid.).

Tab. 2 Zotter's values comparable with bean-to-bar standards

Zotter	**Facts mentioned and measures undertaken**	**Topic-relevant academic research**
Sustainability/certifications	Bean-to-bar, WFTO certification.	Gallo et al. (2018); Lalwani et al. (2018); Cadby et al. (2021); Boegman et al. (2023); Oberlack et al. (2023); Krumbiegel et al. (2024).
Quality	400 organic ingredients; know-how.	Long (2008); Cadby et al. (2021).
Creativity/variety	500 different products offered; creative chocolate flavours and artistic packaging.	Woolley et al. (2022).
Innovation	Annual catalogue with product innovations.	Cadby et al. (2021).
Flavour	Origin chocolates with specific aroma profiles, original and unusual flavour compositions of the „hand-scooped" line.	Boegman et al. (2023).
Traceability	Direct trade. Close relationship with cacao growers, all production steps done at Zotter's factory; communication about cacao origin, social and environmental initiatives on cacao farms and in the factory.	Brown et al. (2020) ; Elder et al. (2021); Lock & Alexander (2023); Boegman et al. (2023).
Consumer education	Chocolate wrappers, video-tasting and chocolate pairing sessions.	Boegman et al. (2023).
Trust	Partnership between industry, cacao providers and the final consumers.	Long (2008); Lalwani et al. (2018).

Source: Zotter Austria and the questionnaire addressed to the firm. Table compiled by the author.

The above-mentioned examples demonstrate that bean-to-bar objectives and sustainability certifications are interwoven. Bean-to-bar as a production concept needs reliable certifications to ensure the traceability of raw materials and manufacturing processes, to vouch for a consistent level of quality, and trusting relationships with producers, partners and consumers (Boegman et al., 2023).

CONCLUSION

The article explored Zotter's bean-to-bar approach by examining its innovative sustainability practices and analyzing the company's criticism of standard sustainability certification schemes.

Future research could compare the example of the Austrian company with other bean-to-bar producers and explore if creativity is a common outcome in this sector. It could further question if and how the proportion of bean-to-bar confectioneries could and should increase in the future. And finally, in this context, and considering the very critical situation of the current global cocoa market, the depletion of worldwide cacao reserves, increasing deforestation, and enormous social challenges in cacao producing countries, the general question arises as to whether it will still be justifiable to use cacao beans for chocolate production, or whether sustainability-oriented confectioners should switch to alternatives such as fava beans, oats, sunflower or grape seeds, or use cellular agriculture cacao beans.

ACKNOWLEDGEMENT

My sincere acknowledgements go to my contact person from Zotter Austria, Susanne Luef, head of Marketing and Communication, for her spontaneous help, for the distribution of my numerous questions to several managers within the company, and the very quick return of the completed questionnaire.

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Monte Carlo as a Method for Examining of Business Changes in Tourism in Slovakia

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https://doi.org/10.53465/CEECBE.2025.9788022552257.50-63

Abstract: The business environment in tourism encompasses a set of factors influencing the establishment, development, and sustainability of businesses in this sector, including economic, legislative, and market conditions. The dynamics of this environment are crucial for the economic stability of the sector. The main objective of this paper is to model the development of business establishments and closures in the tourism sector based on historical data and the influence of selected factors. The data used for this study were obtained from the Statistical Office of the Slovak Republic upon request. To achieve this objective, correlation and regression analysis were employed to examine relationships between economic variables, while a Monte Carlo simulation was used to predict future business activity trends. The results indicated that there are only moderately statistically significant relationships between economic factors and business establishment or closure. Domestic tourists' expenditures showed a weak positive correlation with business formation, whereas expenditures on inbound tourism had the opposite effect. The Monte Carlo simulation suggested that, assuming historical trends continue, the number of newly established businesses will stabilize at around 7,500 per year, while the number of closed businesses will be approximately 6,000 per year. Extreme scenarios demonstrated that economic fluctuations could lead to significant deviations, with the pessimistic scenario predicting a higher number of business closures and the optimistic scenario indicating a more favorable sectoral development.

Keywords: Business in Tourism, Dynamics of Business in Tourism, MonteCarlo Method, Slovakia, Development

JEL Classification codes: Z31, Z32

INTRODUCTION

Tourism is one of the most important sectors of the economy, significantly contributing to job creation, regional development, and overall economic stability of countries (Hall & Page, 2019). Despite its dynamism and growth potential, the business environment in this sector constantly faces challenges arising from various economic, legislative, and unpredictable external factors (Papatheodorou, 2021). Between 2017 and 2022, tourism businesses had to adapt not only to standard market mechanisms but also to extraordinary events such as the global COVID-19 pandemic, changing business regulations, and fluctuations in demand and supply (Gössling, Scott & Hall, 2020). Tourism holds a key position in the global gross domestic product, and as such, the business environment in tourism is the subject of research by numerous economic scholars. They emphasize the significance of the economic and regulatory environment in tourism, highlighting that these conditions are crucial for the rise and fall of businesses.

Papatheodorou (2021) discusses how legislative changes have evolved and altered the environment, requiring businesses to adapt in order to survive. The quality and development of the business environment are crucial measures of countries' global competitiveness. This situation is particularly favourable in Europe, where an open community offers unique opportunities for market entry and business development (Valaskova, 2022). Slovakia represents an interesting case for analysing the impacts on the business environment in tourism. Given its geographical location, rich natural and cultural heritage, and growing attractiveness for both domestic and international tourism, understanding the dynamics of this sector is essential. Despite positive trends, the business environment faces several challenges, such as seasonality, high operating costs, legislative changes, and issues related to the COVID-19 pandemic. Analysing these factors can help identify key determinants of business sustainability and stabilization in this sector. The main objective of this paper is to model the development of business establishments and closures in the tourism sector based on historical data and the influence of selected factors. Special attention is given to the formation and closure of businesses, assessing the impact of economic, legislative, and pandemic factors on their existence (Baum & Hai, 2020). To enhance understanding and predict future developments, a Monte Carlo simulation was applied, enabling the modelling of various scenarios based on historical data and stochastic processes (Law & Kelton, 2019). Additionally, the simulation provides forecasts for future developments and strategic recommendations to enhance the resilience of tourism businesses. Based on the above, we can conclude that the possibility of prediction using the Monte Carlo method in the context of the dynamics of business establishment and closure in the tourism sector has not been sufficiently explored. Moreover, there is a lack of specific factors that could be used in forecasting. In this regard, we identify a research gap that this paper aims to address.

1 LITERATURE REVIEW

Clearly defining the business environment is not an easy task, as it is influenced by numerous factors, different approaches to understanding its significance, and other elements that complicate a unified interpretation. The business environment can be understood as a set of external and internal factors that influence business activities and may affect its present and future operations (Malach et al., 2005; Kew & Stredwick, 2005; Fernando, 2011; Cherunilam, 2016; Čakanišin & Halenárová, 2024). The business environment is closely linked to the market economy, which significantly impacts developments within the environment (Krošláková et al., 2017). It reflects the quality of economic conditions and prerequisites for economic activity (Kubica, 2015). A high-quality business environment creates conditions for long-term sustainable economic growth and serves as a fundamental prerequisite for business development and increased economic competitiveness of countries (Belanová, 2014; Majercak et al., 2015). The business environment in tourism can be defined as a set of factors that influence business entities within the tourism sector and affect its dynamics. Gúčik (2010) defines the external environment as a combination of economic, social, cultural, political, legislative, ecological, and technological factors. In their research, Šebová et al. (2017) identified four key factors affecting the business environment of tourism enterprises in Slovakia: the inflation rate, availability of production factors, access to credit resources for entrepreneurs, and interaction between educational institutions and businesses. Within the tourism sector, several specific factors influence the business environment, including legal regulations on tourism and consumer protection in this sector (Magurová et al., 2016), national tourism policies (Kerekeš, 2007), the level and efficiency of destination management (Fyall & Garrod, 2020), transportation infrastructure (Michniak, 2010), and environmental policy (Tisdell, 2001; Holden, 2008).

The dynamics of the business environment are explored in various directions at the academic level. Tobback (2021) focused his study on the establishment and closure of businesses in the tourism sector in Belgium, France, and the Netherlands. This study examined volubility, involvement, ritualization, and efficiency in these interactions, which are crucial for effective tourism business operations. Authors Martín and Martínez (2019) analyzed the termination of businesses based on non-economic factors, emphasizing that these considerations often outweigh economic costs and influence entrepreneurs' decisions regarding business entry and exit in tourism. One of the most significant areas of research on factors affecting tourism businesses has been the impact of the COVID-19 pandemic. Gössling, Scott, and Hall (2020) analyzed the effects of COVID-19 on the tourism sector, identifying key challenges that businesses faced, including travel restrictions, declining demand, and supply chain disruptions. The future development of the tourism sector has been addressed by, for example, Halenárová and Čakanišin (2024). Their study focused on analyzing the future development of employment in tourism. They identified a positive growth trend in all observed tourism sectors in the future. Baum and Hai (2020) focused on the sustainability of business models during crises and proposed strategies to enhance business resilience. Studies suggest that effective change management plays a key role in improving the performance of Slovak companies, particularly through internal process improvements and operational adjustments. Data analysis reveals a direct relationship between implementing changes and the return on equity (ROE) (Sujová & Simanová, 2023). This paper identifies that Slovak businesses primarily adopt a functional approach to change management, focusing on financial improvements. It highlights that operational changes are the most common, with success linked to internal process enhancements and project management optimization using log frame techniques (Sujová & Simanová, 2022).

The use of Monte Carlo simulation in business environment analysis is extensively discussed in the work of Law and Kelton (2007), who demonstrate the effectiveness of this method in modeling potential development scenarios based on historical data. These approaches provide a deeper understanding of risk factors and possible measures to support the stable development of the business environment in the tourism sector. By employing random sampling techniques, Monte Carlo simulations can assist decision-makers in forecasting the potential impacts of legislative changes and market conditions on small and medium size enterprises (SMEs) (Coelho et al., 2025). The method's ability to model both symmetric and asymmetric distributions helps capture the full range of possible business outcomes (Ding, Zhiyan, et al, 2021). Based on the above, however, it is not clear which factors should be used in creating this simulation for the development of the establishment and closure of tourism businesses. Therefore, we decided to use available tourism-specific data from the Tourism Satellite Account of the Slovak Republic to enable future international comparisons.

2 METHODOLOGY

The main objective of this paper is to model the development of business establishment and closure in the tourism sector based on historical data and the influence of selected factors. The data used in this study were obtained from the Statistical Office of the Slovak Republic upon request. For the analysis of business establishment and closure in the tourism sector, data were collected for individual tourism industries according to the classification of the Tourism Satellite Account of Slovakia, as well as for individual enterprises categorized under the NACE classification. These data were then aggregated to determine the total number of business entries and exits in the tourism sector. To identify the impact of selected factors, the modelling process included parameters such as direct tourism Gross Domestic Products (GDP) expenditures on inbound, outbound, and domestic tourism, and the total number of visitors.

Data for these parameters were sourced from the Tourism Satellite Account 2022. The available period for all observed values was determined for the years 2013 to 2022.

Initially, a correlation and regression analysis was conducted to determine the statistical significance of selected indicators on the number of newly established and closed tourism businesses in Slovakia. Using linear regression analysis, the causal relationship was evaluated between the dependent variables, which include the number of newly established tourism businesses (XA) and the number of closed tourism businesses (XB), and the independent variables, which consist of expenditures on inbound tourism (X1), expenditures on domestic tourism (X2), expenditures on outbound tourism (X3), direct GDP from tourism (X4), and the number of visitors (X5). The results indicate that none of the variables are statistically significant at the 5% significance level, although some show slight tendencies to influence business stability. The regression analysis was performed using the Ordinary Least Squares (OLS) method to quantify the impact of independent variables on the number of closed businesses in the tourism sector. The model was defined as follows:

$$XA=\beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\beta_5X_5+\varepsilon \qquad (1)$$

where:

- X_A – number of newly established tourism businesses / X_B number of closed tourism businesses in tourism in Slovakia
- X_1 – expenditures on inbound tourism
- X_2 – expenditures on domestic tourism
- X_3 – expenditures on outbound tourism
- X_4 – direct GDP from tourism
- X_5 – number of visitors
- $B_0, \beta_1, \ldots, \beta_5$ –regression coefficient
- ε – error term

The hypotheses formulated to achieve the objectives of the article through correlation and regression analysis are as follows:

- H1: Expenditures on inbound tourism (X1) have a positive and statistically significant impact on the establishment of new businesses in the tourism sector in Slovakia.
- H2: Expenditures by domestic tourists (X2) have a positive and statistically significant impact on the establishment of new businesses in the tourism sector.
- H3: Expenditures on outbound tourism (X3) have a negative and statistically significant relationship with the establishment of new businesses in the tourism sector.
- H4: Direct GDP from tourism (X4) has a positive and statistically significant impact on business establishment in this sector.
- H5: The number of visitors (X5) has a positive and statistically significant relationship with the establishment of new businesses in the tourism sector.
- H6: Expenditures on inbound tourism (X1) have a negative and statistically significant impact on the closure of businesses in the tourism sector
- H7: Expenditures by domestic tourists (X2) have a negative and statistically significant impact on business closure.
- H8: Expenditures on outbound tourism (X3) have a positive and statistically significant relationship with business closures in the tourism sector.

- H9: Direct GDP from tourism (X4) has a negative and statistically significant impact on business closures in the tourism sector.
- H10: The number of visitors (X5) has a negative and statistically significant relationship with business closures in the tourism sector.

Monte Carlo simulation is a stochastic modelling technique used to assess uncertainty and predict probable outcomes by running a large number of simulations based on probability distributions. In this study, a Monte Carlo simulation was applied to estimate the future number of business closures in the tourism sector in Slovakia over a five-year period, considering economic volatility and industry dependencies. Before conducting the simulation, it is essential to clearly define its objectives. In this case, the goal is to model the dynamics of business establishment and closure in the tourism sector in Slovakia, with the aim of identifying risk factors and forecasting future developments. Defining the objective includes selecting variables that influence the model and specifying the expected outcomes (Prasad, 2021).

To create a probability distribution, fundamental statistical indicators are required:

- Minimum values: The lowest number of newly established or closed businesses during the observed period.
- Maximum values: The highest number of newly established or closed businesses.
- Average values: The average number of newly established or closed businesses over the observed period.
- Variance and standard deviation: To determine the variability of values.

For the Monte Carlo simulation, a normal distribution was chosen, as tourism businesses exhibit stable data with small deviations. However, it is acknowledged that tourism businesses may also have a cyclical nature. Due to the unavailability of monthly and quarterly data, annual data for the period 2013–2022 were used instead. The simulation was conducted to project outcomes for the next five years, up to 2027. The data were statistically processed to identify minimum, maximum, and average values, as well as variability, ensuring that the simulation accurately reflects possible future trends in business dynamics within the tourism sector.

We generated 10,000 random samples for each variable within the Monte Carlo simulation based on its defined normal distribution. Correlation between variables was reprocessed using Cholesky decomposition. Subsequently, the number of newly established tourism businesses (XA) and closed tourism businesses (XB) in Slovakia was calculated for each iteration based on the simulated values. The summarized results cover a five-year period, including the computation of key statistical indicators: aggregation of results over the five-year period, estimation of the average number of closed businesses, a 95% confidence interval, and the probability distribution of extreme outcomes.

The validation of the simulation was conducted by comparing the simulation results with historical data to verify the accuracy of the model. Additionally, the simulation was performed for different scenarios (optimistic, realistic, and pessimistic) to account for various possible developments.

To incorporate economic variability, three distinct scenarios were created:

- Pessimistic scenario (-10% business activity) – reflects economic downturns, higher tax burdens, or declining demand in the sector.
- Realistic scenario (baseline trend) – represents the most probable future trend based on historical data.
- Optimistic scenario (+10% business activity) – assumes favorable economic conditions, increasing demand, and government incentives to support entrepreneurship.

In each scenario, the average number of newly established and closed businesses was adjusted while maintaining historical volatility and correlations between factors.

3 RESULTS AND DISCUSSION

3.1 Monte Carlo simulation for newly established tourism businesses in Slovakia

Table 1 presents the correlation matrix, which quantifies the relationships between the number of newly established businesses and selected indicators related to tourism and the economy in Slovakia. The correlation coefficients range from -1 to 1, where values closer to 1 indicate a strong positive correlation, values around 0 suggest a weak or no relationship, and values closer to -1 indicate a negative correlation.

Tab. 1 The correlation of selected indicators with the establishment of tourism businesses in Slovakia

		XA	X1	X2	X3	X4	X5
	1						
XA	0.5329	1					
X1	-0.2787	0.1309	1				
X2	0.0855	0.4713	0.8719	1			
X3	0.0375	0.4415	0.8493	0.9787	1		
X4	0.0294	0.4645	0.8978	0.9830	0.9769	1	
X5	0.1295	0.3146	0.9348	0.9532	0.9425	0.9723	1

Source: Own processing by the authors in the Gretl statistical program based on data from the Tourism Satellite Account of Slovakia and the Statistical Office of Slovakia, 2013–2022

Domestic tourism expenditures show a slight positive correlation (0.085) with business establishment, indicating that an increase in domestic tourist spending may have a mild impact on supporting the business environment. Expenditures on inbound tourism (-0.278) are negatively correlated with the number of newly established businesses, suggesting that higher spending by foreign tourists does not directly contribute to the creation of new businesses, or that this relationship may be influenced by other factors. Expenditures on outbound tourism (0.037) and direct tourism GDP (0.029) exhibit near-zero correlation with the number of new businesses, implying that these variables do not have a direct impact on business activity. The number of visitors (-0.129) has a weak negative correlation with business establishment, which may indicate that a higher number of tourists does not necessarily lead to an increase in new business entities. The high correlation between domestic and outbound tourist expenditures suggests that rising household incomes support travel both within the country and abroad.

When conducting the regression analysis (Table 2), it was found that the variable X4 (Direct GDP from Tourism) had the lowest p-value ($p = 0.120$), suggesting that the economic performance of the tourism sector may have some influence on the establishment of new businesses, though not strong enough to confirm statistical significance. Expenditures on inbound tourism (X1) have a negative coefficient (-0.00269), indicating that higher spending by foreign tourists may be linked to the number of new businesses. This result may be related to the stabilization of existing businesses, which reduces the need for establishing new ones. However, given the p-value of 0.144, this relationship is not statistically significant. Direct GDP from Tourism (X4) has the highest positive coefficient (0.007631), suggesting that stronger economic performance in the sector may support the establishment of new businesses. However, this relationship is only at the threshold of significance ($p = 0.120$), meaning that with a larger dataset, it could potentially be confirmed as a significant factor.

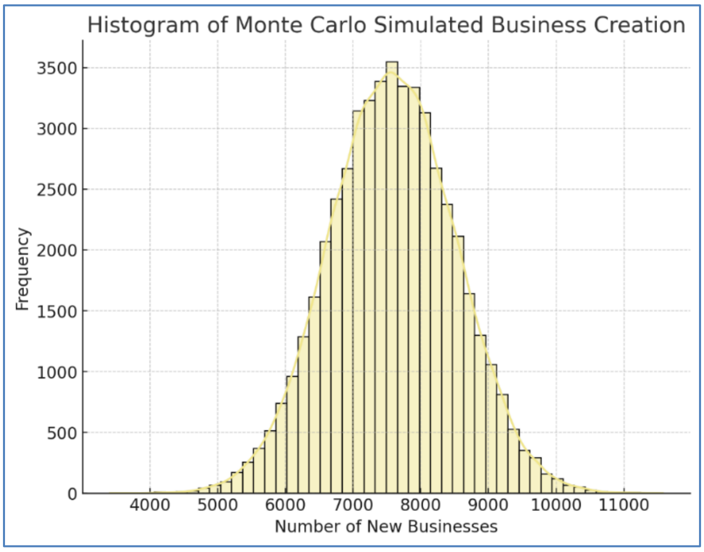
Tab. 2 Regression analysis of selected indicators on the establishment of tourism businesses in Slovakia

	Coefficients	Standard Error	t Stat	P-value
XA	1553.478	2558.003	0.6073	0.5764
X1	-0.00269	0.001483	-1.8122	0.1441
X2	0.001308	0.002378	0.5502	0.6114
X3	-0.00279	0.002307	-1.2091	0.2931
X4	0.007631	0.003873	1.9700	0,1201
X5	-9.1E-05	9.08E-05	-1.006	0,3713

Source: Own processing by the authors in the Gretl statistical program based on data from the Tourism Satellite Account of Slovakia and the Statistical Office of Slovakia, 2013–2022

The histogram (Fig. 1) illustrates the distribution of simulated values for the number of newly established businesses, generated using the Monte Carlo method. The simulation was conducted to predict the future development of new business establishments based on historical data and correlations with economic factors.

Fig. 1 Monte Carlo simulations of tourism business establishment in Slovakia based on correlation results

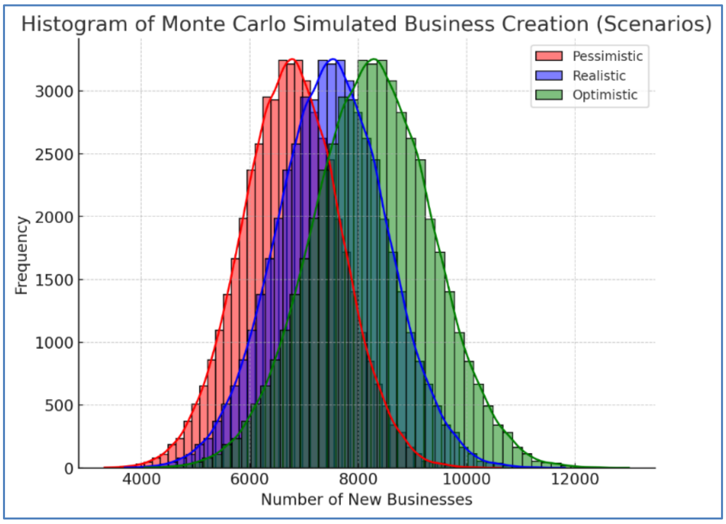


Source: Own processing in the R statistical program based on the results of correlation analysis for closed tourism businesses in Slovakia

The most frequently simulated values (mode) range between 7,000 and 8,000 new businesses. The median value of the simulations (mean) is approximately 7,500 businesses. The standard deviation determines the dispersion of values, with most simulations falling within the range of 5,500 to 9,500 businesses. On the left side of the histogram, lower values (~4,000 businesses) represent pessimistic scenarios with a lower number of newly established businesses. On the right side (~11,000 businesses), optimistic scenarios suggest a high growth in entrepreneurial activity. The majority of simulations are concentrated in the centre of the distribution, indicating the most probable outcomes. The decreasing frequency of extreme values indicates that a very low or very high number of business start-ups is less likely.Monte Carlo predictions indicate that the number of newly established businesses in the future will likely fluctuate around 7,500 businesses per year. The histogram confirms a stable trend with a normal distribution, where extreme values are less probable. For a more precise analysis, a confidence interval (e.g., 95% CI) can be determined, and risks in extreme scenarios can be evaluated (Fig. 2).

The histograms suggest that the number of newly established businesses follows an approximately normal distribution, meaning that most simulated results are concentrated around the mean value of each scenario. The most probable outcomes range between 6,000 and 9,000 businesses per year, depending on the scenario.

Fig. 2 Monte Carlo simulation scenarios for newly established tourism businesses in Slovakia



Source: Own processing in the R statistical program based on the results of correlation analysis for closed tourism businesses in Slovakia

The pessimistic scenario (red curve) assumes a 10% decline in the number of newly established businesses compared to the realistic scenario. The average predicted value is around 6,500 businesses per year, with a high probability falling within the range of 5,000 – 7,500 businesses. The realistic scenario (blue curve) represents the most probable development based on historical trends. The expected value is around 7,500 businesses, with most simulations ranging between 6,500 – 8,500 businesses. This scenario corresponds to a stable business environment without significant economic shocks. The optimistic scenario (green curve) models a 10% increase compared to the realistic scenario, indicating higher entrepreneurial activity. The average expected number of new businesses is around 8,500, with most simulations falling between 7,000 – 10,000 businesses. This scenario reflects the possibility of favorable economic conditions supporting entrepreneurship. In all three scenarios, the variance of values overlaps, meaning that even in an optimistic scenario, a decline is possible, and conversely, in a pessimistic scenario, the number of new businesses could exceed expectations. Extreme values are less likely, suggesting that most predictions will fall within the main interval of approximately 6,000 – 9,500 businesses.

3.2 Monte Carlo simulation for closed tourism businesses in Slovakia

To examine the relationship between selected indicators and business closures in the tourism sector in Slovakia, a correlation and regression analysis was conducted. The correlation analysis revealed a negative correlation between business closures and expenditures on inbound tourism (XB – X1: -0.450). A relatively strong negative correlation indicates that higher expenditures by foreign tourists may contribute to a lower number of business closures. This relationship suggests that inbound tourism helps stabilize the business environment in the tourism sector and provides businesses with sufficient revenue to maintain operations (Table 3).

Tab. 3 Correlation of closed tourism businesses in Slovakia with selected indicators.

	XB	X1	X2	X3	X4	X5
XB	1					
X1	0.0968	1				
X2	0.0974	0.8719	1			
X3	0.1210	0.8493	0.9787	1		
X4	0.0900	0.8978	0.9830	0.9769	1	
X5	0.17466	0,9348	09532	0.9425	0.9723	1

Source: Own processing by the authors in the Gretl statistical program based on data from the Tourism Satellite Account of Slovakia and the Statistical Office of Slovakia, 2013–2022

Tab. 4 Regression analysis of selected indicators on closed tourism businesses in Slovakia

	Coefficients	Standard Error	t Stat	P-value
Intercept	5413.0960	2531.5494	2.1382	0.0992
X1	-0.0006	0.0014	-0.4223	0.6944
X2	-0.0001	0.0023	-0.0693	0.9480
X3	0.0007	0.0022	0.3495	0.7443
X4	-0.0026	0.0038	-0.6851	0.5308
X5	8.86556E-05	8.98875E-05	0.9862	0.3798

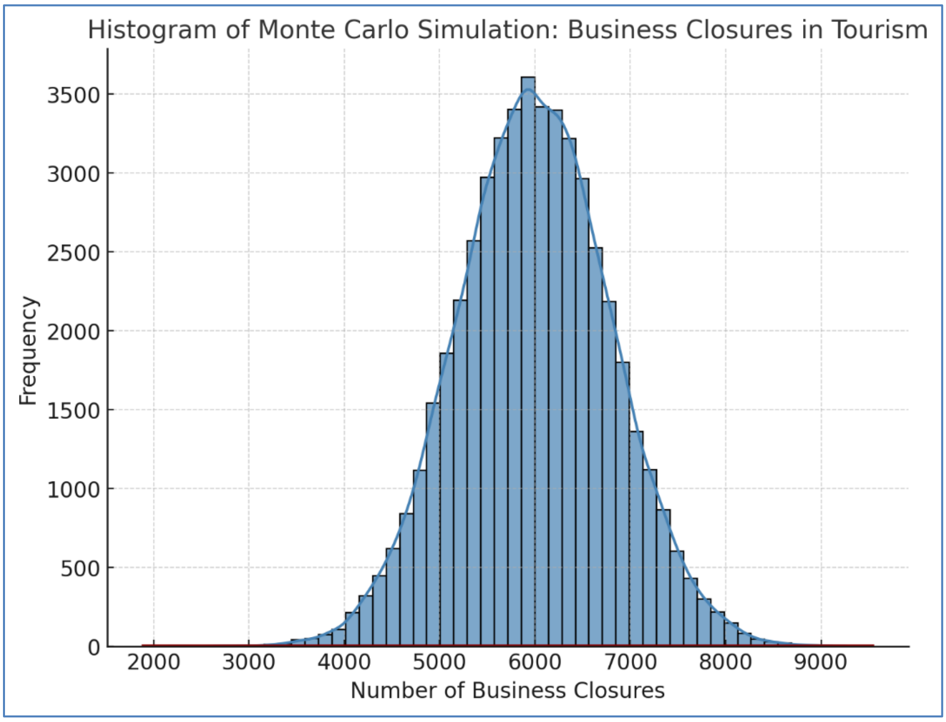
Source: Own processing in the R statistical program based on data from the Tourism Satellite Account of Slovakia and the Statistical Office of Slovakia, 2013–2022

The correlations between closed businesses and economic factors are very weak (maximum 0.17), indicating that none of these indicators have a significant linear relationship with business closures. The strongest correlation is between X5 (number of visitors) and X4 (tourism GDP) (0.97), suggesting that a higher number of visitors is associated with increased economic activity in the sector. The correlations between different expenditure categories (X1 – X3) and tourism GDP (X4) are high (above 0.85), indicating possible multicollinearity among these variables (Table 3).

The overall regression model does not explain a statistically significant variability in the closure of tourism businesses in Slovakia. None of the independent variables are statistically significant, as all p-values exceed 0.05. The lowest p-value (0.099) is associated with the model's constant, suggesting that business closures are likely influenced by other factors not included in this model. Expenditures on inbound tourism (X1) and domestic tourism (X2) have very small coefficients close to zero, indicating that their impact on business closures is negligible. The number of visitors (X5) has a positive coefficient, but its effect is not statistically significant (p = 0.379).

The average value of the simulated results using the Monte Carlo simulation is approximately 6,000 closed tourism businesses in Slovakia. This suggests that, under the assumption of historical trends and current correlations, this figure represents the most probable outcome. The standard deviation indicates the spread of the simulated values, with extreme values below 4,000 or above 8,000 being less likely but still possible. Confidence intervals (the left and right sides of the distribution) show that with 95% probability, the number of closed businesses in the tourism sector will range between approximately 4,500 and 7,500 in the future (Fig. 3).

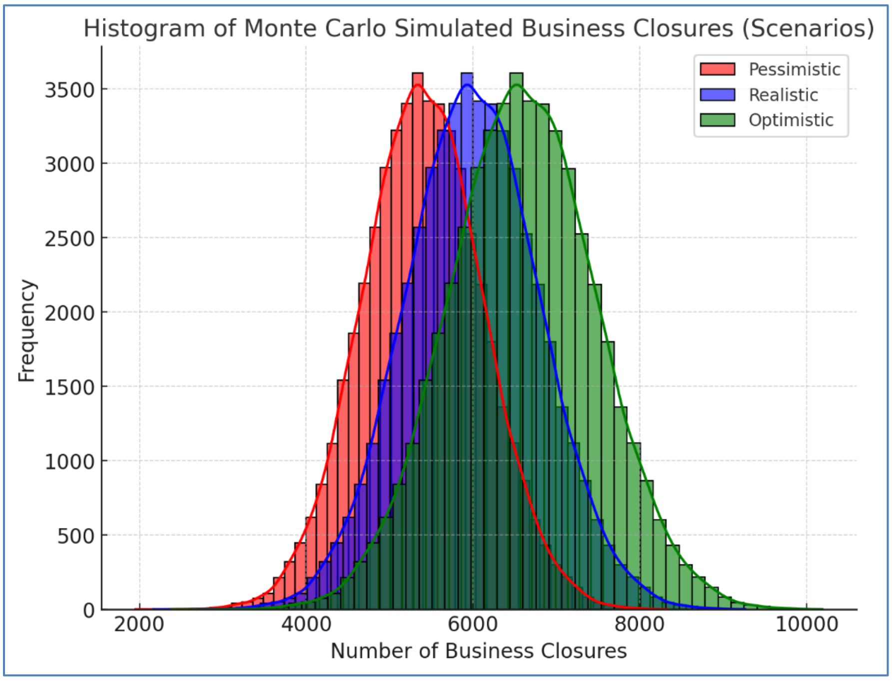
Fig. 3 Monte Carlo Simulation for Closed Tourism Businesses in Slovakia



Source: Own processing in the R statistical program based on the results of correlation analysis for closed tourism businesses in Slovakia

The pessimistic scenario assumes a 10% decline in business activity. In this scenario, the number of closed businesses increases, with the predicted number being 10% higher than in the realistic scenario. This trend may result from negative economic factors such as recession, high inflation, legislative changes, or declining demand in the tourism sector. Values at the upper limit of the confidence interval suggest that in the event of an economic crisis, the number of closed businesses could exceed 7,500 per year. This scenario highlights the need for government interventions, stimulus measures, and protective mechanisms to minimize the risk of mass business closures in the sector. The realistic scenario (continuation of the current trend) assumes a stable level of business closures, ranging between 5,500 and 6,500 annually, which aligns with historical trends. A slight natural fluctuation in business openings and closures is expected, with economic factors remaining relatively stable. This development is likely if current conditions persist, without unexpected economic shocks or major legislative changes. In this scenario, government and regulatory authorities could focus on long-term measures, such as business incubators or improved access to financing to support entrepreneurship (Fig. 4).

Fig. 4 Monte Carlo simulation scenarios for business closures in the tourism sector in Slovakia



Source: Own processing in the R statistical program based on the results of correlation analysis for closed tourism businesses in Slovakia

Optimistic scenario (increase in business activity by 10%) in this scenario, the number of closed businesses decreases, with predicted values being 10% lower than in the realistic scenario. This development may be supported by positive economic factors, such as increased demand in tourism, a favourable economic environment, a stable business climate, or government incentives. The lower bound of the confidence interval suggests that the number of closed businesses could drop below 5,000 per year, indicating a healthy business environment. The long-term sustainability of this scenario would require a stable economy, effective business support measures, and low market entry barriers (Fig. 4).

Regression analysis did not reveal a statistically significant relationship between the examined macroeconomic factors and the establishment of new businesses in the tourism sector. Despite a slight positive correlation between business formation and factors such as domestic tourism expenditures and direct sector GDP, these relationships were not strong enough to confirm statistical significance in the regression analysis. Expenditures on outbound tourism and the number of visitors showed no relevant impact on the creation of new business entities. Similarly, in the case of business closures, the correlation with economic factors was very weak, suggesting that their dynamics are influenced more by microeconomic factors, such as regulatory changes, access to financing, competition, and seasonal fluctuations. The Monte Carlo simulation provided valuable insights into the expected dynamics of the tourism sector. Predictions indicate that, if historical trends continue, the number of newly established businesses will be around 7,500 per year, while the number of closed businesses will stabilize at approximately 6,000 per year. This difference suggests a slightly positive business activity balance, though stabilization measures may be necessary to support long-term sector resilience.

The models also highlighted possible extreme scenarios:

- Pessimistic scenario: A 10% decline in business activity would lead to a significant increase in business closures, threatening the stability of the sector.

- Optimistic scenario: A 10% increase in business activity could support the stabilization of existing entities and lead to a rise in the number of new businesses.

A key finding is that domestic tourism expenditures may support business activity, whereas inbound tourism expenditures may not have a direct positive impact on the establishment of new businesses. This paradox may be explained by the stabilization effect of existing businesses, which benefit from higher spending by foreign tourists but do not create sufficient room for new entrants. The regression analysis, correlation analysis, and Monte Carlo simulation identified key factors influencing business dynamics in the tourism sector:

- Business formation in tourism is most strongly supported by the growth of direct tourism GDP (X4), which increases investment opportunities and business profitability. The number of visitors (X5) has a slightly positive impact on the establishment of new businesses; however, expenditures by foreign and domestic tourists did not show a statistically significant effect.
- Business closures in tourism are most significantly influenced by Slovaks' expenditures on outbound tourism (X3)—higher spending on international travel shifts consumer finances outside the domestic sector, leading to a higher number of business closures. Conversely, the number of visitors (X5) helps stabilize existing businesses, reducing their probability of closure.

CONCLUSION

The results of our study confirmed that the business environment in the tourism sector in Slovakia is influenced by multiple economic factors, although their impact on the dynamics of business formation and closure is not always statistically significant. The Monte Carlo simulation provided valuable quantitative insights into the future development of the sector, highlighting a slightly positive balance in the establishment of new businesses while also identifying risks associated with declining business activity. The findings suggest that domestic tourism expenditures may support entrepreneurial activity, whereas foreign tourist expenditures primarily have a stabilizing effect on existing businesses rather than directly fostering new business creation. Future research should incorporate more advanced forecasting methods, such as time series models (ARIMA, VAR), and expand the analytical framework to include microeconomic factors such as access to financing, business size, and market competition. The current limitations of available data, particularly within the Tourism Satellite Account, indicate the need for long-term monitoring and the consideration of delayed effects in the tourism business environment. To achieve more reliable results, future research should expand the dataset and employ more advanced methods, such as nonlinear models or time series analysis.

ACKNOWLEDGEMENT

This paper is part of VEGA 1/0271/23 Sustainable reneval of spa tourism in Slovak Republic in the context of impacts of civilization crises.

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Sustainability and ESG in the German Fashion Industry: A Future Focused Perspective

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https://doi.org/10.53465/CEECBE.2025.9788022552257.64-77

Abstract: The German fashion industry stands at a turning point, shaped by growing societal and regulatory demands for sustainability and ethical business practices. The integration of Environmental, Social, and Governance (ESG) criteria into the industry's business models is no longer optional but a strategic necessity. This study analyzes the increasing importance of ESG in the German fashion sector, highlights key challenges, and evaluates its impact on decision-making processes and competitiveness, with a particular focus on future developments. The German fashion industry has long been criticized for its negative environmental and social impacts. In response, companies are increasingly adopting sustainable business models, embracing the circular economy, and investing in technological innovations. Despite the challenges involved, ESG principles also offer new market opportunities and strategic advantages for the future.

Keywords: Economics, Sustainability, ESG, German Fashion Industry

JEL Classification codes: F10, M20, Q50

INTRODUCTION

The German fashion industry is undergoing a significant transformation, driven by increasing societal awareness and regulatory requirements regarding sustainability and ethical business practices. ESG, which stands for Environmental, Social, and Governance, refers to a set of criteria used to evaluate the sustainable and responsible actions of companies. As a key player in the global fashion market, Germany faces growing expectations to integrate ESG principles into its business processes.

Sustainability is defined as a development concept aimed at meeting the needs of the present without compromising the ability of future generations to meet their own needs. It is based on a balance between ecological, social, and economic objectives (WCED, 1987). The shift toward sustainability is no longer optional but a necessity, as companies strive to align profitability with ethical responsibility. This study explores the evolving landscape of ESG adoption in the German fashion sector and its future prospects.

The global fashion industry has long faced criticism for its environmental footprint, reliance on exploitative labor practices, and lack of supply chain transparency. In response, ESG has emerged as a comprehensive framework for evaluating a company's impact beyond financial performance. ESG criteria help organizations assess their environmental policies, social commitments, and corporate governance structures. Due to the European Union's stringent sustainability regulations, German fashion companies are increasingly required to enhance their ESG strategies.

However, implementing ESG frameworks presents unique challenges for the German fashion industry, especially due to its complex and globally interconnected supply chains. Many brands outsource production to countries with lax environmental and labor standards, raising serious ethical concerns. Simultaneously, consumer expectations are shifting: there is growing demand for sustainable fashion, particularly among younger generations who prioritize ethical sourcing, fair labor conditions, and eco-friendly production methods.

Despite these challenges, the growing emphasis on ESG presents opportunities for innovation and strategic differentiation. Companies that proactively integrate ESG principles into their business models can position themselves more competitively and gain trust from consumers and investors alike.

The adoption of ESG frameworks is also profoundly influencing decision-making processes across various segments of the fashion industry. This study aims to examine these developments with a focus on future trends and the central role of sustainability in shaping the industry's evolution.

1 LITERATURE REVIEW

The literature review presented summarizes current findings from research, industry practice, and policy in order to establish a sound basis for analyzing the future impact of sustainability and ESG on the German fashion industry.

Sustainability as a strategic imperative is no longer optional in the German fashion sector but has become structurally embedded. Major players such as C&A (2023) and Hugo Boss (2023) regularly publish extensive sustainability reports outlining clear environmental and social objectives. The integration of environmental and social dimensions into corporate strategies is evident through defined CO_2 reduction targets, promotion of sustainable materials, and the development of circular business models. On the political level, sustainability is also being institutionally supported—for example, through the "Green Button 2.0" initiative (Grüner Knopf, 2022), which defines binding social and environmental standards along the supply chain.

According to a study by EY (2023), fashion companies are increasingly becoming "trendsetters in sustainability," driven largely by changing consumer habits. Consumers demand transparent, fair, and environmentally friendly products—an evolution also confirmed by Meier & Weber (2021) in their analysis of ethical consumption behavior in the fashion market.

A key driver of sustainable transformation is the increasing regulation through legal frameworks and policy change. With the German Supply Chain Due Diligence Act (Beile & Vitols, 2024; HypoVereinsbank, 2020), companies are now legally required to actively monitor and enforce human rights and environmental standards throughout their supply chains. This law marks a paradigm shift by introducing legally enforceable corporate due diligence obligations for the first time.

At the European level, the Corporate Sustainability Reporting Directive (CSRD) (European Commission, 2023) mandates standardized ESG reporting for large companies. According to the KPMG ESG Reporting Survey (2024), many businesses view this not merely as a bureaucratic burden, but as a strategic opportunity for positioning on the capital market. ESG is increasingly seen as a management tool that can create competitive advantages.

In fact, ESG criteria are becoming central governance instruments for corporate management. Studies such as Clarity AI (2023) emphasize that ESG performance is increasingly influencing investment decisions, reputation risk, and market opportunities. ESG-compliant behavior is now viewed as an integral part of risk management, innovation strategy, and stakeholder communication.

Plan A (2024) provides a practical guide for implementing ESG structures in the fashion industry and highlights the growing importance of measurable ESG indicators as a key differentiator. From an investor's perspective, companies with strong ESG performance are considered future-proof and resilient, especially in contrast to players in the fast fashion segment, which, according to Comgest (2020), face increasing risks and reputational losses.

Within the German fashion market, the development of innovative circular business models is a key area of sustainability. As shown by Aka-Tex (2024), entirely new production approaches are emerging through textile recycling processes, in which garments are made from recycled fibres. This innovation is fueled by growing awareness of resource efficiency and waste reduction—principles that are reinforced by ESG regulations.

At the same time, regional and transparent supply chains are gaining importance. An article published in Die Welt (2024) about fashion designers in Hamburg illustrates the trend toward "local sustainability"—an approach that reduces ecological transport emissions and strengthens social standards. Similarly, policy initiatives led by the Federal Ministry for Economic Cooperation and Development (BMZ, 2023) aim to promote social and ecological improvements throughout global textile supply chains.

Despite these positive developments, the industry continues to face significant challenges. The Financial Times (2024) warns of the risks of overregulation ("red tape"), which could overwhelm, particularly small and medium-sized enterprises (SMEs). A lack of resources, high reporting burdens, and complex legal requirements continue to pose implementation barriers—a point also raised in academic works by Schmidt (2021) and Hass (2021).

The German fashion sector remains a significant economic contributor: According to Handelsdaten.de (2023), the retail clothing market generates billions in annual revenue. The combination of sustainability, digitalization, and innovative business models—as described by Klein & Hoffmann (2022)—offers long-term growth opportunities. In this context, sustainability becomes not only an ethical obligation but also an economic necessity.

The reviewed literature makes it clear that sustainability and ESG are already key influencing factors in the German fashion industry, with increasing importance for the future. Regulatory frameworks, changing societal values, and economic opportunities are driving the shift from sustainability as a competitive advantage to a survival factor.

This leads to the central research question: What influence will sustainability and ESG factors have on the future of the German fashion industry? This question enables an in-depth investigation of the impact of ESG on competitive dynamics in a transforming economic environment.

2 METHODOLOGY

This scientific study is methodologically broad in scope and characterized by a particularly well-structured and carefully designed research framework. The aim is to provide a comprehensive analysis of the complexity and significance of sustainability and ESG in the German fashion industry. The chosen research strategy is built on four complementary pillars: a thorough literature review, high-quality expert interviews, large-scale surveys, and mathematical analyses.

This combination of qualitative and quantitative methods not only enhances the validity of the findings but also enables a multi-layered examination of the subject, both from a theoretical perspective and with practical relevance.

Tab. 1 Overview of scientific components

1) Literature review			
2) Expert Interviews (6 participants)			
Interview	Date	Position	Department
1	15.08.2024	Quality Manager	Clothing Association
2	31.08.2024	Regional Manager	Fashion Company
3	16.09.2024	Sales Manager	Quality Seal Company
4	22.10.2024	ESG Manager	Fashion Company
5	29.11.2024	Purchasing Manager	Fashion Company
6	15.01.2025	Sales Director	Supplier in Fashion Industry
3a) Survey in the German clothing market			
	Company Survey		
	Focus: ESG practices and challenges		
	Number of participants: 147 companies		
	Period: March to August 2024		
3b) Survey to the customers of the German clothing market			
	Consumer Survey		
	Focus: Consumer perspective on ESG		
	Number of participants: 400 customers		
	Age range: 18-75 years		
	Period: March to August 2024		
4) Mathematical Analytics			

Source: own processing, 2025

The first theoretical foundation and conceptual framework of this study is established through a comprehensive literature review, which incorporates both recent academic publications and application-oriented industry reports. At the core of the analysis are research findings on ESG practices, particularly within the context of the fashion and textile industry.

The literature review fulfills several key functions: it sharpens the conceptual understanding of ESG terminology, identifies research gaps, and provides theoretical anchors for the study. Particularly valuable is the integration of practical sources, such as sustainability reports from leading fashion companies. This multidimensional perspective allows for a link between academic insights and real-world developments in business and policy—an essential characteristic of scientific relevance and transferability.

The second methodological pillar of the study consists of qualitative expert interviews, which were conducted to complement the literature review with practical, experience-based assessments. A total of six interviews were carried out between August 2024 and January 2025, both in person and via digital platforms. All interviews were conducted under strict confidentiality and anonymity to ensure openness and authenticity. Participants were selected using theoretical sampling, specifically targeting individuals with proven expertise in ESG management, sustainable corporate leadership, or supply chain responsibility, including executives, sustainability officers, and industry analysts.

The qualitative data allow for a differentiated examination of ESG issues from the perspective of insiders within the fashion industry. They offer valuable insights into challenges, conflicts of interest, industry-specific resistance, and success factors in implementing sustainable strategies. Furthermore, the interviews shed light on internal decision-making processes, perceptions of regulation, and future expectations—aspects that cannot be fully captured by quantitative methods alone. This qualitative component thus represents a key added value of the study.

To gather robust quantitative data, two independent surveys were designed and conducted, each targeting a different perspective on the German fashion market: one from the viewpoint of companies, the other from that of consumers.

The first survey was aimed at companies within the German fashion and textile industry. Its objective was to analyze their attitudes, measures, and challenges in relation to ESG implementation. The survey was conducted between March and August 2024, resulting in 147 usable responses. It was administered both online and in person through a structured questionnaire and was designed to generate quantitative data on ESG strategies, internal resources, regulatory pressures, and market perceptions.

Simultaneously, a second survey targeted consumers in the German fashion market. The focus was on attitudes, purchasing behavior, and perceptions regarding sustainability and ESG-related aspects in fashion products. This survey was also conducted between March and August 2024 and included 400 participants aged 18 to 75. The standardized questionnaire was quantitatively oriented and aimed at identifying statistically significant patterns, such as willingness to pay for sustainable clothing, trust in certifications, or general ESG awareness among the population.

This dual-survey approach enables a comparative analysis of supply-side and demand-side perspectives and thus creates a solid empirical foundation for actionable recommendations to business and policymakers.

The fourth and final research component consists of a mathematical analysis, used to evaluate and interpret the previously collected data. This segment-based analysis allows for a differentiated assessment of ESG relevance across various categories. The application of mathematical methods significantly contributes to the objectivity, validity, and traceability of the findings.

This study stands out for its methodological diversity, depth of content, and scientific rigor. The chosen mixed-methods approach enables a holistic examination of the complex field of "Sustainability and ESG in the German fashion industry." Particularly noteworthy is the interdisciplinary and practice-oriented design, which incorporates economic, sociological, and political perspectives.

The academic value of this work lies not only in its systematic documentation. Through the combination of theory, empirical data, and analytical rigor, the study makes a highly relevant contribution to answering the central research question.

3 RESULTS AND DISCUSSION

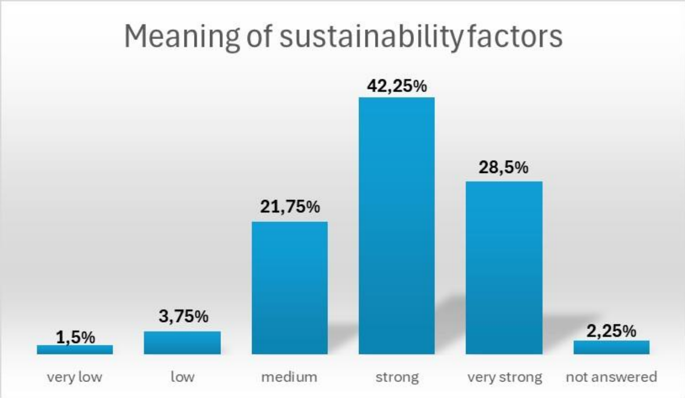
3.1 Development of sustainability and ESG in the German clothing industry

Sustainability and ESG are central topics in the German clothing market. Companies are under increasing pressure from regulators, consumers, and investors to integrate environmentally and socially responsible practices into their business models. ESG encompasses three key areas: environmental (e.g., emissions reduction, resource conservation), social (e.g., working conditions, supply chain transparency), and governance (e.g., ethics, compliance, transparency).

This paper analyzes regulatory frameworks, market developments, corporate strategies, and challenges in the implementation of ESG practices.

A key regulatory framework is the Corporate Sustainability Reporting Directive (CSRD) introduced by the European Union, which requires comprehensive and standardized sustainability reporting to prevent greenwashing and inform investors (European Commission, 2023).

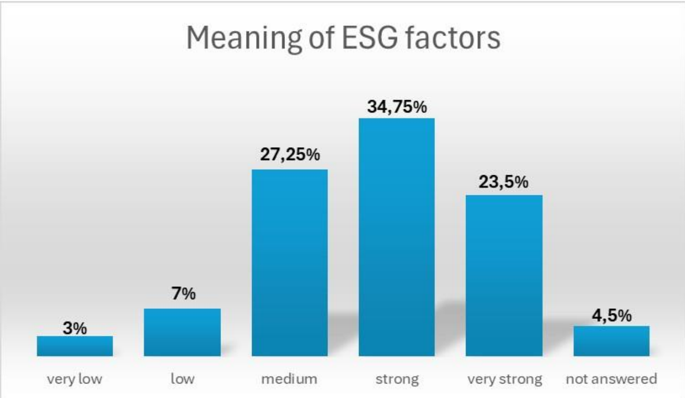
Fig. 1 Meaning of sustainability factors for customers in the German fashion industry



Source: own processing, 2024

According to the study's own survey, 42.25% of consumers consider sustainability aspects to be "strongly" important, and 28.5% rate them as "very strongly" important. Only 5.25% regard them as barely or not at all relevant.

Fig. 2 Meaning of ESG factors for customers in the German fashion industry



Source: own processing, 2024

A similar pattern emerges regarding ESG factors: 34.75% of respondents rated them as "strongly" important, 23.5% as "very strongly," and 27.25% as "moderately" important. Only 7% considered ESG factors to be of "low" relevance.

Instruments such as the German Sustainability Code (Deutscher Nachhaltigkeitskodex, DNK) provide voluntary reporting support, while the German Supply Chain Due Diligence Act (Lieferkettensorgfaltspflichtengesetz, LkSG), in effect since 2023, obliges companies with more than 3,000 employees to uphold human rights and environmental standards throughout their supply chains. The Green Button, a state-run textile certification, was revised in 2022 with version 2.0 to include stricter requirements, such as living wages and comprehensive supply chain audits (Grüner Knopf, 2022).

With an annual turnover of approximately €67.4 billion, the German fashion market represents a significant economic sector (Handelsdaten.de, 2023). According to EY (2021), 71% of consumers believe that manufacturers are responsible for ensuring fair supply chains. However, Meier & Weber (2021) point to a persistent "value-action gap" — many consumers express support for sustainability but do not consistently reflect this in their purchasing behavior.

Companies are responding with innovative strategies: Hugo Boss aims to achieve climate neutrality by 2050 and is investing in alternative materials such as HeiQ Aeoniq. In addition, the company has launched its own second-hand platform "Pre-Loved" to promote circularity (Interview 2, 2024; Hugo Boss, 2023). C&A is also committed to sustainable production, using Cradle-to-Cradle certified denim and operating a climate-neutral factory in Mönchengladbach (C&A, 2023).

ESG is increasingly seen not only as a regulatory obligation but also as a competitive advantage. According to Klein & Hoffmann (2022), companies with strong sustainability performance are more likely to achieve economic success. Schmidt (2021) confirms that well-implemented ESG strategies lead to higher profitability and long-term business stability, especially in resource-intensive sectors like fashion.

Despite these positive developments, companies still face significant challenges in implementing ESG principles. Key obstacles include high costs for sustainable materials and fair wages, which place particular pressure on SMEs (Klein & Hoffmann, 2022). Additionally, the complexity of global supply chains makes it difficult to ensure ESG compliance, particularly in countries with weaker regulatory systems (Schmidt, 2021). Another major issue is inconsistent consumer behavior: while many consumers claim sustainability is important to them, this is not always reflected in their actual purchasing choices.

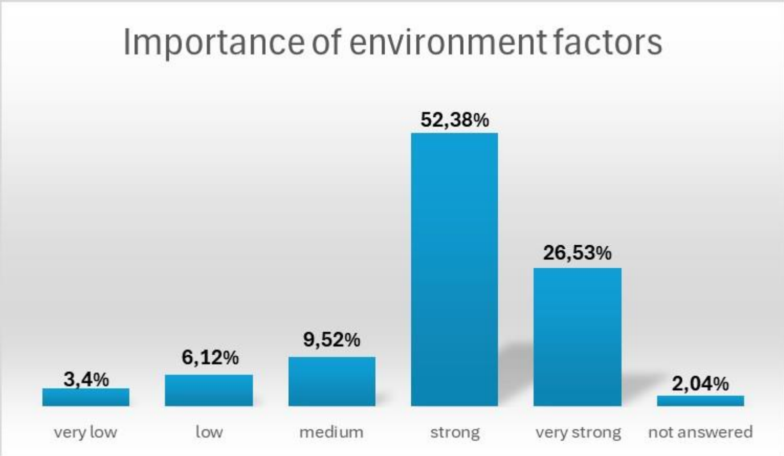
It is becoming increasingly evident that stricter regulations and growing consumer awareness will likely push companies to act more transparently, invest in innovation, and establish circular business models. Companies that successfully and credibly integrate ESG into their strategies will be well-positioned to secure long-term competitive advantages in the evolving market landscape.

3.2 Perspective of environment factors of ESG in the German fashion industry

The global textile and apparel industry is responsible for approximately 4% to 8% of global greenhouse gas emissions (Plan A, 2024). In Germany as well, the sector contributes significantly to CO_2 emissions. In addition to emissions, water consumption is a major environmental issue: the production of a single pair of jeans requires around 8,000 liters of water (EY, 2023). Furthermore, large quantities of textile waste are generated annually, most of which is either landfilled or incinerated (Interview 1, 2024).

At the European level, policymakers have responded with the EU Strategy for Sustainable and Circular Textiles, which aims to extend product lifespans and reduce waste (Plan A, 2024). In Germany, the Supply Chain Due Diligence Act requires companies to ensure compliance with environmental and social standards throughout their entire supply chains (Beile & Vitols, 2024).

Fig. 3 Importance of the environment factor of ESG for the companies in the German fashion industry



Source: own processing, 2024

According to the study's own survey, German fashion companies attach great importance to the environmental aspect of ESG: 52.38% rated it as "strongly" relevant, and 26.53% as "very strongly" relevant. Only a small portion considered it less important, indicating a growing awareness of ecological challenges.

A key solution lies in the use of sustainable materials: companies such as Pure Waste Textiles Oy produce garments made from 100% recycled fibers, reducing water consumption by up to 99.9% and CO_2 emissions by 50% compared to conventional products (Aka-Tex, 2024). Circular business models, where textiles are reused or recycled, are also gaining momentum (Interview 3, 2024).

Despite this progress, German companies continue to face challenges: investments in sustainable production and the development of transparent supply chains often come with higher costs. At the same time, sustainable practices offer significant opportunities—such as stronger brand loyalty, new customer segments, and long-term savings through more efficient resource use.

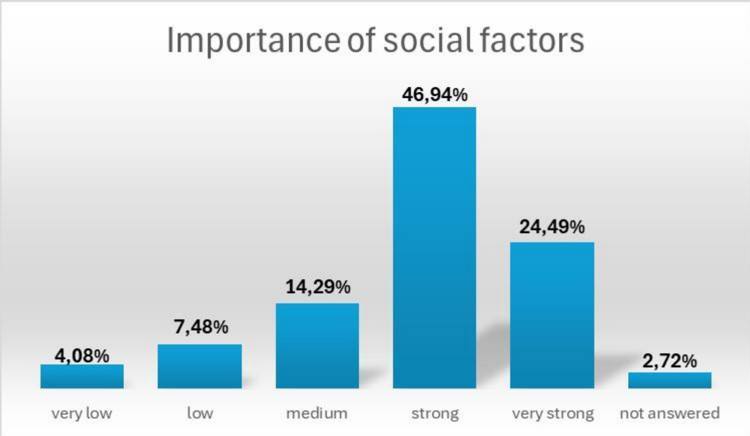
3.3 Perspective of social factors of ESG in the German fashion industry

Social aspects such as working conditions, fair wages, and human rights are gaining increasing importance—for companies, consumers, and regulatory authorities alike. More than 60 million people are employed in the global textile industry, primarily in developing and emerging countries. In many of these regions, workers face poor working conditions, low wages, and inadequate occupational safety. Women, who make up the majority of the workforce, are particularly affected and are often denied basic rights, such as access to healthcare (BMZ, 2023).

To improve social conditions, Germany introduced the Supply Chain Due Diligence Act (Lieferkettensorgfaltspflichtengesetz, LkSG). This legislation requires companies to identify human rights and environmental risks within their supply chains, implement preventive and corrective measures, and report on their activities on a regular basis (Hass, 2021). The goal is to effectively uphold social standards along global production chains.

Public awareness of social sustainability is also growing: according to Interview 4 (2024), more and more consumers pay attention to ethical production conditions and prefer brands that act transparently and socially responsibly. As a result, companies are being forced to adapt their business models and place greater emphasis on social sustainability (Comgest, 2020).

Fig. 4 Importance of the social factor of ESG for the companies in the German fashion industry



Source: own processing, 2024

As our own survey shows, 46.94% of the companies surveyed consider social ESG factors to be "strongly" relevant, while 24.49% rate them as "very strongly" relevant. Only a minority assess them as "moderately" or less important. The results reflect a clear awareness of social challenges, although differences in evaluation persist.

However, the practical implementation of social standards remains demanding: according to Interview 5 (2024), the complexity of global supply chains makes effective monitoring of working conditions difficult. Furthermore, improvements are often associated with increased costs. Nevertheless, there are also opportunities: companies that credibly assume social responsibility can benefit in the long term from a stronger brand image, loyal customers, and more stable supplier relationships (HypoVereinsbank, 2020).

The integration of social factors into ESG strategies is therefore a crucial step toward promoting decent working conditions, complying with legal requirements, and remaining competitive in the marketplace.

3.4 Perspective of governance factors of ESG in the German fashion industry

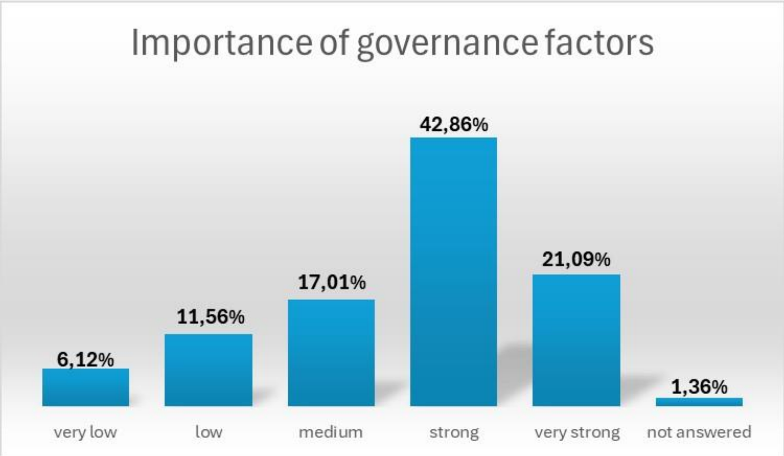
Governance encompasses corporate management, transparency, ethical behavior, and compliance with legal regulations. In recent years, the European Union has introduced several directives aimed at promoting sustainability and transparency across various industries, including the fashion sector.

While large companies usually have the resources to meet complex compliance requirements, SMEs face a greater burden. The implementation of the CSRD and similar regulations requires extensive data collection and reporting, which, according to Interview 6 (2025), involves significant costs and administrative effort. Without targeted support, these requirements could endanger the competitiveness of SMEs (Financial Times, 2024).

Transparency along the supply chain is a central aspect of governance within the ESG framework. Consumers and investors increasingly expect information about product origin, working conditions, and environmental standards. Companies that proactively adopt transparent and ethical business practices can strengthen their brand image and build trust, provided that clear guidelines, effective communication strategies, and regular process reviews are in place (Clarity AI, 2023).

Successfully integrating governance into ESG strategies requires a cultural shift at the leadership level. Executives must recognize the importance of strong corporate governance and implement appropriate measures such as ESG committees, employee training, and adapted internal control systems. This not only ensures regulatory compliance, but can also, according to KPMG (2024), create competitive advantages.

Fig. 5 Importance of the governance factor for the companies in the German fashion industry



Source: own processing, 2024

The relevance of governance factors is rated somewhat lower by companies in the German fashion industry compared to environmental and social aspects: 42.86% of respondents consider them "strongly" relevant, 21.09% "very strongly," while 17.01% rate them as "moderately" and 11.56% as "low." 6.12% perceive them as having little relevance. This distribution indicates that the importance of good corporate governance is perceived differently across the industry.

Nevertheless, governance factors play a central role in the future of the sector. Through transparent, ethical, and legally compliant corporate management, companies can not only meet regulatory requirements but also build trust among consumers and investors. For SMEs, targeted support is essential to maintain competitiveness and successfully implement ESG requirements.

3.5 Comparison of market elements regarding ESG in the German fashion industry

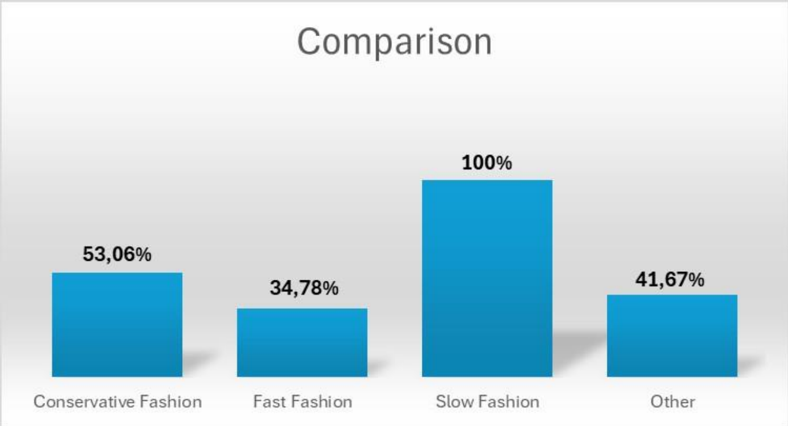
The German fashion industry comprises various market segments, including conservative fashion, fast fashion, and slow fashion, each with a different approach to ESG.

Conservative fashion is characterized by timeless designs, high quality, and durable materials. Production follows stable, seasonal cycles, contributing to longer garment lifespans. While some brands implement comprehensive ESG measures, others continue to follow traditional methods without a clear sustainability strategy.

Fast fashion, by contrast, focuses on rapid production, low prices, and frequently changing collections. This model encourages overconsumption and leads to significant environmental impacts. On the social side, poor working conditions are often a consequence of cost pressures. In terms of governance, the industry faces growing demands for greater transparency and accountability, especially regarding supply chain management.

Slow fashion stands in opposition to this model as a counter-movement. It emphasizes ethical production, fair wages, local manufacturing, and environmentally friendly materials. Brands such as Minuk and Souleway from Hamburg produce locally and guarantee fair working conditions (Die Welt, 2024). In doing so, slow fashion addresses ESG factors holistically—environmental, social, and governance-related.

Fig. 6 Single market elements of the German fashion industry and how they advocate ESG



Source: own processing, 2024

The illustration shows ESG acceptance across the segments: Slow fashion reaches 100%, conservative fashion 53.06%, and fast fashion only 34.78%. This reflects a growing awareness of sustainable consumption.

The research findings clearly indicate that fast fashion, due to its resource-intensive structure, is the least ESG-compliant. Slow fashion, by emphasizing quality and durability, encourages reduced consumption. Conservative fashion lies somewhere in between, with positive attributes such as longevity, but often lacking a strong ESG focus.

Social responsibility is often neglected in the fast fashion model, whereas slow fashion prioritizes fair working conditions. Conservative brands generally adhere to traditional standards, but their social impact varies significantly. Governance structures may exist in this segment, though they are not necessarily ESG-driven.

The market segments of the German fashion industry represent different approaches to ESG: Fast fashion presents major challenges, slow fashion offers a sustainable model, and conservative fashion lies between tradition and modern responsibility.

The present findings clearly demonstrate that sustainability and ESG factors are playing an increasingly central role in the German fashion industry. This development is being driven by a combination of regulatory requirements, societal value shifts, and economic pressures. Politically, both the EU and Germany have shown strong ambitions to mandate sustainable business practices — through instruments such as the CSRD, the EU Strategy for Sustainable Textiles, and the German Supply Chain Due Diligence Act (LkSG) (Beile & Vitols, 2024). These frameworks require companies to provide detailed ESG reporting, identify risks, and ensure strict monitoring of social and environmental standards across their supply chains.

Alongside regulatory developments, pressure from consumers and investors is also increasing. According to the study's own survey, more than 70% of consumers consider sustainability and ESG aspects to be "strongly" or "very strongly" relevant. However, a "value-action gap" persists, as noted by Meier & Weber (2021): while many consumers demand sustainable fashion, they are not always willing to pay higher prices.

Nevertheless, companies are increasingly responding with innovative ESG strategies. Brands such as Hugo Boss are investing in climate neutrality, alternative materials, and circular concepts like second-hand platforms (Interview 2, 2024; Hugo Boss, 2023). C&A, likewise, demonstrates how sustainability can be economically viable through climate-neutral production sites and Cradle-to-Cradle-certified products (C&A, 2023). Both the survey results and expert interviews underline that ESG is no longer seen merely as a regulatory obligation, but more and more as a strategic success factor.

In the area of environment, the level of awareness is especially high: over 78% of surveyed companies rate environmental factors as "strongly" or "very strongly" relevant. Considering that the global textile industry accounts for 4–8% of global greenhouse gas emissions, consumes vast amounts of water, and generates significant waste, this is not surprising (Plan A, 2024; EY, 2023; Interview 1, 2024). Solutions such as circular economy models and the use of recycled materials, as demonstrated by Pure Waste Textiles Oy, offer promising pathways (Aka-Tex, 2024; Interview 3, 2024). Still, the implementation remains challenging due to high costs, lack of transparency, and especially limited resources among SMEs.

Social aspects—such as fair wages, safe working conditions, and human rights—are also gaining prominence, both from a legal and consumer perspective. According to Interview 4 (2024), customer expectations for companies to take social responsibility are growing. The survey confirms this: more than 70% of companies consider social ESG factors "strong" or "very strong." Yet implementation is often complex, especially within global supply chains, as Interview 5 (2024) highlights. Nevertheless, companies that successfully integrate social sustainability benefit from brand strengthening, customer loyalty, and more stable supply chains (HypoVereinsbank, 2020).

In the field of governance, a more nuanced picture emerges. While many companies acknowledge the importance of ethical leadership, transparency, and compliance, the perceived relevance is somewhat lower compared to environmental and social aspects. 42.86% of the companies rate governance as "strongly" important, and 21.09% as "very strongly." According to Interview 6 (2025), SMEs in particular struggle with the practical implementation of regulations such as the CSRD due to high administrative costs, personnel demands, and a lack of internal structures. Nevertheless, the results show that companies that successfully integrate governance practices, such as ESG committees or adapted control systems, can not only ensure compliance but also achieve competitive advantages (KPMG, 2024).

A final comparison of the different market segments highlights the diversity of ESG integration across the industry. Slow fashion meets ESG standards most comprehensively, while fast fashion ranks lowest. Slow fashion focuses on fair, local production and sustainable materials (Die Welt, 2024), whereas fast fashion is heavily criticized for resource-intensive production, short product lifecycles, and poor labor conditions. Conservative fashion falls in between: although product longevity contributes to sustainability, it often lacks an explicit ESG orientation.

CONCLUSION

This study illustrates that sustainability and ESG are key drivers for the future development of the German fashion industry. The increasing density of regulatory requirements, such as the CSRD and the Supply Chain Due Diligence Act (LkSG), has transformed ESG from a voluntary CSR measure into a legal obligation. As a result, companies are compelled to structurally integrate sustainability into their strategies, not least because consumers and investors are increasingly demanding transparency and accountability.

At the same time, the findings demonstrate that ESG is not only perceived as an obligation but also as an opportunity: companies that credibly address environmental, social, and governance factors can improve their brand image, strengthen customer loyalty, reach new target groups, and achieve long-term economic benefits. Especially in the slow fashion segment, ESG is already being implemented consistently, proving that ethical and economically successful business practices are not mutually exclusive.

Despite these advances, there are still significant challenges: implementing ESG requires investment, expertise, and structural change, particularly for SMEs. The empirical findings and expert interviews confirm that targeted political support is necessary to ensure that SMEs are not left behind in the transition. Moreover, consumer behavior remains contradictory: while awareness of sustainability is increasing, this is not always reflected in actual purchasing decisions. The so-called "value-action gap" persists.

In conclusion, the German fashion industry stands at a critical turning point. The integration of ESG factors will increasingly determine competitiveness and social acceptance. Companies that now invest in sustainable structures, fair supply chains, and transparent communication will secure not only compliance with regulations but also strategic advantages in a rapidly changing market. ESG is therefore not merely a vision of the future — it is already a present-day reality and a business imperative.

ACKNOWLEDGEMENT

First and foremost, I would like to thank my university and my department for their continuous support, valuable input, and constructive feedback throughout the development of this thesis. My special thanks also go to the experts from the German fashion industry who kindly agreed to participate in the interviews. Their practical insights and experiences were a vital part of this research. I would also like to express my gratitude to the companies and consumers who granted me access to information and supported the survey. Without the help and cooperation of all those mentioned, this work would not have been possible in its current form. Thank you very much!

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Comparison of Corporate Social Responsibility Performance of International Companies in Selected Sectors

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https://doi.org/10.53465/CEECBE.2025.9788022552257.78-86

Abstract: The paper focuses on examining the influence of the industry on the socially responsible behaviour of multinational companies operating in Slovakia. Through quantitative analysis focusing on primary research and qualitative in-depth interviews with key managers of selected companies, the extent of industry influence on the perception and implementation of socially responsible activities is identified. The aim of the paper is to identify significant differences in the approach to CSR between companies from different sectors of the economy, based on a comparison of the results found. The results of the study will thus contribute to a deeper understanding of the complex relationships between industry and corporate social responsibility.

Keywords: Social Responsibility, International Companies, Code of Ethics, Sustainability

JEL Classification codes: D22, Q56

INTRODUCTION

Corporate Social Responsibility (CSR) has become an integral component of modern business practices, particularly among multinational corporations operating across diverse sectors. The concept of CSR encompasses corporate initiatives aimed at environmental sustainability, ethical labor practices, community development, and stakeholder engagement (Carroll, 1991). The growing recognition of CSR as a strategic business approach has led to an increasing number of studies examining its implementation, effectiveness, and impact on corporate performance (Coelho et al., 2023; Risi et al., 2022).

Despite widespread academic and managerial interest, there remains a lack of comparative analysis of CSR practices across industries. While firms in sectors such as logistics and information technology (IT) operate under distinct regulatory, economic, and social conditions, both industries are expected to adhere to CSR principles in alignment with their strategic objectives and stakeholder expectations (Bagratuni et al., 2023). This study aims to address this gap by conducting a comparative analysis of CSR practices among internationally operating firms in the logistics and IT industries.

The primary research question guiding this study is: How do multinational firms in the logistics and IT sectors differ in their approaches to CSR, and what are the key factors influencing their CSR strategies? By analyzing survey data from employees and managerial insights from in-depth interviews, this research seeks to provide an evidence-based understanding of how CSR is integrated into corporate strategies in these industries.

1 LITERATURE REVIEW

Corporate Social Responsibility is now increasingly coming to the fore as an important aspect of the strategic management of organizations. CSR represents a systematic approach to integrating social, environmental and ethical principles into business activities with the aim of positively influencing society, the environment and the economic environment in which the company operates. According to several sources (DQS Global, TÜV SÜD, IZ, 2024), CSR is becoming an integral part of modern business and its implementation significantly affects the trust of customers, partners, the public and employees.

CSR is a concept that is often used internationally, but its definition is rather broad and ambiguous. In professional discussions, it is often identified with concepts such as 'corporate responsibility' or 'business ethics'. In this context, terms such as 'environmental awareness' and 'sustainability' also appear repeatedly, but refer only to selected aspects of the broader CSR framework (EC, 2024). In technical terms, CSR encompasses an organization’s moral and ethical commitment to its various stakeholders. This commitment relates not only to the way a company treats its employees, but also to its approach to environmental protection, competition, economic processes and other relevant areas.

Theoretical perspectives on CSR emphasize its role as a strategic tool for enhancing corporate reputation, stakeholder relationships, and financial performance. Institutional theory posits that firms engage in CSR in response to normative, coercive, and mimetic pressures within their industry and broader socio-political environment (Risi et al., 2022). Stakeholder theory suggests that companies adopt CSR initiatives to align with the expectations of key stakeholders, including customers, employees, investors, and regulatory bodies (Freeman, 1984).

Empirical research has demonstrated that CSR implementation varies across industries based on sector-specific factors, regulatory requirements, and stakeholder pressures. In the logistics sector, CSR efforts often focus on environmental sustainability, supply chain transparency, and ethical sourcing practices (Zhang et al., 2022). Logistics firms must navigate challenges related to carbon emissions, fuel efficiency, and compliance with international environmental standards, making sustainability a core component of their CSR agenda (Yousefian et al., 2023).

Conversely, the IT industry places a stronger emphasis on data privacy, digital inclusion, and employee well-being as key CSR priorities (Garai-Fodor & Popovics, 2023). The rapid digitalization of global economies has heightened concerns regarding cybersecurity, ethical AI practices, and corporate governance in IT firms. Additionally, IT companies are increasingly investing in initiatives aimed at reducing digital divides and promoting social inclusion (Coelho et al., 2023).

In addition, the implementation of CSR provides significant benefits to businesses, including not only improved reputation and increased credibility but also enhanced economic stability and long-term competitiveness. One of the tools of CSR is a company's code of ethics, which guides decision-making and behavior, and promotes integrity, professionalism, and respect for all stakeholders. A code of ethics is a set of guidelines that define the ethical principles and values that individuals or organizations must adhere to (Becker et al., 2023). The Code serves as a guide for decision-making, ensuring that individuals act with integrity, professionalism, and respect for all stakeholders (Layne, 2023). Additionally, ethical codes help establish corporate credibility by reinforcing responsible business practices and fostering an ethical corporate culture (Becker et al., 2023).

A systematic review of the literature reveals that CSR effectiveness is influenced by factors such as corporate culture, managerial commitment, and stakeholder engagement. Studies have shown that firms with a proactive CSR approach tend to achieve greater financial and reputational benefits compared to those with reactive or compliance-driven CSR strategies (Bagratuni et al., 2023; Zhang et al., 2022). This underscores the need for industry-specific CSR frameworks that align with the operational realities and stakeholder expectations of different business sectors.

This study contributes to the literature by offering a comparative perspective on CSR implementation in the logistics and IT industries. By examining employee perceptions and managerial insights, it provides a nuanced understanding of how sector-specific factors shape CSR strategies and their effectiveness in achieving sustainable business outcomes.

2 METHODOLOGY

This study employs a mixed-methods research approach that integrates quantitative data obtained from a survey with qualitative insights gathered through in-depth interviews with managers. The primary objective of the research is a comparative analysis of two industries— logistics and information technology — with a particular focus on their approach to corporate social responsibility.

To process the collected data, analytical methods such as analysis, synthesis, induction, deduction, and comparative evaluation were applied. The survey was conducted in two international companies operating on the Slovak market, with a total of 24 employees responding in each organization. The first company (group A) operates in the field of international transport, freight forwarding and logistics, and the second company (group B) is in the IT sector. The sample consisted of employees working in the company in smaller teams for more than three years. The questionnaire was designed to examine factors influencing employees' perceptions of socially responsible activities within their organizations. The quantitative findings were complemented by in-depth interviews with company managers, providing valuable insights into strategic decision-making processes and sector-specific challenges. Managers are in the position of team leaders and have been in their position for more than a year.

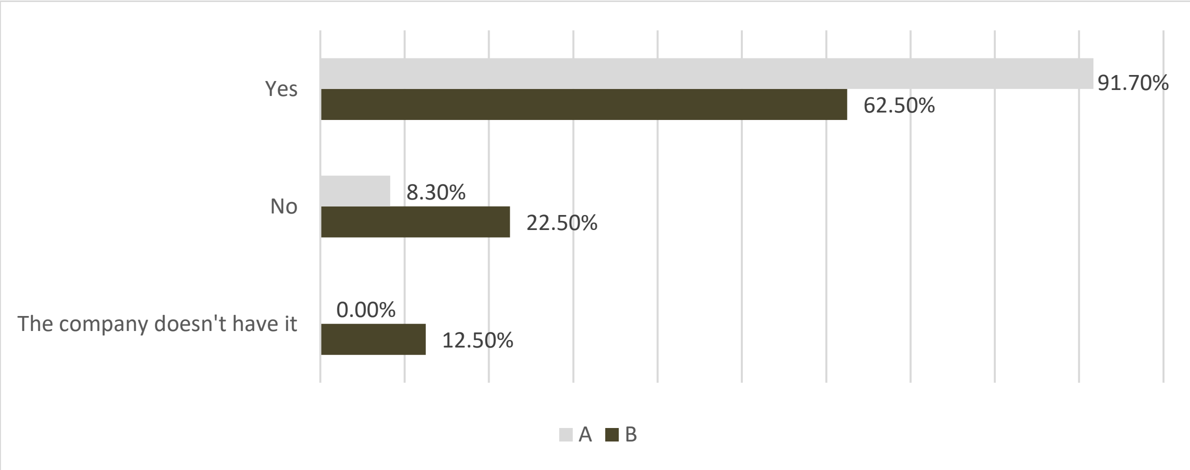
The collected data were analyzed using statistical methods, including descriptive statistics to summarize responses and comparative analysis to identify differences between the logistics and IT sectors. Conclusions were drawn based on data evaluation using induction and deduction methods. Additionally, qualitative data from interviews were transcribed and thematically analyzed to identify key shared themes and differences between the two industries. The results of the questionnaires are processed using graphs and interpretations supplemented by qualitative interviews with company managers.

Despite the study's relevance, certain limitations must be considered. The sample size (n=24 for each company) may limit the generalizability of the findings. Moreover, the specific characteristics of each industry may influence respondents' answers, necessitating cautious interpretation when comparing sectors. Nevertheless, the combination of quantitative and qualitative approaches, along with the application of analytical, synthesis, induction, deduction, and comparative methods, enhances the reliability of the findings and provides a comprehensive perspective on the examined issue.

3 RESULTS AND DISCUSSION

Based on the primary survey and its analysis and comparison with the statements of the managers of both surveyed companies, we can conclude that the code of ethics is one of the building blocks of companies. Without ethics in business and a responsible approach to the environment, it would not be possible to fully grow as a company. Therefore, at the beginning of our research, we wanted to know the answer to the question of whether employees know the company's code of ethics and to what extent they are familiar with it.

Fig. 1 Do you know the code of ethics in your company?

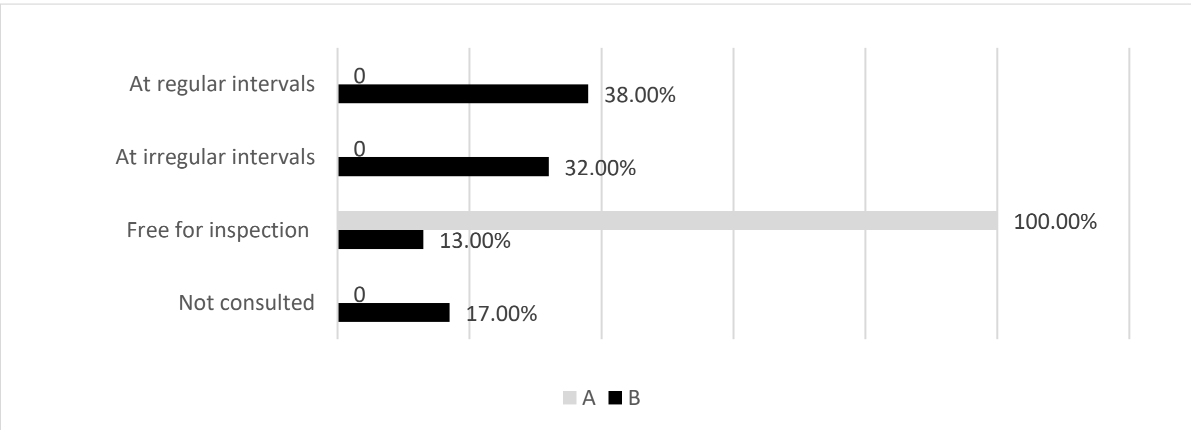


Source: own processing

In Graph 1 (Fig. 1), we analyze the knowledge of the code of ethics in the two branches of foreign international companies examined. Respondents (91.7%) from a logistics-oriented company (Group A) saw that they knew the company's code of ethics, while in an IT-oriented company (Group B) this proportion is significantly lower, at 62.5%. On the other hand, the lack of knowledge of the code of ethics is more frequent in group B (22.5% of respondents do not know it and 12.5% think that the company does not have it) compared to group A, where only 8.3% of respondents do not know the company's code of ethics.

The research also analyzed the mechanism of informing employees about the existence and content of the code of ethics in the monitored groups, as we can see results in Fig. 2. In group A, all respondents stated that the code of ethics is freely available to them for inspection. This result testifies to the transparent and efficient system of publishing the code of ethics in this group. On the contrary, in group B, heterogeneous responses were recorded, which indicated inconsistency in awareness of the mechanism of familiarization with the code of ethics in society. This fact indicates potential shortcomings in the internal communication processes regarding the code of ethics in Group B.

Fig. 2 Familiarization with the company's code of ethics

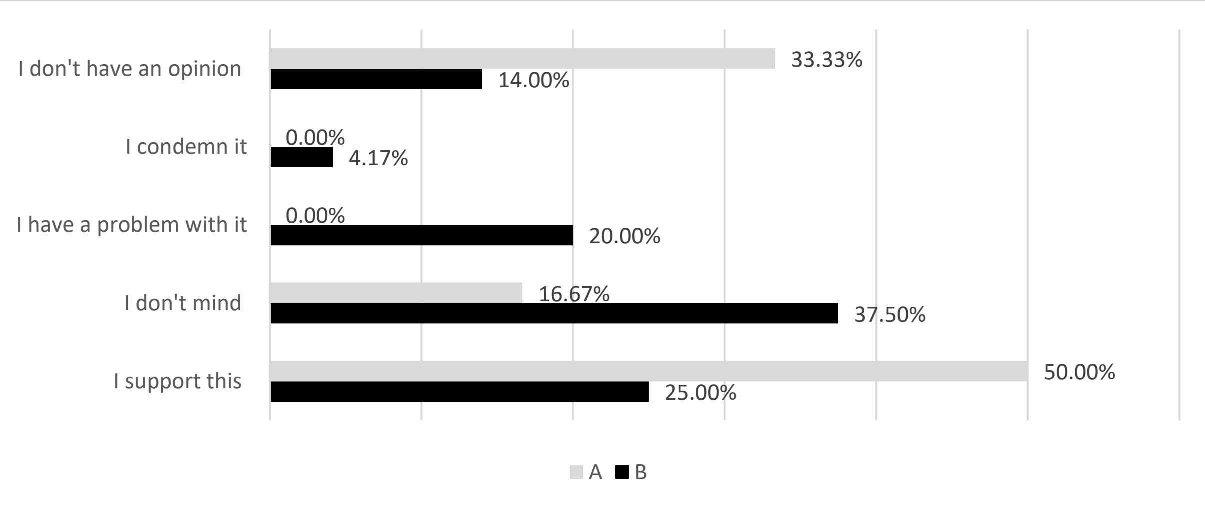


Source: own processing

The results of the survey point to the importance of transparent and effective communication of the code of ethics in organizations. A logistics company shows an example of good practice in ensuring the availability of a code of ethics. Its respondents are familiar with the company's code of ethics. Respondents from an IT company have poorer knowledge of their code, which indicates that the current system of communication and education about the code of ethics in group B is not effective enough. According to the manager of Group B, once a year, there is a training on the Code of Ethics, which is accessible to all employees in the company. Employees are entitled to receive training, but it is not mandatory.

With evolution and digital changes, the social needs of the company's employees are also changing. In the current modern era of the 21st century, it is common work practice to release men for the so-called "Paternity Leave." The social and legal setting of the Slovak Republic helps the trend of growing popularity among employees. We were interested in how employees perceive the institute of "Paternity Leave" in the surveyed companies.

Fig. 3 Paternity leave



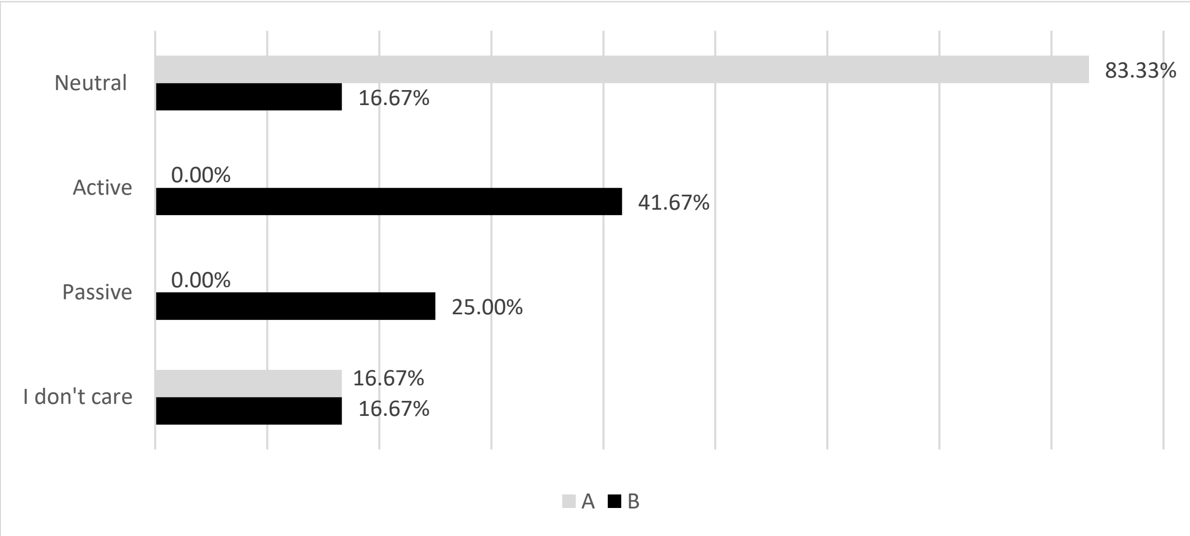
Source: own processing

Graph 3 (Fig. 3) analyses respondents' attitudes towards paternity leave. The strongest support for paternity leave is in group A, where 50% of respondents support it, while in group B, only 25% do. Negative attitudes were expressed in group B, where 20% of respondents said that they were bothered by paternity leave, while in group A, no one gave such an answer. The overall results point to a higher acceptance rate of paternity leave in the group and greater variability of attitudes in group B, including basic balanced attitudes. A possible explanation for the differences between groups A and B may also be the sectoral focus of employers. The logistics sector is often characterized by higher demands on staff presence and more rigid working conditions, which can affect the perception of paternity leave and the possibilities of harmonization work with childcare. The demands on punctuality, time to deliver shipments on time, and prompt response to customer orders require immediate reactions from employees, which often do not allow you to combine work with private life. For that reason, Group A employees tend to have a rather positive view of paternity leave. On the contrary, IT is known for greater flexibility in working hours and a wider acceptance of work-life balance initiatives, which could explain the higher variability of opinions in group B.

Impacts on climate change mitigation and adaptation are the basis for assessing companies from an environmental perspective. However, environmental impacts in a broader sense are also important, such as promoting biodiversity conservation, pollution prevention, the circular economy, energy consumption or preparedness for changes in environmental legislation (KPMG, 2022). According to a report by the World Economic Forum (2024), the next decade will be characterized by major environmental and social crises, driven by current geopolitical and economic trends. In both the short term (2 years) and the long term (10 years), environmental risks such as biodiversity loss and ecosystem collapse, as well as extreme weather events, are among the fastest-worsening global problems (WEF, 2024).

In the area of the ESG activities, we focused on employees' attitudes towards ESG. Graph 4 (Fig. 4) shows the attitudes of employees towards these activities. In group A, the most significant share of respondents (83.33%) expressed a neutral attitude towards ESG activities. In group B, an active approach prevails (41.67%), while in both groups, the same proportion of employees (16.67%) do not show interest in ESG activities. An analysis of employees' attitudes towards ESG activities reveals significant differences between groups A and B. Group A is characterized by a predominantly neutral attitude, while group B has a higher proportion of employees with both active and passive attitudes. This result indicates a polarization in the approach to sustainability in Group B.

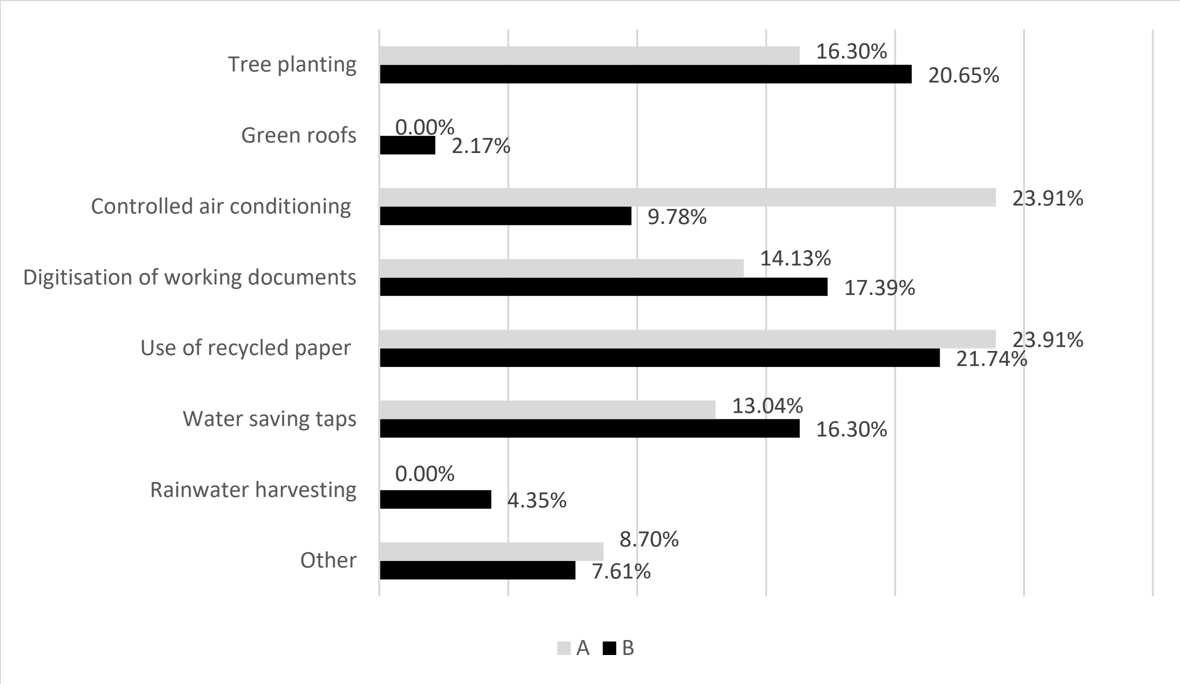
Fig. 4 Employee attitudes towards ESG activities



Source: own processing

In the area of the environmental pillar of research, Graph 5 (Fig. 5) provides information on the degree of perception of environmental activities from the perspective of employees. Overall, the IT company (group B) shows a higher implementation rate in most categories, especially for energy-saving faucets, digitization of work documents and tree planting. These measures are in line with the values and goals of IT companies, which often present themselves as environmentally responsible. The logistics company (group A) leads only in regulated air conditioning, which is understandable given the need to maintain optimal conditions for the storage and handling of goods, as well as for the work of employees in logistics centers.

Fig. 5 Environmental activities of the company perceived from the perspective of employees



Source: own processing

In both groups, the digitization rate of working documents is relatively high (group A: 14.13%, group B: 17.39%). In both sectors in which companies operate, digitalization is important for efficient process management, cost reduction and minimization of errors. Both groups also show a slightly higher rate of use of recycled paper (group A: 23.91%, group B: 21.74%). Similarly, the use of recycled paper is important for reducing paper consumption and protecting the environment. In the logistics sector, which often works with a large number of documents (e.g. waybills, invoices, delivery notes, transport orders), it is important to minimize paper consumption and promote recycling. In the IT sector, which often presents itself as environmentally responsible, the use of recycled paper is one of the manifestations of the effort to reduce the environmental impact.

The consensus on the implementation of the digitization of work documents and the use of recycled paper between groups A and B indicates that these measures are considered important and beneficial in both sectors. Digitalization brings efficiency and reduces costs, while the use of recycled paper contributes to the protection of the environment.

CONCLUSION

The main aim of the paper is to identify significant differences in the approach to CSR between companies from different sectors of the economy. We compared companies operating in the IT sector, which is often associated with greater flexibility of working conditions, with a company operating in the field of international transport, freight forwarding and logistics. This sector focuses on time and promptness in responding to customer requirements. The conclusions of the survey showed that both companies emphasize a code of ethics. Employees, in most cases, are familiar with it and know it. In the field of logistics, the code of ethics also plays an important role in terms of communication between freight forwarders, logistics partners and carriers in order to maintain ethical and correct relations. We observed differences between sectors in the perception of paternity leave, where companies operating in IT have variable opinions and companies in logistics have a rather positive approach, which is a consequence of the very nature of work and the possibility of reconciling private and professional life. From the point of view of ecology and employees' approach to it, their attitude is rather neutral or passive. The influence of the sector is not manifested in this understanding, as it results mainly from the mentality of the company as such and the very market in which the companies operate.

The survey is limited to a partial sample of respondents and the subjectivity of opinions, but we can still say that the sector in which employees work often influences the formation of perceptions and attitudes regarding ESG. The results thus form the basis for extended research, which would complement the knowledge base with other sectors and a larger research sample. Another limitation of the research may be the selection of only selected attributes from the social area (e.g. paternity leave) and from the environmental area, which focused more on the perception of employees and their attitude to the environment as such and not on the subject of business of the given companies. Therefore, in addition to expanding the sample of respondents, the potential for further research is a comprehensive examination of the environmental attitudes of companies from the point of view of employees and from the point of view of the company's activities themselves. For IT companies, it is mainly about the functioning of data centers (massive electricity consumption, cooling), and for transport, freight forwarding and logistics companies, the use of fossil fuels, route optimization, renewal, or electrification of the vehicle fleet are important issues.

ACKNOWLEDGEMENT

This paper is a part of the research project VEGA No. 1/0102/24 Positions and perspectives of mutual trade and economic cooperation of the Visegrad Group countries under the influence of geopolitical changes in the world economy, and VEGA No. 1/0398/22 The current status and perspectives of the development of the market of healthy, environmentally friendly and carbon-neutral products in Slovakia and the European Union.

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Exploring Consumer Ethnocentrism and Country-of-Origin Effects among Filipino Gen Z

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https://doi.org/10.53465/CEECBE.2025.9788022552257.87-100

Abstract: This study explores consumer ethnocentrism and country-of-origin (COO) effects among Filipino Generation Z consumers across five product categories: automobiles, clothing, dairy products, electronics, and cosmetics. Using the Consumer Ethnocentric Tendencies Scale (CETSCALE) and recall-based COO assessment, the study finds moderately strong ethnocentric tendencies, particularly for automobiles and clothing, where domestic economic contributions are emphasized. Conversely, COO effects are less significant in electronics and cosmetics, where quality, innovation, and brand reputation dominate. Statistical analyses reveal a significant contingency between high ethnocentrism and preference for local products in cars and clothing, while no such relationship exists in other categories. The findings suggest marketers in the automotive and apparel sectors should emphasize local origin, while other industries should focus on quality and global trends. This research highlights the importance of tailoring marketing strategies to align with Filipino Gen Z's values, offering actionable insights for businesses.

Keywords: Ethnocentrism, Generation Z, Country-of-Origin Effects, International Business, Filipino Consumers, Consumer Behaviour

JEL Classification codes: M31, F14, D12

INTRODUCTION

The global marketplace opens limitless opportunities for international businesses to grow. As the world becomes increasingly interconnected, comprehending the factors affecting the buying behavior of the target market has become crucial for all businesses operating in the international market to remain competitive and meet the evolving needs of their customers. With the constant changes in the global business environment, marketers often explore to understand the factors influencing consumer behavior in both domestic and international arenas. One area in market and opinion research is consumer ethnocentrism, which refers to the belief that buying domestic products is more beneficial than foreign ones (Wojciechowska-Solis, 2022). This belief is often rooted in national pride and economic patriotism, impacting buying decisions and encouraging support for the local economy through specific product preferences and behaviors. The Consumer Ethnocentric Tendencies Scale (CETSCALE), developed by Shimp & Sharma (1987), is a widely used tool for assessing consumer ethnocentrism. Its reliability and validity have been confirmed across various cultural contexts, making it a standard instrument in consumer behavior research (Čvirik & Naďová Krošláková, 2022; Jiménez-Guerrero et al., 2014).

The primary goal of this study is to measure and analyze the level of consumer ethnocentrism among Generation Z Filipinos using the CETSCALE tool. This involves evaluating their attitudes toward both domestic and foreign products and understanding how these attitudes affect their purchasing decisions. By identifying the key factors that shape ethnocentric tendencies in this demographic, the research aims to reveal the underlying motivations and social influences that drive these behaviors. This analysis will shed light on how Generation Z Filipinos perceive domestic products and the extent to which consumer ethnocentrism impacts their consumption patterns.

The second objective explores the country-of-origin effects in selected product categories (automotive, apparel, food, electronics, and cosmetics) among Generation Z Filipinos. This objective seeks to assess the spontaneous knowledge and associations that Generation Z Filipinos have with different countries in relation to these product categories. By examining how these associations influence their perceptions and preferences, the study aims to identify the specific attributes and stereotypes linked to various countries that impact consumer choices. This analysis will provide insights into the cognitive processes and cultural biases that shape the country-of-origin effect within this demographic.

The third key objective is to explore the relationship between consumer ethnocentrism and the preference for domestic versus foreign products in the selected categories. This involves determining how varying degrees of consumer ethnocentrism impact the perception and choice of products based on their country-of-origin. Through this objective, the researchers uncover the extent to which ethnocentric attitudes influence consumer preferences and the conditions under which these attitudes are most pronounced. This analysis will inform marketers and policymakers about the potential challenges and opportunities in targeting Generation Z consumers with ethnocentric tendencies.

This study investigates the relationship between consumer ethnocentrism and the country-of-origin effect, delivering crucial insights for marketers who seek to comprehend the preferences of Generation Z consumers in the Philippines. Determining the factors can offer strategic direction for businesses and marketers to refine their strategies and enhance their interaction with this key demographic. In doing so, the study equips stakeholders with the understanding necessary to effectively engage with Generation Z, allowing them to build stronger connections and achieve success in the competitive global marketplace.

1 LITERATURE REVIEW

Consumer ethnocentrism plays a significant role in consumer product preferences as it serves as one of the inputs for crafting data-driven marketing strategies and brand positioning in global markets (Čvirik and Dotong, 2023, 2024). For example, companies entering culturally similar countries may capitalize on this ethnocentric tendency by emphasizing shared values and local partnerships, thereby creating a sense of familiarity among consumers (Durvasula et al., 1997). On the other hand, brands that overlook cultural differences risk alienating potential consumers, particularly in regions where national identity plays a significant role in consumption patterns (Čvirik & Naďová Krošláková, 2022). For marketers, comprehending these dynamics is essential for successfully navigating the complexities of global trade while respecting local sentiments, as the relationship between consumer attitudes and product origins can ultimately determine market success or failure in the field of international markets.

As consumers across the globe have access to a wide range of multinational products and services because of the globalization, their preferences in choosing domestic and foreign products are continuously changing because of several factors. A key influence on these preferences is the country-of-origin (COO) effect, which is shaped by the nation where a product is produced or manufactured. This concept helps market researchers explore why consumers might favor home-country products over global ones. The COO effect suggests that companies from different countries carry unique traits linked to their origins, offering them a competitive edge (Gooderham, 2024). This preference often stems from country stereotypes and perceived images, as consumers associate brands with their personal views and beliefs about the country of origin, affecting quality perception and purchasing decisions. This phenomenon is often moderated by product ethnicity and consumer traits. For instance, consumers with strong national identities may prefer domestic goods, while others may be more open to foreign products (Fischer & Zeugner-Roth, 2017). However, strong brand associations can sometimes outweigh these national biases (Ahmed et al., 1998). A study in Hungary showed that COO significantly influences mobile phone choices among young adults, depending on product origin (Nagy, 2019). Understanding cultural context is crucial when examining consumer ethnocentrism, as findings from one country may not apply to another (Durvasula et. al., 1997). Studies across Asia highlight the COO effect's influence on Generation Z's buying behavior, particularly in fashion, food, and technology. For example, in Indonesia, the COO, in terms of buying intentions of a market segment in the country, are affected by brand image and their perceived quality (Heriyati et al., 2024). In Jakarta, COO enhances brand image, while in East Java, ethnocentrism strengthens Korean food buying intentions, showing the complex interplay between local and foreign influences (Adriana et al., 2023). This suggests that local preferences can either increase or decrease the appeal of foreign products.

The COO effect tends to favor foreign brands, but it also underscores the significance of local identity and preferences, creating a complex environment for marketers aiming at Generation Z. This group’s buying choices are influenced by a mix of global and local elements, making it essential for marketers to balance the appeal of foreign products with the importance of local tastes. Understanding this interplay is vital for crafting effective marketing strategies that connect with Generation Z consumers, who are becoming more aware of and responsive to both international trends and local cultural values.

Generation Z, often referred to as the information generation, represents a significant and influential consumer segment having distinct characteristics and preferences. Born between 1995 and 2009 (McCrindle, 2014), this generation is marked by digital nativism, entrepreneurship, social consciousness, pragmatism, and diversity (Jayatissa, 2023). These unique traits found inthis generation are crucial to understanding their consumer behavior, particularly their ethnocentric tendencies and responses to country-of-origin effects. As digital natives, their preference for authenticity and heightened social consciousness significantly influences their buying decisions, necessitating further research and attention from market researchers to effectively engage with this powerful consumer group. Moreover, their digital fluency makes them critical players in financial markets, as they are heavily influenced by social media in their investment decisions (Panchasara & Bharadia, 2024).

In the Philippines, Filipino Generation Z displays distinct characteristics that are influenced by their socio-cultural environment, technological advancements, and evolving identities. This generation shows a strong entrepreneurial spirit, with about 54% aspiring to start their own businesses, motivated by their entrepreneurial skills and attitudes (Etrata & Raborar, 2022). The COVID-19 pandemic has further amplified this entrepreneurial drive that highlights their sense of adaptability and resilience in the face of challenging economic conditions. In addition, Filipino Gen Zs are highly socially aware and media savvy. Most of them are particularly adept at navigating the complex torrent of false information on social media and actively strive to distinguish between credible information and fake news (Pazon, 2018). Their views on social issues such as feminism reflect a strong desire for gender equality and empowerment, although misconceptions about feminism still exist (Mori et. al., 2023). The influence of global media and technology also causes Filipino Gen Zs to engage in complex linguistic identity negotiations while balancing local and global communication styles (Suizo, 2024). This dynamic interplay of local and global influences is closely tied to consumers' ethnocentrism, influencing their purchasing behaviors and preferences.

The entrepreneurial mindset and increased social awareness of this generation may lead them to support local businesses and products that align with their values, even as their exposure to global trends and media often makes them lean towards international brands. For marketers looking to connect with this demographic, it is essential to grasp the complex interplay between external influences and their unique cultural identity, social consciousness, and global perspectives. By considering the country-of-origin effect and the ethnocentric tendencies common among Filipino Gen Z, marketers can create a data-driven strategy that genuinely reflects their preferences and aligns with their core values. This research aims to explore these two concepts within the context of Generation Z in the Philippines, a group known for its unique consumption patterns and significant impact on market trends. The study is guided by three main objectives: First, to identify the characteristics and level of consumer ethnocentrism among Filipino Generation Z consumers. Second, to examine specific country-of-origin effects in selected product categories based on this demographic's spontaneous knowledge. Lastly, to investigate the relationship between consumer ethnocentrism and perceptions of country-of-origin within those product categories.

2 METHODOLOGY

2.1 Research Design

Quantitative research design was utilized in this study to determine the nexus between consumer ethnocentrism and the country-of-origin effect among Filipino Gen Z consumers. The criteria in of the choses respondents includes any Filipino Gen Z born in and raise in the Philippines between 1995 and 2009. A sample size of 336 respondents was selected using convenience sampling, chosen for its practicality and efficiency in reaching the target demographic. To measure consumer ethnocentrism, the researchers employed CETSCALE developed by Shimp and Sharma (1987). This scale consists of 17 items, which are rated on a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) as descriptive equivalent. The reliability of the instrument was preestablished by McDonald's ω and Cronbach's α (Čvirik, 2024), confirming internal consistency and validity. The researchers established the scale and the associated intervals in order to categorize the level of consumer ethnocentrism, on a scale from 1 to 5, with minimum and maximum values representing "soft" and "hard" ethnocentrism, respectively. At the lower end of the scale, the interval from 1.00 to 1.80 represents "Strongly Disagree" and is associated with soft ethnocentrism. Respondents in this category strongly disagree with ethnocentric statements, indicating a low level of consumer ethnocentrism and a greater openness to purchasing foreign products. Moving up the scale, the interval from 1.81 to 2.60 corresponds to "Disagree" and signifies moderately soft ethnocentrism as verbal interpretation. Individuals in this range generally disagree with ethnocentric statements, suggesting a mild preference for local products but still maintaining openness to foreign alternatives.

The neutral point on the scale, from 2.61 to 3.40, is labeled as "Neutral" and represents moderate ethnocentrism. Respondents in this category neither strongly favor nor oppose local over foreign products, indicating that their purchasing decisions may be influenced by factors other than ethnocentrism, such as price or quality. As we move further up the scale, the interval from 3.41 to 4.20 is categorized as "Agree," indicating moderately hard ethnocentrism.

Individuals in this range generally agree with ethnocentric statements and show a noticeable preference for local products, demonstrating a tendency to support domestic goods and services.

Below is the rewritten representation of each code of issue, which reflects the specific ethnocentric statement associated with each code:

- **CET1**: Filipinos should always buy Philippine-made products instead of imported products.
- **CET2**: Only those products that are unavailable in the Philippines should be imported.
- **CET3**: Buying Philippine-made products will help Filipinos to have more jobs.
- **CET4**: As a Filipino, buying Philippine-made products should be the priority.
- **CET5**: As a Filipino, I believe that buying foreign products is not nationalistic/patriotic.
- **CET6**: I am against buying imported/foreign products as it puts Filipinos out of jobs.
- **CET7**: Filipinos should always buy Philippine-made products.
- **CET8**: We should buy products manufactured in the Philippines instead of letting other countries get rich off us.
- **CET9**: It is always best to purchase Filipino products.
- **CET10**: There should be very little trading or purchasing of goods from other countries unless out of necessity.
- **CET11**: Filipinos should not buy foreign products because this hurts Philippine business and causes unemployment.
- **CET12**: Import barriers should be put on all foreign products entering the country.
- **CET13**: It may cost me in the long run, but I prefer to support Philippine-made products.
- **CET14**: Foreign businesses should not be allowed to put their products on our markets.
- **CET15**: Foreign products should be taxed heavily to reduce their entry into the Philippines.
- **CET16**: We should only buy imported products when the product/good cannot be obtained within our country.
- **CET17**: Filipino consumers who purchase products made in other countries are responsible for putting their fellow Filipinos out of jobs.

At the highest end of the scale, the interval from 4.21 to 5.00 is labeled as "Strongly Agree" and reflects hard ethnocentrism. Respondents in this category exhibit a strong agreement with ethnocentric statements, indicating a high level of consumer ethnocentrism. These individuals have a strong preference for local products and are likely to avoid foreign goods. This framework provides a comprehensive understanding of the degree of ethnocentrism among respondents, offering insights into their preferences and attitudes toward local versus foreign products. Additionally, the recall method was used to evaluate the country-of-origin effect, where respondents were asked to spontaneously recall and list the countries they associate with five selected product categories: automotive, apparel, food, electronics, and cosmetics. The selection of specific product categories for COO effect analysis in this study is based on several key considerations. Firstly, categories such as car and clothing were chosen due to their significant economic impact and contribution to the local economy. These industries often have strong domestic production capabilities, making them relevant for examining consumer ethnocentrism and the preference for supporting local businesses. Additionally, these categories are highly visible in consumers' daily lives and involve frequent purchasing decisions, as car and clothing are not only essential goods but also represent lifestyle choices. This visibility makes them ideal for analyzing how COO perceptions influence consumer preferences.

Moreover, electronics, cosmetics, and dairy products were selected for their diverse associations with different countries known for their expertise in these areas. For instance, electronics are often linked to technological advancements in countries like Japan and South Korea due to a combination of innovative capabilities, government policies, and strategic industry practices as these factors have positioned both nations as leaders in the global electronics market (Nakata et al., 2006) while cosmetics may be associated with beauty standards set by countries like France and South Korea shaped by cultural, historical, and marketing influences (Jones, 2011). These nations have established distinct beauty ideals that are propagated through their cosmetics industries which reflects their societal values and consumer expectations of these products. These diversities allow the researchers to analyze how the COO effects interact with various consumer influences, from functional considerations like quality and reliability in electronics to aesthetic and personal expression in cosmetics and clothing. These categories are culturally relevant and resonate with Filipino Gen Z consumers, who are influenced by both local traditions and global trends. This duality makes them suitable for exploring how cultural affinity and global exposure affect COO perceptions. These selected product categories capture a broad spectrum of consumer behaviors and attitudes, providing a nuanced understanding of how the COO effects manifest across different sectors. This approach enhances the methodological rigor by ensuring that the analysis is both comprehensive and contextually relevant.

2.2 Data gathering procedure

The survey was conducted online to maximize reach and provide convenience for respondents. The survey link was distributed using Google Forms, and responses were gathered over a three-month period. The researchers secured consent from selected participants and ensured the confidentiality of their information, as participation in this research was completely voluntary.

2.3 Statistical treatment and data analysis

Descriptive statistics were used to summarize the demographic characteristics of the sample and to identify the most frequently recalled countries for each product category. Mean rating scores and standard deviations for the CETSCALE items were calculated to characterize the degree of consumer ethnocentrism among Generation Z Filipinos. This scale is a well-established tool for assessing ethnocentric tendencies, providing a reliable basis for evaluating respondents' preferences for domestic versus foreign products.

Reliability analysis was conducted using McDonald's ω and Cronbach's α to assess the internal consistency of the CETSCALE. For country-of-origin analysis, frequency analysis identified the most frequently recalled countries for each product category, while cross-tabulations explored the relationship between consumer ethnocentrism scores and country-of-origin preferences. Chi-square test were considered to determine the presence of statistically significant relationships between consumer ethnocentrism and country-of-origin effects across product categories.

Multiple Correspondence Analysis (MCA) was used to provide a visual representation of the relationships between consumer ethnocentrism and country-of-origin preferences. The correspondence maps illustrate the association between high ethnocentrism and preference for domestic products.

3 RESULTS AND DISCUSSION

First of all, we focused on the characteristics of generic results with the help of descriptive statistics for individual CETSCALE statements (see Tab. 1).

Tab. 1 Mean rating score and standard deviation of CETSCALE results

Code	Mean	Std. Dev.	Level of Agreement	Ethnocentrism Level
CET1	3.83	0.987	Agree	Moderately Hard Ethnocentrism
CET2	3.83	1.112	Agree	Moderately Hard Ethnocentrism
CET3	4.65	0.680	Strongly Agree	Hard Ethnocentrism
CET4	4.28	0.857	Strongly Agree	Hard Ethnocentrism
CET5	2.94	1.091	Neutral	Moderate Ethnocentrism
CET6	2.67	1.087	Neutral	Moderate Ethnocentrism
CET7	3.65	1.028	Agree	Moderately Hard Ethnocentrism
CET8	3.99	0.974	Agree	Moderately Hard Ethnocentrism
CET9	4.09	0.924	Agree	Moderately Hard Ethnocentrism
CET10	3.79	0.988	Agree	Moderately Hard Ethnocentrism
CET11	2.93	1.090	Neutral	Moderate Ethnocentrism
CET12	3.32	1.121	Neutral	Moderate Ethnocentrism
CET13	4.00	0.916	Agree	Moderately Hard Ethnocentrism
CET14	2.53	1.098	Disagree	Moderately Soft Ethnocentrism
CET15	3.45	1.142	Agree	Moderately Hard Ethnocentrism
CET16	3.81	1.002	Agree	Moderately Hard Ethnocentrism
CET17	2.76	1.337	Neutral	Moderate Ethnocentrism

Source: Own processing

Table 1 presents the mean rating and CETSCALE results. The statement CET3, "Buying Philippine-made products will help the Filipinos to have more jobs," received the highest average score of 4.65 with a standard deviation of 0.680. This suggests a strong consensus among respondents, highlighting a prevalent belief in the economic benefits of purchasing locally made products. However, the statement CET14, "Foreign businesses should not be allowed to put their products on our markets," had the lowest average score of 2.53 with a standard deviation of 1.098, indicating a relatively lower level of agreement and more diverse opinions on restricting foreign products.

The overall consumer ethnocentrism score, calculated by summing the responses to all 17 statements, ranged from 17 to 85 points. The sample's mean score was 60.53, with a 95% confidence interval ranging from 59.35 to 61.71, and a standard error of 10.98. The median score was 61 points, indicating that, on average, the level of consumer ethnocentrism among Generation Z Filipinos is high, aligning with findings by Čvirik and Naďová (2022).

3.1 Gen Z Filipino country-of-origin perception

The study of the country-of-origin effect utilized an association-based approach, specifically employing the recall method. This research focused on five product categories: automotive, apparel, food, electronics, and cosmetics. The country-of-origin effects highlight the importance of consumer perceptions in influencing purchasing decisions, as well as how these perceptions can vary significantly based on cultural and regional contexts.

The first product category examined was automobiles. Generation Z Filipinos were asked to spontaneously recall the first country that came to mind for this category. Among the 194 possible countries, respondents mentioned 24, with Japan being the most frequently cited (27.1%), followed by Germany (20.8%) and the United States (19%). Notably, the Philippines emerged as the fourth most mentioned country (approximately 7.7% of respondents), which is intriguing given the focus of the study. The mutability value for this category was 0.837, indicating a high degree of variability in responses. This suggests that while the country-of-origin effect is present, there are significant differences in how individual countries are perceived within this category. The existing literature supports these findings by emphasizing the diverse factors that influence consumer perceptions, such as brand reputation and cultural affinity.

The second product category investigated was clothing. Results indicated that respondents primarily associated this category with both the Philippines and the USA, each mentioned by 20.8% of participants. Italy (14.3%) and France (7.7%) followed. The mutability value was 0.866, reflecting a high level of variability in country associations. This aligns with previous research, which suggests that fashion and apparel are often influenced by cultural trends and national identity, leading to diverse consumer perceptions.

For dairy products, respondents showed a strong association with the United States (26.8%), followed by the Philippines (17.9%) and New Zealand (14%). The mutability value of 0.86 again indicates significant variability in responses. This supports the literature on food products, where country-of-origin perceptions are often linked to quality and safety standards, which can vary widely among consumers.

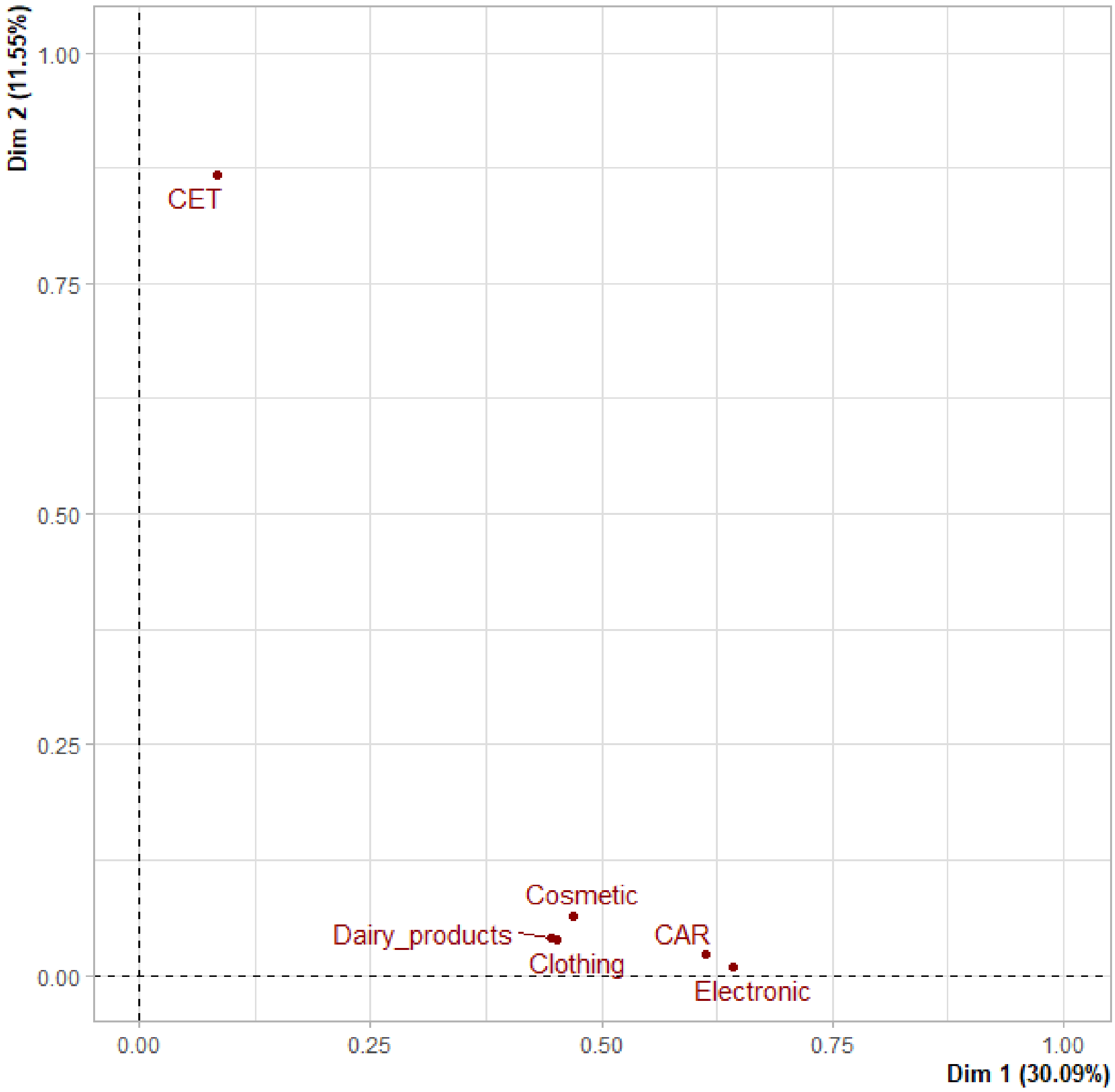
In the electronics category, the mutability value was 0.71, reflecting considerable differences in responses. Japan was the most frequently chosen country (50.3%), followed by the United States (14%) and Germany (9.5%). The Philippines ranked fifth, mentioned by approximately 6.3% of respondents. These findings are consistent with existing studies that highlight the strong association between certain countries and technological innovation, which heavily influences consumer perceptions.

The final category examined was cosmetics, where the mutability value reached 0.76, indicating significant variability in responses. South Korea was the most frequently associated country (41.1%), followed by the USA (20.2%) and Japan (12.8%). The Philippines was the fourth most mentioned country (10.1%). These results align with the literature that underscores the influence of cultural trends and media on cosmetic preferences, particularly the global impact of South Korean beauty products.

3.2 Nexus of country-of-origin and consumer ethnocentrism

In the initial phase of examining the relationship, we employed correspondence analysis, specifically multiple correspondence analysis. To address the formulated problem, we needed to modify and adapt our data. For the variables exploring associations of selected product lines with countries, we transformed the variable into a dichotomous one, with 1 representing the Philippines and 0 representing other countries. This was done to focus on home country preference. In measuring consumer ethnocentrism, we adjusted the ratings into five categories following the recommendations of Čvirik and Naďová (2022), which provide a verbal interpretation based on the quintile division of the scale. The objective is to explore the relationships between variables. Additionally, MCA offers a significant advantage through its graphical representation as a correspondence map. Our visual findings are presented in Fig.1.

Fig. 1 Multiple correspondence results for product categories



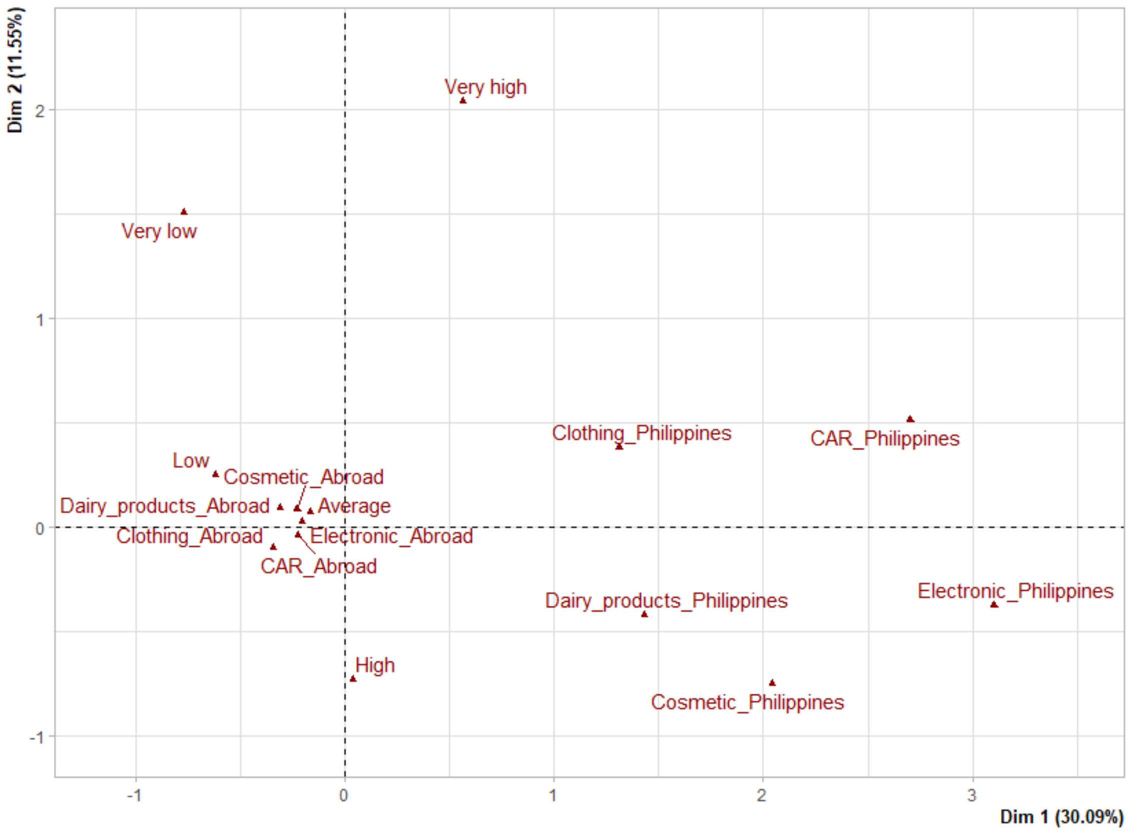
Source: Own processing in R

The analysis of the variables presented in Figure 1 indicates that the first dimension (Dim 1) accounts for a significant portion of the two-dimensional model and can be characterized as representing the country-of-origin effect.

This indicates that Dim 1 successfully reflects how consumers view products in relation to their country of origin, an important aspect of consumer decision-making. The second dimension (Dim 2) also accounts for a significant portion of the model's variance and is mainly linked to consumer ethnocentrism. This dimension emphasizes how consumer choices are shaped by ethnocentric attitudes, showing a tendency to favor domestic products over those from abroad.

Together, these two dimensions explain 41.64% of the model's variance, which is quite acceptable considering the number of variables and their representation in just two dimensions. This level of explained variance suggests that the model is strong and offers valuable insights into the relationships among the variables. The placement of both variables and individual values on the correspondence map is essential, as it visually illustrates the connections and differences between them. This visual aid enhances our understanding of how various factors are interrelated and how they impact consumer behavior. The results shown in Figure 2 provide a clear depiction of these dynamics, allowing for a better grasp of the interaction between country-of-origin effects and consumer ethnocentrism.

Fig. 2 Multiple correspondence results product categories



Source: Own processing in R.

The findings reveal a contingency between selecting the Philippines across all examined categories and choosing countries other than the home country. Specifically, selecting the Philippines tends to be associated with high and very high levels of consumer ethnocentrism, whereas opting for foreign countries is closely linked with low to average levels of consumer ethnocentrism. This suggests that the connection between low ethnocentrism and the preference for foreign countries is likely stronger than the link between high ethnocentrism and the preference for the home country. In other words, low consumer ethnocentrism seems to encourage the selection of foreign products more than high consumer ethnocentrism promotes choosing the home country as the best option. It is particularly anticipated that high levels of consumer ethnocentrism will be most evident in the selection of clothing and cars, and least apparent in the choice of cosmetics made in the Philippines.

To further explore these insights, we examined the relationships between individual choices (domestic or foreign) and the degree of consumer ethnocentrism. Given that these are transformed variables—with the first being dichotomous and the second ordinal—it was appropriate to use the Chi-square test to identify the existence of a relationship, followed by the Eta coefficient to assess the strength of this relationship. For clarity, the results are presented in Table 2. This approach allows us to quantify the associations and better understand how consumer ethnocentrism influences product choice across different categories.

Tab. 2 Contingency results between consumer ethnocentrism and country of origin effects

Product Category	Chi-Square Tests (P-value)	ETA
Car	0.004	0.214
Clothing	0.016	0.190
Dairy Products	0.097	0.153
Electronics	0.277	0.123
Cosmetics	0.931	0.050

Source: Own processing

Table 2 illustrates the presence or absence of a relationship between consumer ethnocentrism and country-of-origin effects for various product categories, as determined by the Chi-Square tests, and quantifies the strength of these relationships using the Eta coefficient. The significance level for these tests was set at 0.05 (α).

The results indicate that there is a statistically significant relationship between consumer ethnocentrism and the preference for domestic products in the car and clothing sectors. This implies that consumers with higher levels of ethnocentrism are more likely to choose domestically produced cars and clothing. However, for dairy products, electronics, and cosmetics, the evidence does not support a significant relationship between consumer ethnocentrism and product choice, suggesting that other factors may influence consumer decisions in these categories.

The ETA coefficients offer additional understanding of the strength of these relationships. While they are statistically significant, the relationships themselves are quite weak. In the automotive sector, consumer ethnocentrism explains roughly 4.6% of the variance in the preference for domestic products. Likewise, in the clothing industry, consumer ethnocentrism accounts for about 3.6% of the variance in the selection of home country products.

These findings indicate that while consumer ethnocentrism influences decision-making, especially in the automotive and apparel industries, it is not the only factor affecting consumer preferences. Aspects like product quality, brand reputation, and pricing also play crucial roles in shaping consumer choices. This underscores the complexity of consumer behavior and emphasizes the importance for marketers to consider various factors when crafting strategies aimed at ethnocentric consumers. Gaining insight into these dynamics can assist businesses in customizing their marketing approaches to better resonate with consumer values and preferences, potentially boosting their competitive edge in the market.

CONCLUSION

This research offers important insights into the level of consumer ethnocentrism among Filipino Generation Z and their views on country-of-origin effects across different product categories. The CETSCALE results show that Filipino Gen Z consumers tend to have moderately strong to strong ethnocentric tendencies, particularly towards products perceived to significantly benefit the local economy, like cars and clothing. There is a notable agreement with statements such as CET3, which highlights the economic benefits of purchasing local products.

Conversely, the contingency analysis reveals that consumer ethnocentrism has a significant impact on preferences for domestic cars and clothing. However, its influence is statistically insignificant in other categories, including dairy products, electronics, and cosmetics. This indicates that, beyond ethnocentrism, factors like product quality, brand reputation, and current cultural trends play a more critical role in shaping consumer decisions in these areas. Additionally, the findings highlight the variability in perceptions of country-of-origin among Filipino Gen Z consumers, as shown by the high variability values across different product categories. This suggests that while a country-of-origin effect is present, it is shaped by multiple factors, including cultural affinity and brand reputation.

Based on the study's findings, it is advisable for companies in the car and clothing sectors to highlight the local origin of their products in their marketing strategies, as this is a significant factor influencing Gen Z Filipinos' perceptions of quality and brand attributes. By doing so, companies can effectively leverage the ethnocentric tendencies of Filipino Gen Z consumers, who are more likely to support products that benefit the local economy. In categories where consumer ethnocentrism has less influence, such as electronics and cosmetics, companies should focus on their key differentiators, such as product quality.

ACKNOWLEDGEMENT

This study is the output of the projects: A-24-102/0025-00 "Strategic, intervention, and adaptation possibilities of consumer ethnocentrism in the context of digital and international marketing management" and A-25-102/3020-15 "Enhancement of retail business models based on sensory, digital, and geographic marketing management through modern approaches in market research and statistical data analysis".

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EU-Russia Trade under Sanctions: An Analysis of Trade Dynamics and Intensity

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https://doi.org/10.53465/CEECBE.2025.9788022552257.101-115

Abstract: In recent years, there has been a marked escalation in tensions between Russia and Ukraine, culminating in an armed conflict. In response to this aggression, the international community has adopted a series of sanction measures as a form of protest. The European Union joined this effort, significantly affecting the development of bilateral relations not only from a political perspective but also in terms of trade. This has led to a substantial decline in the volume of mutual trade and a reduction in Russia's share of the EU's total trade. The aim of this paper is to highlight the development and changes in EU-Russia trade relations by analyzing EU trade with Russia and its intensity from 2004 to 2023.

Keywords: EU, Russia, Sanctions, Trade relations

JEL Classification codes: F10, F19, F51

INTRODUCTION

Sanctions are a foreign policy instrument of a state or integration grouping that is used to coerce a response from the affected country or individual. In the international environment, such measures have been taken since antiquity. These instruments have evolved over time, as have the objectives they are intended to achieve. While at the beginning they were adopted with the aim of harming the sanctioned economy, over time they began to pursue specific objectives in a given territory, such as the promotion of the fight for human rights or against terrorism.

In the 21st century, the most significant sanctions measures are without doubt those imposed on Russia. They have been introduced because of various events relating to the situation in Ukraine and Russia's activities on its territory, starting in 2014, with the aim of appealing to Russia, through bans and restrictive measures, to change its policy towards Ukraine and to respect the laws of international law, democratic principles and Ukraine's sovereignty.

The EU, as an independent actor in the world economy, also imposes restrictive measures on other actors. These are mainly sanctions imposed on specific individuals, companies or governments of third countries in the form of asset freezes, travel bans, arms embargoes or other sectoral measures. The adoption of sanctions in the EU is ensured by the Council of the EU, while their uniform application is the responsibility of the European Commission. In practice, EU member states are responsible for enforcing sanctions and they apply not only to EU citizens but also to companies and their subsidiaries established under EU law. These principles are maintained for all sanctions regimes on specific entities, including EU sanctions on Russia (EEAS, 2021).

The imposition of sanctions against the Russian Federation is very closely linked to the situation in Ukraine after November 2013. In the context of events in Ukraine, the aim of the sanctions is to weaken Russia, i.e. to limit its resources, technology and economy so that it is no longer able to participate in the Russia-Ukraine conflict. These restrictive measures first came into force in 2014 and can be divided into two periods.

The first period represents the sanctions adopted between 2014 and 2022. These are restrictive measures that were adopted in several sets, starting on 17 March 2014. They included individual measures, travel bans to the EU and asset freezes on persons who violated Ukraine's territorial integrity and misappropriated Ukrainian funds, or other sanctions in response to the annexation of Crimea and Sevastopol. Since June 2014, in view of the deteriorating situation, the EU has also decided to adopt economic sanctions, including, for example, a ban on trade with Crimea. This sanctions regime was also linked in March 2015 to the implementation of the terms agreed in the Minsk agreements. However, due to the ongoing unfavorable situation between Ukraine and Russia, these restrictions are regularly extended on an annual and biannual basis (European Council – Council of the EU, 2024).

The second period includes the sanctions imposed on Russia following the recognition of the independence of Luhansk and Donetsk and the subsequent deployment of troops to these territories in February 2022. During this period, the EU has stepped up its sanctions against Russia much more than in 2014. By the end of 2022, it had adopted up to 10 sanctions packages. (European Commission, 2024; European Council and Council of the EU, 2024).

Although the aim of the sanctions is to force Russia to stop funding its military activities in Ukraine, they affect the overall economy and may also affect its people. Thus, to minimize the impact of these sanctions on society, restrictive measures are not taken in areas such as agriculture, food or health (European Council – Council of the EU, 2023).

In February 2025 the Council adopted the 16th package of economic and individual restrictive measures against Russia, primarily aimed at targeting systemically important sectors of the Russian economy (energy, trade, transport, infrastructure, financial services) and strengthening anti-circumvention measures (European Commission, 2025).

1 LITERATURE REVIEW

Many definitions of international sanctions can be found in literature. In general, however, they are restrictive measures aimed at forcing the country or individual concerned to change its policies and thus prevent the further spread of a crisis or violation of international law. Thus, in practice, they most often take the form of some form of diplomatic or economic punishment against a country or individual whose behavior in the global economy does not meet expected international norms (Hufbauer et al., 2007; Kochajdová, 2019; Morgan, 2023). In this context, various classifications of sanctions can also be found, which stems from the fact that these restrictive measures are imposed on entities for different reasons and affect various economic sectors of the respective economies. Since 1966, the UN has created 31 sanctions regimes, 15 of which are still in force (Kochajdová, 2018; United Nations, 2023), and some of them are also applied by the EU, using mainly asset freezes and travel bans, economic and financial restrictive measures in the form of restrictions on imports, exports and banking services, but also arms embargoes.

Kašťákova and Luptáková (2022) state that the basic types of sanctions include cultural and sporting sanctions, which are mainly symbolic in nature; diplomatic sanctions, which target state representatives; sanctions imposed on individuals; military sanctions, most often in the form of suspension of training activities or exchange sessions of weapons and dual-use goods; and economic sanctions (trade, financial, monetary, asset freezes). Different views on the effectiveness of sanctions in the world economy resonate in economic theory. Some experts take the view that sanctions, especially economic ones, are merely a 'cosmetic' adjustment and do not have the desired effect, while others advocate their use and speak of the fulfilment of the desired objective. Hufbauer et al. (2007), based on research, concluded that about a third of such measures achieved the desired result.

Restrictive measures in the form of sanctions can most often be seen in the macroeconomic indicators of the country on which they have been imposed. They are manifested in the form of an increase in inflation, unemployment, a slowdown in GDP growth or a depreciation of the domestic currency (Kašťáková & Luptáková, 2022; Klinova & Sidorova, 2016).

On the other hand, Neuenkirch and Neumeier (2015), who examined economic sanctions imposed on 67 countries between 1976 and 2012, showed that over the 10-year period during which sanctions were actively applied, GDP per capita fell by approximately 2.3-2.5%. In addition to these findings, it is also important that the countries between which the sanctions measures were imposed were traditional economic partners. This is precisely when they are gaining momentum. Hence, according to Klin and Sidorova (2016), EU-Russia sanctions have a greater impact on Russia's economy than those imposed by the US. Prior to the sanctions, the EU was building a strategic partnership with Russia.

Aslund (2014) also argues that among the most effective measures are sanctions taken to change a state's policies. Their success rate is as high as 51% compared to sanctions to stop military conflict, which were effective in only 21% of the cases studied.

The ability of sanctions to achieve the desired objective also depends on the number of countries imposing sanctions. If some states do not comply with them, they lose their force and create room for circumvention. Moreover, countries that adopt sanctions must be prepared to face their consequences, especially if their economy is heavily intertwined with the sanctioned country (Hufbauer et al., 2007; Bapat & Morgan, 2009; Rogoff, 2015).

2 METHODOLOGY

The aim of this paper is to highlight the development and changes in EU-Russia trade relations by analyzing EU trade with Russia and its intensity from 2004 to 2023.

In collecting data on trade relations´ development, we used Trade Map, the ITC database, as the underlying database, based on data valid for the 27 EU Member States (EU27). We have focused on the period from 2004 to 2023 - 20 years, examining the period of strategic partnership building and the post-sanctions period (2014-2023).

We used trade intensity index (TII) to assess the impact on mutual EU-Russia trade relations. The purpose of TII is to determine whether the value of trade between two partners is greater or smaller than it would be expected based on their importance in world trade. The calculation of the index was carried out according to the World Bank (2010) methodology as the share of one country’s exports going to a partner divided by the share of world exports going to the partner. It is calculated as:

$$TIIij = \frac{\frac{xij}{Xit}}{\frac{xwj}{Xwt}} \quad (1)$$

where xij is the value of country i´s exports to partner country j, Xit is the value of total exports of the country i; xwj – value of world exports to country j, and Xwt is the world exports´ value.

The TII values range from 0 to +∞. A value greater than 1 indicates a relationship more intense than the world average for the partner country (World Bank, 2013). If the index is more than 1, it indicates a more intensive trade between the partner countries than expected given their position in the world economy; and if the TII is less than 1, the intensity of trade is at lower level, than it would be expected.

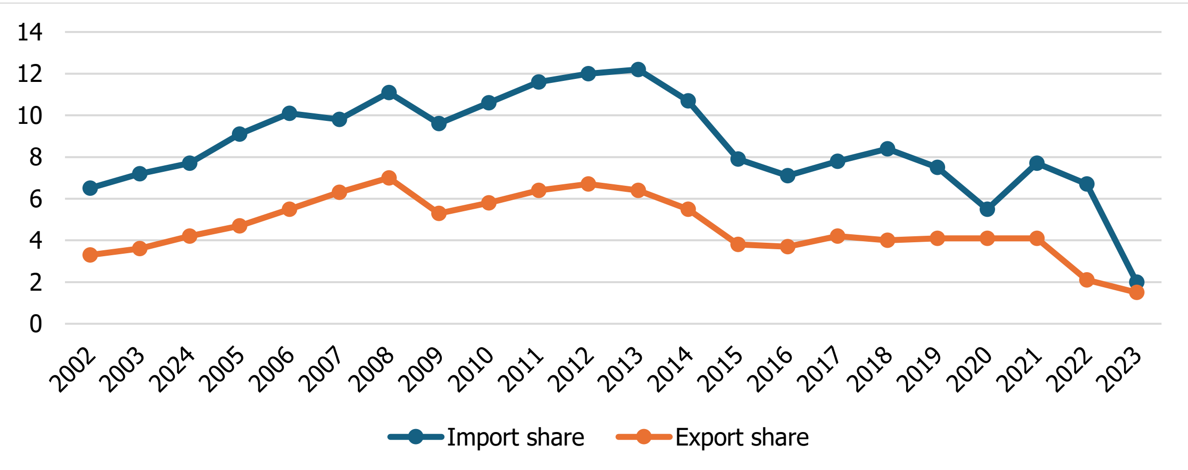
3 RESULTS AND DISCUSSION

Trade relations between the EU and Russia have undergone their own development – from the relatively slow establishment of relations and cooperation in the 1990s to the building of a strategic partnership in the first decade of the 21st century. Since 2014, restrictive measures have been adopted, which were significantly strengthened in February 2022. In the following sections, we analyze the development and changes in trade flows between the EU and Russia in two periods – before (from 2004 to 2014) and after the introduction of the sanctions regime (from 2014 to 2023).

3.1 EU-Russia trade relations until 2014

The fact that the strategic partnership has not remained just at the level of theory and political agreements can be seen in the mutual trade relations between the EU and Russia. Over time, EU-Russia economic cooperation has strengthened thanks to efforts to cooperate on foreign trade and the positive economic growth of both economies. Between 2004 and 2014, Russia was the EU's third most important trading partner after the US and China, mainly in terms of imports into the EU. Between 2005 and 2014, its share of EU imports stood at 9% - 12%. Its share of EU exports ranged between 5% - 7%. This is illustrated in more detail in Figure 1.

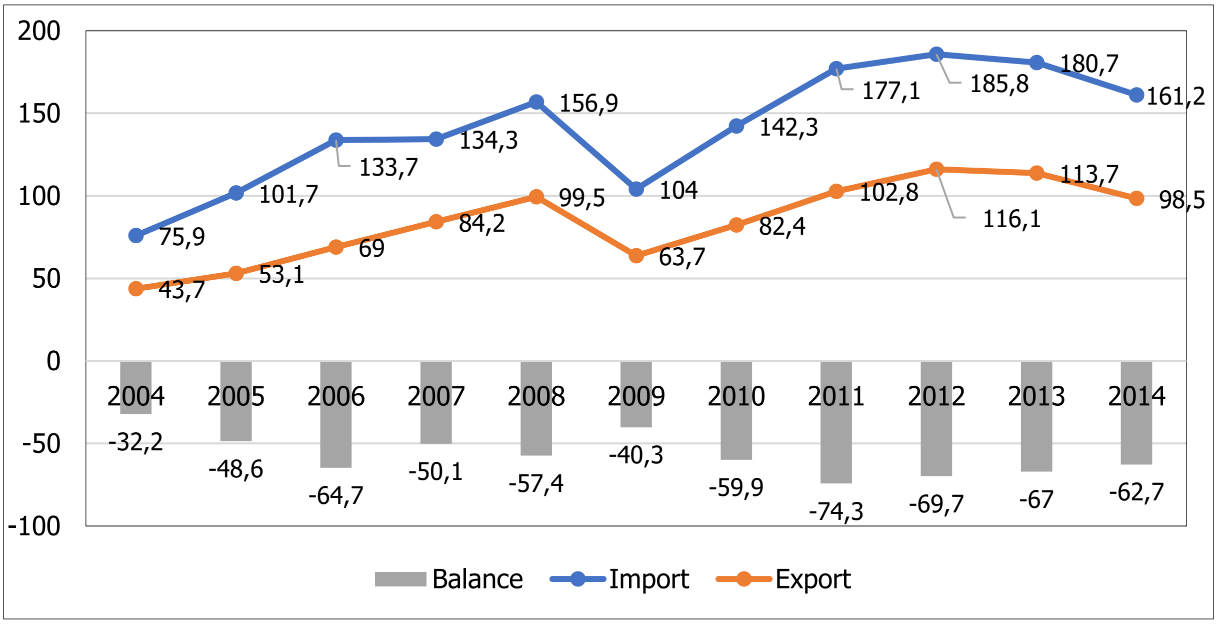
Fig. 1 Development of Russia's share of EU exports and imports, 2004-2023 (%)



Source: Own elaboration according to Eurostat, 2025.

Mutual trade relations were continuously strengthening until the global financial crisis and its aftermath in 2009, when a decline in the value of mutual trade on both the export and import side can be observed. Later, however, they recovered, Russia became the third fastest growing economy after China and India, which has also had a positive effect on trade with the EU. Eurostat (2015) indicates that over the period 2002-2014, Russia's share in EU trade in goods increased from 5% in 2002 to 8% in 2014 (Eurostat, 2015; Grešš, 2018; Drieniková, 2019). Figure 2 documents the development of trade between the EU and Russia between 2004 and 2014.

Fig. 2 EU trade with Russia in 2004-2014 (in billion EUR)



Source: Own elaboration according to ITC, 2024.

After recovering from the crisis, export and import values started to grow again, with a slowdown and subsequent decline after 2012, despite Russia's accession to the WTO at that time. However, the positive prospects of this step for mutual relations have not been fulfilled. This was partly due to the problems in the Russian economy, which included a reduction in investment activity, the continued imposition of measures to protect domestic production against imports, and a poor agricultural harvest. Finally, lower oil prices or the first sanctions for the emerging conflict between Russia and Ukraine contributed to the declining intensity in EU-Russia trade towards 2014. Despite all these factors, both EU exports and imports to Russia were still well above the lows measured during the global financial crisis in 2009 by the end of the period under review. EU exports and imports to Russia in 2014 thus amounted to EUR 98.5 billion and EUR 161.2 billion respectively, further confirming the trend of the EU's long-term trade deficit with Russia (Drieniková, 2019; 2023a; Tajoli, 2022).

The EU's trade deficit with Russia stems from the high energy dependence of EU members on Russia, reflected in the high share of mineral fuels and mineral oils in the structure of imports from Russia. Other relatively important import items are shown in Table 1 (Drieniková & Zubaľová, 2013; European Commission, 2016).

Tab. 1 Major EU27 import items from Russia 2004 - 2014 (in billion EUR)

Product	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Mineral fuels and mineral oils	50.4	71.5	93.6	95.7	125.3	84.7	114.1	143.2	154.0	150.9	130.5
Iron and Steel	4.0	4.8	5.6	6.4	7.3	3.0	4.6	5.2	4.7	4.3	4.2
Genuine pearls, precious and semi-precious stones	1.3	1.5	1.8	1.8	1.5	1.5	1.1	2.3	3.0	2.8	3.2

Product	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Aluminium	1.9	1.6	2.3	2.5	1.8	0.8	1.7	2.1	1.7	1.9	3.1
Inorganic chemicals	1.0	1.3	1.4	1.6	2.1	1.7	2.4	2.7	2.9	2.7	3.0

Source: Own elaboration according to ITC, 2024.

The EU also exported industrial products to Russia, in particular nuclear and electrical equipment and machinery, non-road vehicles pharmaceuticals and plastics (Table 2). These export commodities were also the largest items in the EU's total exports, as they come from sectors that are most important for the EU economy, such as the automotive industry. All the EU export items mentioned above show the same trend, after 2012, in the context of the uncertain situation in Ukraine and the steps taken from the Russian side or the first sanctions imposed, export volumes decreased in 2013 and 2014 (ITC, 2024, Eurostat, 2015; 2016; 2023a).

Tab. 2 Major EU27 export items from Russia 2004 - 2014 (in billion EUR)

Product	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Nuclear reactors, boilers, machinery, apparatus and mechanical equipment	9.5	12.5	15.6	19.6	22.3	13.8	17.1	22.6	25.1	24.8	22.1
Vehicles other than rail vehicles	3.1	3.9	6.9	10.5	14.1	4.7	8.6	13.8	16.8	14.3	10.3
Electrical machinery, apparatus and equipment	6.5	7.7	8.3	9.5	10.8	6.6	8.7	10.2	10.7	10.4	9.7
Pharmaceutical products	1.7	2.4	3.5	3.6	4.6	4.6	6.1	6.8	7.4	7.9	7.4
Plastics and articles thereof	1.8	2.3	3.1	3.6	3.5	2.4	3.3	3.7	4.2	4.2	4.0

Source: Own elaboration according to ITC, 2024.

Russia has been one of the EU's most important trading partners, and the EU has also occupied an important place in Russia's trade relations. Already in 2011, EU Member States were Russia's most important trading partner, accounting for up to 48% of its foreign trade. For 2013, the EU accounted for 57% of Russian exports and 46.5% of imports (ITC, 2024; Drieniková & Zubaľová, 2013). Economic relations between the EU and Russia have developed mostly positively since the 1990s, when deeper economic and political relations were established, until 2013-2014, when, because of conflicts and activities between Russia and Ukraine, EU sanctions against Russia were adopted, followed by Russia's retaliatory sanctions.

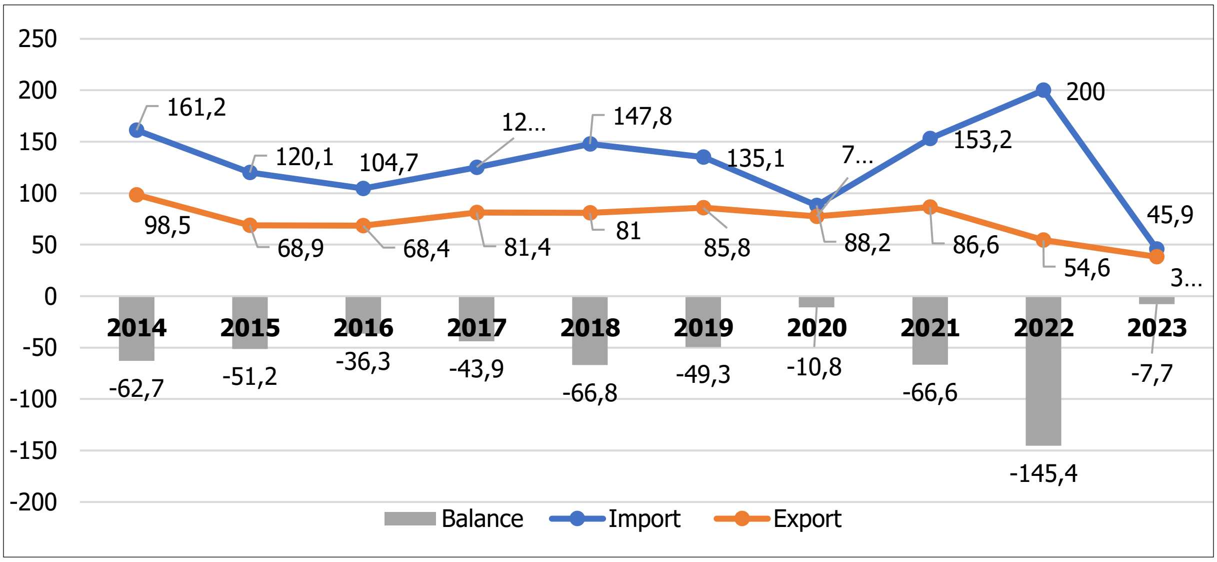
3.2 EU-Russia trade relations after 2014

As a result of disagreement with Russia's activities on Ukrainian territory, the first sanctions were imposed on Russia as early as March 2014. At first, these were individual restrictive measures, i.e. travel bans to the EU or freezing the assets of sanctioned persons, but the impact of the sanctions on economic and political relations cannot be overlooked. Already in

2014, the EU stopped inviting Russia to bilateral summits. In the wake of the Russia-Ukraine conflict, the EU has suspended cross-border cooperation programs, namely the European Neighborhood Instrument and the Interreg program for the Baltic Sea region, which means that projects on Russian territory will no longer be funded by the funds (Trend, 2022b; European Council and EU Council, 2023c, 2023d).

Trade flows between the EU and Russia have also undergone changes following the outbreak of the conflict in Ukraine in 2014, with the subsequent adoption of restrictive measures against Russia. These changes are also captured in Figure 3, which illustrates the development of the EU trade balance, exports, imports to and from Russia between 2014 and 2023.

Fig. 3 EU trade with Russia in 2014-2024 (in billion EUR)



Source: Own elaboration according to ITC, 2024.

While the decline in the values of EU countries' exports to Russia in 2014-2016 is partly due to the sanctions measures taken, the decline in the nominal values of imports has been influenced not only by the deteriorating relations between the two partners, but also by the devaluation of the Russian ruble. Although there was a slight recovery in relations after 2017, the COVID-19 pandemic in 2020 dampened trade cooperation, resulting in falling energy prices, which account for a significant part of European imports from Russia, and a drop to a value of EUR 88.2 billion in 2020. In 2021, there is a recovery from the effects of the COVID-19 pandemic, and by 2022, an increase in imports from Russia to the EU can be seen, due to rising energy prices. On the other hand, EU countries' exports to Russia fall again already in 2022, i.e., in the period of the adoption of a new wave of sanctions against Russia, this time for the outbreak of the Russia-Ukraine armed conflict in February 2022. The decline is even more intense in 2023, both for imports and exports, as European exports fall to a value of EUR 38.2 billion, imports even to EUR 45.9 billion (Eurostat, 2021; ITC, 2024, European Commission, 2023, 2024).

In 2023, an additional 4 sanction packages were added to the existing 10 sanction packages. Together with the previous ones, they represented a number of trade restrictive measures, such as bans and restrictions on the import of iron, steel, coal, gold, certain types of oil, vehicles, jewelry, diamonds and rubber from Russia to the EU, or on the export of oil refining technology, aircraft and their parts, various dual-use goods, luxury goods, computers and their components, vehicles, chemicals, etc. from EU Member States to Russia. The EU sanctions against Russia are therefore targeted in particular at industrial goods, as they represent an important part of the Russian economy and the revenues from this activity are used by Russia to finance its activities on Ukrainian territory. Also, for this reason, the trade balance remains passive in 2023, representing only EUR 7.7 billion compared to 2022 (ITC, 2024; European Commission, 2023, 2024).

The decline in imports from Russia can be attributed not only to the sanctions imposed, but also to the decrease in energy prices on world markets. While in 2022 the average price of Brent crude oil on world markets was 100.93 USD/bbl, a year later it was 82.49 USD/bbl (Statista, 2024).

According to the European Parliament (2017), the EU economies that traded most intensively with Russia, such as Germany, Italy and France, had to cope with the largest export losses in the period 2013-2016. However, Central and Eastern European countries and countries in the Baltic region were also affected.

According to Eurostat (2024a), the export value of EU goods fell by 61% between February 2022 and December 2023 due to the introduction of sanctions, while imports fell by up to 82%. The development of overall EU-Russia trade is also described by the most traded products of the two partners. Energy raw materials still dominate the first place, followed by iron and steel, nickel, aluminum and fertilizers shown in Table 3.

Tab. 3 Major EU27 import items from Russia 2015 – 2023 (in billion EUR)

Product	2015	2016	2017	2018	2019	2020	2021	2022	2023
Mineral fuels and mineral oils	90.9	76.4	93.6	110.8	100.8	60.1	107.7	159.3	29.6
Iron and Steel	4.3	3.8	4.5	6.2	5.1	4.3	8.0	5.9	3.0
Nickel and articles thereof	0.6	0.7	1.1	1.6	1.6	1.5	2.0	2.9	2.1
Aluminium and articles thereof	2.9	2.8	3.3	3.0	2.7	1.9	2.3	2.9	1.6
Fertilisers	1.7	1.4	1.5	1.4	1.6	1.3	1.90	2.7	1.4

Source: Own elaboration according to ITC, 2024.

Most of these commodities saw a decline between 2022 and 2023 due to the reaction to the sanction's measures and the situation in Ukraine, as in March 2022 the EU banned imports of e.g., iron ore, steel and luxury goods, including pearls, from Russia. It was pearls that represented the 3rd largest import item from Russia in 2022 with a value of €3.6 billion, but in 2023 it saw a drop to €1 billion, making it the 7th largest item. Imports of mineral fuels and mineral oils, however, continued to increase from €107.7 billion in 2021 to €159.3 billion in 2022, an increase of 47.9% as there were significant increases in oil prices on world markets during this time, which were reflected in the captured nominal values. In 2023, these values have already fallen by 81.4% (Eurostat, 2023b, European Commission, 2023, 2024).

In terms of export structure, industrial goods still represent the most important product group in EU exports to Russia. Over the 2015-2023 reporting period, exports of pharmaceuticals have also started to gain prominence, especially from Germany, Italy and France (European Parliament, 2017; Zoshchouk, 2021). More detailed data is documented in Table 4.

Tab. 4 Major EU27 export items from Russia 2015 – 2023 (in billion EUR)

Product	2015	2016	2017	2018	2019	2020	2021	2022	2023
Pharmaceutical products	5.6	5.7	6.8	6.4	8.8	6.4	7.4	9.7	8.7

Nuclear reactors, boilers, machinery, apparatus and mechanical equipment	15.6	14.7	18.2	18.3	18.7	18.2	19.0	9.7	5.0
Optical, photographic, cinematographic and other apparatus	2.6	2.7	3.4	3.5	4.1	4.0	3.9	3.0	2.3
Essential oils, perfumes...	1.8	1.9	2.0	2.1	2.23	1.8	2.1	1.7	1.9
Non-alcoholic and alcoholic beverages	0.9	0.9	1.1	1.2	1.3	1.2	1.3	1.3	1.8

Source: Own elaboration according to ITC, 2024.

While in 2023 electrical apparatus and equipment still ranked 4th in the largest export items with a value of EUR 2.8 billion, in 2023 they have already dropped to 9th place, partly as a result of the sanctions imposed on 25 February 2023 in the 10th package, but also in the sanction packages afterwards, so the value for 2023 is EUR 1.0 billion. Decreases in values were also recorded in optical and photographic instruments or nuclear reactors, boilers and mechanical equipment, which are also subject to sanctions. In this context, essential oils, perfumes, and beverages, which are not affected by the sanctions introduced from 2022, were the most exported items in 2023 (ITC, 2024; European Commission, 2024).

While Russia was one of the EU's most important trading partners until 2014, it has already weakened its position in the second decade of the 21st century. By 2021, it was the EU's 5th largest partner, compared to the 3rd place it held before the first sanctions were imposed in 2014. As imports of goods from European countries declined due to deteriorating relations, Russia was only the EU's 9th largest partner in 2022. On the other hand, it maintained an important position in imports, as the EU's 4th largest import partner with a share of 7% of EU imports from third countries (European Commission, 2023; Eurostat, 2015; 2023c).

According to Eurostat (2024b), Russia's share of EU trade will have declined even further in 2023. In exports, it was the EU's 16th largest trading partner with a share of 1.5%, while in imports it was the 10th largest partner with a share of 2%. It is thus evident that the sanctions measures have significantly dampened EU-Russia trade relations, as since 2014 Russia's share of total EU trade has fallen to as low as 10th place in 2023.

There have also been slight changes in the structure of Russia's largest trading partners itself. While in 2012 the European countries dominated the top 5 places for Russian exports, in 2021 their share has fallen. China has become the largest trading partner for both exports and imports. Even in 2022, after the outbreak of the Russian-Ukrainian conflict, Russia has a stable trading partner in China, as after the Western countries curtailed their trade relations with Russia due to the imposition of sanctions, there was room for increased trade cooperation, which is shown by the fact that while China's exports to the rest of the world grew by 29% from 2021, in the relationship with Russia it was a 121% increase (ITC, 2024; Graham, 2024).

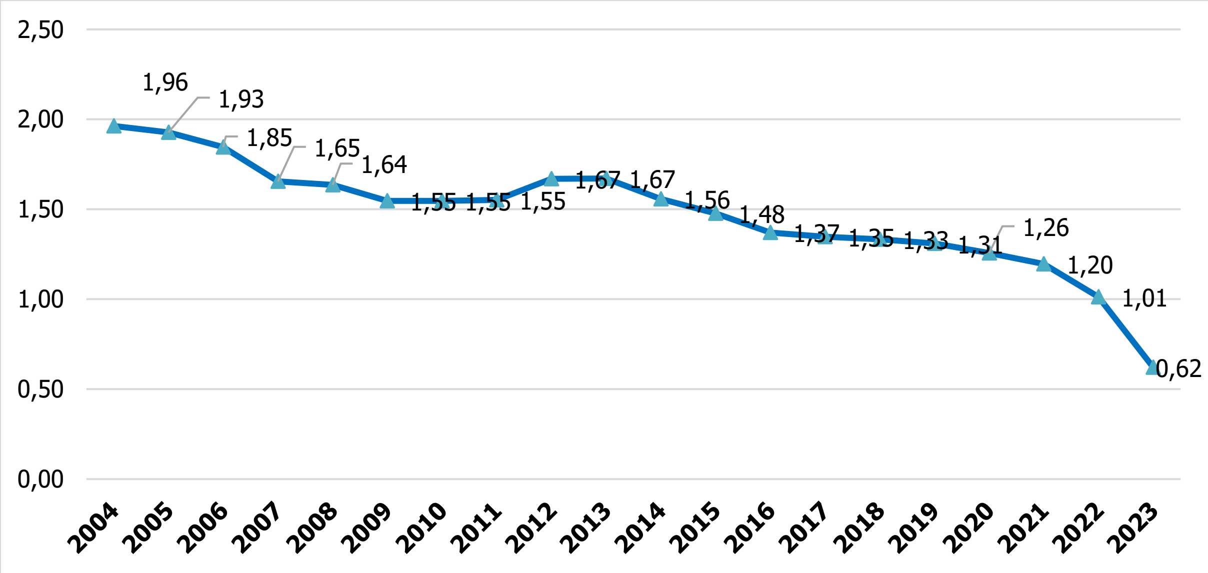
However, the data for 2023 best demonstrates the declining share of European countries in Russia's trade. Reuters (2024a) reports that Russian exports to the EU fell by 68% this year. On the other hand, Asian countries are becoming increasingly important in Russia's exports, as their share grew by 4.6% last year. However, the share of Asian countries has gained more momentum, rising from 49% in 2022 to 72% in 2023. As for imports into Russia, these were down 12.3% for EU countries as of 2023, but were replaced by imports from Asia, which grew by 29.2%.

Thus, the overall change in trade flows over the period 2014-2023 was driven by the effects that occurred in this period in the different parts of the Russia-EU cooperation. Sanctions imposed on the import and export of goods have weakened the intensity of mutual trade, especially in product categories that were intrinsically affected by the sanction measures.

3.3 Intensity of EU trade with Russia

The intensity of trade between the EU and Russia was quite high, with values greater than 1 during the years 2004–2022. It was not until 2023 that it fell below 1 (0.62) for the first time in the monitored period (Figure 4). The two countries therefore export goods to each other in a larger proportion than to the whole world.

Fig. 4 Intensity of EU trade with Russia 2004- 2023



Source: Own elaboration according to ITC, 2024.

As for the EU-Russia TII, the relationship of European exporters with Russia is quite intense, but a downward trend can be observed in it. This can be observed more sharply since 2014, when it fell by 0.11 points from 1.67 to 1.56, precisely during the period of the introduction of the first EU sanctions against Russia, which mainly affected export trade relations and therefore the behavior of European exporters. In 2022, the values even came close to the limit of 1 for the first time, and in 2023 they already exceeded this limit, with a significant decrease of 0.38 points. This is due to a sharp drop in EU exports to Russia, again due to new sanctions imposed for the conflict in Ukraine.

All sanctions adopted since 2014 therefore have an impact on the EU's trade with Russia, whether in connection with its dependence on Russian energy imports, or in its exports of food and agricultural products, which are among the sensitive products of an important EU sector, or are reflected in the very decrease in the intensity of trade between the EU and Russia, which also affected specific EU economies. Such an example could be the member states Latvia and Finland, which are historically and geographically connected to Russia. For the same reason, however, these are also the countries of Central Europe, which undoubtedly includes Slovakia (Schönwiesner, 2005; European Commission, 2016).

The results of the analysis confirm that the impact of the sanctions imposed on Russia can be seen mainly in the negative trend of foreign trade between the EU and Russia, in the gradually decreasing intensity of mutual trade relations, in the redirection of trade flows to other partners, which also has an impact on the gradual weakening of economic cooperation.

The decline in trade is undoubtedly the most significant economic impact related to sanctions, although it should be noted that it is difficult to assess the impact of sanctions on EU-Russia relations in isolation from other factors, such as fluctuations in energy prices on world markets. Nevertheless, it is obvious that they contributed to the weakening of trade. In 2014, i.e. after the introduction of sanction measures, and after 2022, i.e. after the start of the conflict in Ukraine, both EU exports and imports to and from Russia decreased. The steepest decline can be seen in imports, which in the EU in 2023 decreased by 77.1% year-on-year, while exports decreased by 30%. Overall, over the period under review, 2023 saw the most significant decline in both EU export and import values in trade with Russia since the first sanctions measures were introduced in 2014 (ITC, 2024).

The negative trend in EU foreign trade with Russia is caused by a decrease in values in individual items of the commodity structure, both in exports and imports. According to Borin et al. (2023), export restrictions and embargoes were imposed mainly on transport equipment (45% of the total value of sanctions), followed by chemicals (19%), electronics (12%) and machinery (11%). We agree with this view, as these are essential commodities and products for the Russian economy, which can further use the items or the income from them in military activities in Ukraine. Regarding import items, it should be mentioned that sanctions have negatively affected, for example, imports of iron ore, steel and luxury goods, including pearls, which recorded a decrease in nominal values in 2023. However, the largest commodity in imports is mineral raw materials, and Russia supplied up to 28% of energy raw materials to the EU in 2021. These represented the most important item in trade with Russia, and the introduction of sanction measures is mainly reflected in this sector of the economy (ITC, 2024; Eurostat, 2024d).

The impact of the sanctions can also be seen in the EU’s shift away from trade and economic cooperation with Russia. In September 2022, the EU suspended the EU-Russia visa facilitation agreement. This has affected Russian citizens applying for visas to the EU in practice. Visa fees have increased, waiting times for documents have increased, and Russian citizens are required to provide additional necessary documents. The EU has also suspended all negotiations and cooperation with Russia (RTVS, 2022a; 2022b; Trend, 2022b; European Council and Council of the EU, 2023c, 2023d).

Another impact of the sanctions can be seen in the change in the structure of Russia’s trading partners. The EU’s relations as an important partner of Russia have been weakened in favor of China. It has become Russia's largest partner not only in terms of trade, but also politically, as the countries share the same global outlook for the future. In 2022, trade between these two trading partners reached a record of 190 billion USD. Russia's increasing trade flows were also recorded with Turkey and India, which have long maintained positive relations with Russia, so we expect Russia to support these economic relations in the future (Reuters, 2024b; The Moscow Times, 2023; ECB, 2023). The EU is also trying to diversify its trading partners, especially when it comes to importing energy raw materials. In this regard, cooperation with the United States has begun to gain intensity. Natural gas supplies from the US have been among the most intense, as the US has been the most flexible in adapting to new demand from the EU. The new US administration under President D. Trump also plans to significantly increase exports of liquefied natural gas (Gurzu, 2025). Azerbaijan, Qatar, Kazakhstan and Algeria may also become potentially important energy suppliers (Kardaś, 2023).

With the adoption of the 16th sanctions package in early 2025, we expect sanctions to continue impacting bilateral trade relations and cooperation in the coming period, unless a change in the situation occurs that would halt this trend.

CONCLUSION

The EU sanctions against Russia are a set of measures imposed by the EU in response to the situation in Ukraine. They aim to put pressure on Russia to change its behavior, to comply with international law and standards and to respect the principles of the democratic rule of law, while expressing the EU's general disapproval of Russia's actions against Ukraine. The sanctions imposed from 2014 up to and including 2024 have a long-term impact on the EU's foreign trade relations with Russia, although their overall impact is currently difficult to estimate, as changes in prices in the world economy or other variables also have an impact on the situation. While in 2014 Russia was the EU's 3rd largest partner, by 2023 it had dropped to 10th place. The EU's position in Russia's trade has also undergone a significant change, while in 2011 it was the EU's largest partner, in 2022 it has lost this position to China.

Import bans on industrial products and commodities representing a substantial part of the Russian economy, as well as bans on EU exports to Russia, have caused declines in trade in goods such as vehicles, electronics, machinery and equipment, luxury goods, steel and iron ore. However, the most significant changes can be seen in the energy sector, which is one of the EU's sensitive sectors. EU countries have been dependent on imports of these raw materials, and in 2021 Russia was its largest partner with mineral raw materials. The negative impact of sanctions on trade with Russia is confirmed by the declining intensity of the EU's trade relations with Russia. Since 2004, it has largely been on a downward trend.

The overall impact of sanctions is also difficult to predict due to the still unclear prospects for an end to the conflict in Ukraine. It is therefore likely that sanctions against Russia will continue to be adopted by the EU in the period ahead, and so the results of this work can serve as a basis for compiling similar research in the future.

ACKNOWLEDGEMENT

The paper is a part of the research project VEGA No. 1/0102/24 Positions and Prospects of Mutual Trade and Economic Cooperation of the Visegrad Group Countries under the Influence of Geopolitical Changes in the World Economy.

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The Attitude of Generation Z Consumers Towards Nutritional Supplements: Cognitive Aspects

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https://doi.org/10.53465/CEECBE.2025.9788022552257.116-125

Abstract: The paper focuses on the segment of dietary supplements and Generation Z's attitudes toward them, with an emphasis on the cognitive aspect. The objective of the presented article is to examine the current attitudes and perceptions of dietary supplements among Gen Z in Slovakia, specifically emphasizing the cognitive dimension. The study is supported by primary research involving 188 Gen Z respondents from Slovakia. The methodology employs an exploratory approach using descriptive statistics. To identify latent factors, exploratory factor analysis is utilized, with an evaluation of the applicability and quality of its outputs. The findings indicate a generally high level of cognitive engagement in attitudes, suggesting good awareness of dietary supplements within the studied cohort. Typologically, offline communication emerges as the most trusted source of information for this cohort in the given area.

Keywords: Nutritional Supplements, Attitude, Generation Z, Cognitive Aspects

JEL Classification codes: D91; M31

INTRODUCTION

Nutritional supplements can simply be understood as concentrated sources of nutrients or other substances with a nutritional or physiological effect, which serve to supplement and enrich the normal diet in order to improve health and physical and/or psychological balance. Currently, a trend of increasing interest in these products can be observed (Lordan, 2021); therefore, it is necessary to pay more attention to them.

Within attitudes, the cognitive and affective components are important. While the affective component is oriented towards emotions, the cognitive component is oriented towards knowledge and rationality, with both components achieving a high degree of nexus (Čvirik, 2020). Cognitive aspects such as awareness of health benefits, trust in brands, and understanding the composition and effects of products play a key role. In our article, we focus on the knowledge base, which is quite fragile in the era of hoaxes, distorted information, and fake news (Soon, 2020). It is Generation Z that can be subject to false information, which can also have significant health risks in the case of nutritional supplements.

The aim of the presented article is to investigate the current attitude and perception of Generation Z in Slovakia toward nutritional supplements with an emphasis on the cognitive aspect. In more detail in the article, we focus on understanding the differences between nutritional supplements and drugs, understanding the use/benefits of selected categories of nutritional supplements, and also the information sources that Generation Z uses in the field of supplementation.

The presented paper bases its results on primary research. This primary survey has the character of basic research, while it can be described as a pilot, which will bring basic knowledge and direction for further scientific research. The results indicate the awareness and information of Generation Z, while the source of this information is primarily personal contact and not online communication. This difference from the expected results can be explained primarily by the specificity of the investigated product and its direct impact on health, as well as possible changes in the behaviour and thinking of consumers after COVID-19.

1 LITERATURE REVIEW

In recent years, it is possible to observe a trend where nutritional supplements are often perceived as an alternative to drugs (Webb, 2007), especially as part of prevention. Motivated by the desire to avoid the side effects of medication, many people turn to supplements in the hope of a more natural solution. This phenomenon is also supported by intensive marketing, which sometimes presents nutritional supplements as almost miraculous products for solving various health problems. On the other hand, drug consumption as a whole continues to grow (Ransley et al., 2001; Thompson, 2004). The reason may be macro-trends, such as the ageing of the population, increased diagnosis of chronic diseases, and greater availability of medicines. The substitution of drugs for nutritional supplements is also complicated by regulation and supervision, when drugs are subject to significantly higher standards, which can increase the risk for some consumers that their health problems will not be adequately addressed, which can lead to a worsening of the condition (Eichhorn et al., 2011; White, 2020). In this context, the perception of Generation Z, which can be described as a generation with better access to information, is questionable (Dolot, 2018).

The text implies the need to investigate the research question:

- RQ1: How do consumers of Generation Z perceive the conceptual nexus between nutritional supplements and drugs?

Information and knowledge, i.e., cognitive aspects of consumer behaviour, play a key role in attitudes as well as in perception (Čvirik, 2020). For the best findings in connection with certain elements, it is advisable to use association tests using the recall method (Carlson, 1954). In the case of nutritional supplements, it is an examination of the associations that are associated with those supplements. Vitamins, minerals, and healthy fats—omega acids—can be identified as the most frequently used dietary supplements: fat burners, amino acids, proteins, and creatines, collagens, and probiotics (Mueller & Hingst, 2013; Alamgir, 2018; Tirla et al., 2022), with each group of supplements responsible for different effects and benefits for human health. It is crucial that consumers understand the basic benefits that the product (nutritional supplement) brings when buying, which is largely influenced by their cognitive base, which serves as a subsequent decision-making element about the need and eventual purchase.

The text shows the need to examine the research question:

- RQ2: What cognitive elements are associated with the selected types of nutritional supplements in the studied cohort?

It can be concluded that Generation Z communicates and obtains information differently than previous generations (Bencsik et al., 2016; Raslie, 2021), which must also be reflected in the cognitive basis of their attitudes. Within the framework of information sources, several potential ones can be identified (Shankar et al., 2022), while in the context of behavioural intentions and the subject of the problem, these sources can change; therefore, it is important to examine these information sources in specific situations. It is also important to realise that Generation Z is overwhelmed by information sources, and therefore, a certain categorisation of these sources may arise based on prioritisation, when a certain category may be perceived as more important in fulfilling the cognitive aspects of attitudes (Čvirik, 2020).

The text implies the need to examine the research question:

- RQ3: What typologies of information sources does the studied cohort use?

2 METHODOLOGY

The literature review was conducted based on scientific and professional articles predominantly indexed in the SCOPUS and WOS databases to ensure a high level of knowledge base using analysis and research methods. The paper is supported by primary research involving 188 respondents. These respondents were from Slovakia and belonged to the Generation Z cohort, defined as individuals born between 1995 and 2009 (Naďová Krošláková et al., 2024). The survey was carried out between Q3/2023 and Q1/2024 using online data collection (CAWI), with social media platforms, commonly frequented by the studied cohort, being the primary distribution channels (Elkatmış, 2024). The average age of respondents was 22 years, with the majority being women (approximately 75%). Women represent the main segment of dietary supplement purchases due to higher health consciousness and greater attention to personal health (Čvirik, 2021; Louca et al., 2021; Topolska et al., 2021). The questionnaire consisted of three main sections. The first section focused on exploring the potential substitution of the terms "medicine" and "dietary supplement," investigating respondents' perceptions using four statements assessed on a five-point Likert scale, a significant tool in attitude research. These statements targeted key areas, namely the perceived differences between these terms, the need for a medical prescription, and the user framework. The second section examined the association of selected types of dietary supplements with their benefits. The final section explored the significance of communication and information sources in the domain of dietary supplements.

It is necessary to note that the sample is a convenience sample, which presents certain limitations. However, even such a sample in basic research can contribute to advancing science and the knowledge base (Doebel & Frank, 2024; Sherman, 2024). A range of statistical methods is applied in the paper to better understand the current situation, with the aim of providing objective results. The results were processed primarily using an exploratory approach, which is appropriate for the sample and the research objectives and conclusions. Descriptive statistics were employed, with an emphasis on measures of central tendency to explain the state of the studied phenomena (Csenkeyová & Čvirik, 2023). Frequency analysis was also emphasised to better understand respondents' choices. Exploratory factor analysis (EFA) was used to investigate latent variables. The study follows professional guidelines and best practices (Watkins et al., 2018; Čvirik, 2024). Initially, the suitability of EFA was evaluated using the Kaiser-Meyer-Olkin test (KMO) criterion, which is recommended to exceed 0.6, and Bartlett's Test, which is expected to be significant (Field, 2018). Parallel analysis was employed to determine the number of factors, and it currently has the best simulation results (Hayton et al., 2004). Additionally, the quality of the model was assessed using indices such as the Standardised Root Mean Squared Residual (SRMR — recommended value below 0.06) and the Comparative Fit Index (CFI — recommended value above 0.9), both of which are widely used in structural equation modelling (Xia & Yang, 2019; Pavlov et al., 2021; Kita et al., 2024).

3 RESULTS AND DISCUSSION

- RQ1: How do consumers of Generation Z perceive the conceptual nexus between nutritional supplements and drugs?

In order to answer the research question, the respondents responded to four statements using a Likert scale (1 - completely disagree, 5 - completely agree). We evaluated the results with the help of descriptive statistics in Tab. 1.

Tab. 1 Perception of the differences between a drug and a nutritional supplement

Descriptive Statistics	**Valid**	**Median**	**Min**	**Max**
There is a difference between a nutritional supplement and a drug.	188	5	2	5
I can get a nutritional supplement without a doctor's prescription.	188	5	2	5
A nutritional supplement is not a medicine.	188	5	1	5
A nutritional supplement should only be used by a healthy person.	188	2	1	5

Source: Own processing

The results indicate that the respondents have very good information and knowledge base. As we can see, respondents reflect differences in concepts. It can also be expected that the respondents perceive the nutritional supplement as a tool for prevention, as they do not think that it serves only to maintain health, but can also serve as a tool to support treatment. In practice, one may encounter a confusion of these concepts, which leads to a disparity in expectations as well as possible risks of health deterioration and low health awareness (Bischoff-Ferrari et al., 2020; Kamarli Altun et al., 2021). However, the respondents demonstrated a good cognitive level, while Generation Z is characterised by good information (Szymkowiak et al., 2021).

- RQ2: What cognitive elements are associated with the selected types of nutritional supplements in the studied cohort?

Within the selected nutritional supplements, we examined seven groups (vitamins, minerals, healthy fats — omega acids, fat burners, amino acids, proteins, creatines, collagens, probiotics). The first group represented vitamins. It can be concluded that a considerable majority of respondents (95%). This reasoning is logical and taken as a general fact, while it is this supplement that primarily demonstrates the given benefit, and especially after COVID-19, there has been more talk about prevention in the context of vitamin D (Vyas et al., 2021). Respondents associated minerals equally with prevention (33.5%) but mainly with fatigue and exhaustion (47.3%), while this may be mainly due to the general awareness of Generation Z, which suffers from a lack of minerals that are consumed in the event of persistent stress and by default mainly recommends magnesium supplementation (Akram et al., 2020). Respondents associate healthy fats mainly with prevention within the framework of immunity support (39.4%) but also with digestion and improvement of metabolic functions (28.2%). It is interesting that the respondents do not associate fat burners with weight loss (2%) but mostly with digestion and metabolic systems (44.2%) and improvement of sports performance and beauty (38%). Amino acids, proteins, and creatine are mostly associated with sports performance (67.6%). Collagen has the primary function of protecting joints, but given the current trend, it is perceived by respondents as a means of improving appearance (55.9%) rather than as an element of physical performance (17%). Probiotics are associated with digestion (48.5%), which is again a logical association. In general, it can be stated that the respondents have a good cognitive base. The associations are logical and correspond to the expected state.

- RQ3: What typologies of information sources does the studied cohort use?

When researching information sources oriented to nutritional supplements, we examined thirteen possible information sources, namely e-mail, teleshopping, telemarketing, leaflets, influencers, sponsorship, competitions, tastings, discounts, social networks, internet, places of sale, product packaging and recommendation from a friend (word of mouth).

First of all, it is worth noting that, considering the median values, the most important sources are recommendations from a friend and the Internet. It is logical that Generation Z uses the Internet to a large extent as a source of information (Szymkowiak et al., 2021). Also, the reference potential in the form of word of mouth represents an important source of information (Pillay, 2021; Salsabila et al., 2023), which also applies within the framework of nutritional supplements.

However, our effort was to understand the typology of resource use. Therefore, we used EFA according to general recommendations for the analysis of the identification of latent factors. The verification of the assumptions of the use of the analysis can be documented both by the KMO criterion (MSA = 0.788) and by the significance of Bartlett's Test (alpha = 0.05; p-value = 1.16x10-126). For the purposes of factor analysis, we used the principal axis factoring (PAF) method, which is appropriate given the nature of the data. In the paper, we use an automated criterion in the form of parallel analysis to determine the number of factors. Since the initial solutions were not sufficient, we used rotation. Due to the expected correlation of the factors (their connection and continuity), we used oblique rotation (promax). We recorded the results in Tab. 2.

Tab. 2 EFA result based on factor loadings

Factor Loadings	Factor 1	Factor 2	Factor 3	Factor 4
E-mail	0.82			
Teleshopping, telemarketing	0.67			
Leaflets	0.64			
Influencers	0.46		0.71	
Sponsorship	0.43			
Competitions		0.91		
Tastings		0.68		
Discounts		0.65		
Social networks			0.92	
Internet			0.48	
Places of sale				0.92
Product packaging				0.7
Recommendation from a friend				0.4

Note: Only factor loadings with a value greater than 0.4 are shown for better clarity
Source: Own processing

As can be seen (Tab. 2), the existence of four factors can be established. Due to the nature of the sources of the first factor (e-mail, teleshopping, telemarketing, flyers and sponsoring), this source can be labelled as "supporting marketing channels." The second latent factor (competitions, tastings, and discounts) can be called the "sales promotion" factor. The third factor (influencer, social networks, Internet) can be described as the factor of "online communication," and the last factor (place of sale, packaging, recommendation from a friend) represents the factor of "classic, i.e., offline marketing communication." The presented model explains 57.4% of data variability, which can be considered acceptable. Also, the Structural Equation Modeling (SEM) quality indicators point to a good explanatory power of the given model (SRMR = 0.03; CFI = 0.949). There are small to moderately strong positive correlations between the factors. This knowledge confirms the choice of oblique rotation. At the same time, it points to the connection of individual typologies. It is worth mentioning the source—influencer. As we can see, the influencer has a certain tendency to also belong to factor 1. It may be a certain oversaturation of influencers within the researched area when they are perceived in the context of sponsorship and thus lose a certain influence and importance in decision-making (Lee & Kim, 2020).

It can be concluded that, in terms of the identified latent factors, factor four has a significant effect (perceived importance), which indicates the trend of offline communication in the studied cohort. It is a rather surprising result when online communication, which is the basis of Generation Z (Duffett, 2020; Munsch, 2021), is only in second place. The nutritional supplements segment may be specific, where the studied cohort prefers recommendations from acquaintances and at the point of sale, as well as information on the packaging, while the offline world appears to be more trustworthy (Tolstikova et al., 2020).

CONCLUSION

As the literature review indicates, the issue of nutritional supplements is topical and needs to be addressed from different perspectives, as it represents an interdisciplinary topic. The paper aims to investigate the current attitude and perception of Generation Z in Slovakia toward nutritional supplements with an emphasis on the cognitive aspect.

The results of the paper focus on three areas: (1) understanding the difference between drugs and nutritional supplements; (2) understanding the effects/benefits that these nutritional supplements offer; and (3) understanding what communication resources can be used to educate and inform Generation Z in this area.

It can be concluded that the respondents generally have a good understanding of the differences between a drug and a nutritional supplement. Of course, in terms of variability in the data, it is necessary to state that we also register those who need to improve their cognitive base. Here, it is appropriate to mention the possibility of education and better informing consumers, which will be reflected in the increase of cognitive aspects of attitudes and thus the rationalisation and optimisation of their decision-making.

Also, most respondents associate nutritional supplements with their demonstrable benefits. Thus, consumers do not have exaggerated expectations and optimise the consumption of nutritional supplements. Within the typologies of information sources, we identified four categories, while offline communication appears to be the most effective, which includes personal communication with friends, family, and acquaintances, but also experts at the point of sale and self-evaluation based on the information on the packaging. It is therefore appropriate to recommend communicating with the help of these tools.

The article also contains certain limits. One of them is the sample itself, which has limited interpretation possibilities. However, the results offer the possibility of discussion and a direction for solving this problem in the future. We are also focusing only on Generation Z. Although this generation is vulnerable, in the future it would be appropriate to examine other generations as well, while older generations, such as baby boomers, can be vulnerable as well.

ACKNOWLEDGEMENT

The paper presents the output of the project "Use of neuromarketing and neurobranding to strengthen brand image", which is supported by the University of Economics in Bratislava under Projects of young teachers, scientific workers, and doctoral students in the daily form of study, number A-25-102/3020-09.

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Illicit Trade of Raw Materials in Logistics Sanctions Circumvention: Causes and Consequences

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https://doi.org/10.53465/CEECBE.2025.9788022552257.126-143

Abstract: This research explores the illicit trade of raw materials as a response to logistics sanctions, focusing on the interplay between sanctioned and non-sanctioned countries through regional trade agreements. The study's findings reveal that the high economic value of critical raw materials and disruptions to legitimate supply chains have catalyzed the emergence of illicit trade networks. Methodologically, moderation, reliability, and correlation analyses were employed, demonstrating that logistics sanctions positively influence unauthorized interactions with countries (NCI = 0.43, $p < 0.05$) and significantly impact supply shortages (SS = 0.64, $p < 0.05$), customs regime (CR = 0.42, $p < 0.05$), transaction values (TV = 0.25, $p < 0.05$), and the establishment of alternative routes (AR = 0.39, $p < 0.05$). Notably, regional trade agreements did not mitigate these relationships. This research underscores the need to understand how regional trade dynamics facilitate sanction evasion, thereby influencing the frameworks of illicit trade and logistical operations.

Keywords: Illicit Trade, Sanctions Circumvention, Logistics, Illegal Schemes, Raw Materials

JEL Classification codes: O17, F23, L91

INTRODUCTION

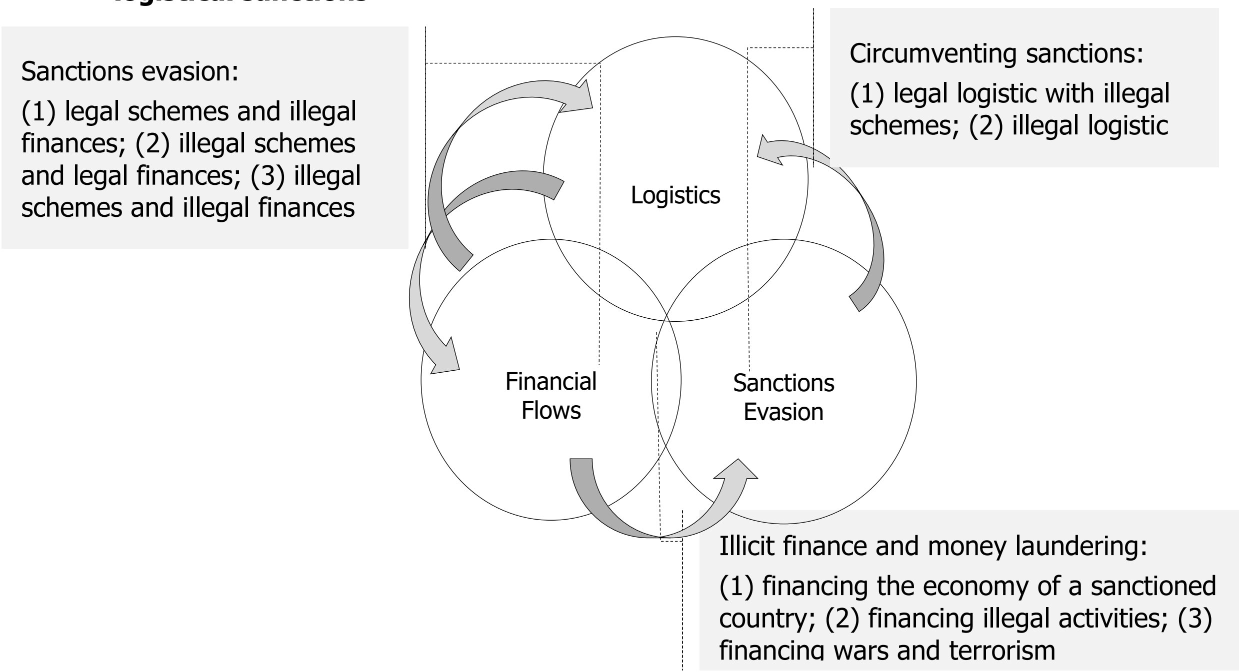
The imposition of logistical sanctions on Russia in response to its actions in Ukraine has catalyzed a significant transformation in the global trade landscape, particularly concerning the illicit trade of raw materials. This research delves into the intricate relationship between sanctions and the burgeoning underground markets that have emerged in Central and Eastern Europe. The illicit trade of essential raw materials, driven by complex supply chains and regional dependencies, has become a prominent consequence of these sanctions. According to Anzoom et al. (2021), "sanctions often create unintended consequences that foster adaptive behaviors in economies, leading to the proliferation of illicit networks." As nations pursue alternative avenues for acquiring raw materials, the dynamics of global trade have been irrevocably altered, with Europe witnessing an increase in clandestine activities.

The conflict in Ukraine has not only served as a catalyst for sanctions but has also exposed the intricate network of trade agreements established by sanctioned nations with non-sanctioned counterparts. Research by Stepien & Weber (2019) emphasizes the necessity of examining these networks, asserting that "the adaptive strategies employed by sanctioned states can significantly undermine the intention of regulatory frameworks." Furthermore, the ramifications of logistical sanctions extend beyond mere economic implications, influencing geopolitical relations and regional stability. The International Trade Centre (2023) posits that "the consequences of sanctions-induced changes in trade relations can destabilize regional economies, creating a power vacuum that illicit networks exploit." This destabilization disrupts the economic landscape and creates security threats, exacerbating tensions between neighboring countries.

The core of this investigation lies in comprehending the operation of these illicit trade channels, elucidating the interaction between legal and illegal logistical frameworks in the distribution of critical raw materials. As highlighted by the OECD (2023), "the adaptation of trade routes, coupled with the emergence of alternative sources of supply, underscores the inherent challenges in enforcing sanctions effectively." Assessing the effectiveness of sanctions over time presents significant challenges. In particular, Van Bergeijk & Van Marrewijk (1995) formulated the fundamental notion that sanctions require an adjustment period during which targeted states and actors must adapt to the imposed constraints. Furthermore, Vines (2012) highlights historical and contextual differences in the implementation of sanctions by international bodies such as the The United Nations and the European Union. However, Caetano et al. (2023) emphasize that the determinants of sanctions effectiveness are complex and often intertwined with various economic and political factors. Thus, difficulties in assessing the effectiveness of sanctions over time arise due to the existence of adaptation periods for targeted actors and contextual variability that shapes the effectiveness of such measures and inadvertently contributes to the development of illicit trade.

The analytical performance of the reconsideration of legal and illegal practices for evading and circumventing logistical sanctions is illustrated in Fig. 1. The subsequent sections will further elucidate the origins of these illicit networks, examining the various legal and illegal channels employed and their broader implications for the geopolitical landscape of Central and Eastern Europe.

Fig. 1: Analytical performance of legal and illegal schemes for evading and circumventing logistical sanctions



Source: own elaboration

The study aims to evaluate the impact of logistical sanctions on the formation of regional trade agreements between sanctioned and non-sanctioned countries by moderating changes such as: shortages of critical raw materials (dependencies and unmet needs), customs regimes (routes for sanctions circumvention), transaction costs (increased supply chain expenses), alternative routes (additional logistics points), and interactions with non-sanctioned countries (to distort the actual raw material base). The significance of this research lies in investigating how the establishment of regional trade agreements mitigates the constraints imposed by logistical sanctions and facilitates adaptation over time through variable parameters. Additionally, it examines how the interaction between non-sanctioned countries and regional trade agreements mutually influences the outcomes of sanctions circumvention through the emergence of illicit trade practices based on legal logistics channels.

1 LITERATURE REVIEW

This historiographical review synthesizes key contributions to the literature on economic sanctions, highlighting the complexities and nuances inherent in their application, with a further projection in 1.1-1.7 onto logistical sanctions. Thus, Lam (1990) provides a foundational assessment of economic sanctions, critically evaluating their ability to achieve foreign policy objectives. Morgan & Schwebach (1995) extend this analysis by investigating the domestic political considerations that shape the imposition and effectiveness of economic sanctions. According to their findings, the alignment between domestic political interests and foreign policy goals significantly influences the efficacy of sanctions as a foreign policy instrument. In a legal and policy-oriented context, Segall (1999) examines the constraints that international law and political considerations impose on the implementation of economic sanctions. This research highlights the challenges that states face when balancing the enforcement of sanctions with compliance with legal frameworks, thereby complicating the discourse surrounding their legitimacy and overall effectiveness. Morgan (2000) presents a critical reflection on the paradox of sanctions and posits that the intended outcomes of economic statecraft often diverge from actual results, leading to a complex interplay between sanctions and international relations. This paradox raises questions about the assumptions underlying sanction strategies and their actual impacts on target states. Hafbauer & Schott (2007) undertake a comprehensive reevaluation of economic sanctions, considering historical cases and contemporary examples to discern patterns of success and failure. Their work contributes to an understanding of the strategic calculation involved in the use of sanctions, proposing that contextual factors, such as the economic resilience of the targeted state and international support for sanctions, significantly influence their effectiveness. Schmitt (2012) advocates for a strategic approach to sanctions research, suggesting the formulation of a research agenda that incorporates diverse methodologies and cross-disciplinary perspectives. Finally, Rogoff (2015) raises pertinent questions about the overarching effectiveness of economic sanctions, critically discussing whether they achieve their intended results. In summary, the evolution of sanctions theory demonstrates a shift from linear, simplistic models to a more nuanced understanding that incorporates multiple dimensions of state behavior and international relations.

1.1 Logistic sanction

Sanctions are instrumental in maintaining international peace and security, particularly in Europe, where they are employed to modify the conduct of individuals and regimes implicated in conflicts. Logistic (Transport) sanctions exert economic pressure on targeted nations to fulfill diplomatic goals, limit access to critical materials and markets, and ensure compliance with international laws. These measures also serve to mitigate risks by diversifying suppliers and markets (Sun et al, 2022).

The term "Logistic (Transport) Sanction" encompasses regulatory measures that restrict or prohibit the movement of goods, services, or individuals across various transportation channels. EU sanctions aimed at critical raw materials seek to curtail the supply of essential resources crucial for diverse industries, including electronics, aerospace, and defense. These sanctions are designed to exert pressure on Russia by limiting its access to the European market, thereby affecting its economic stability (Kumagai et al., 2022). Notably, the EU has implemented import bans on raw materials for steel production, processed aluminium products, and various metal goods (Davarzani et al., 2015). The logistics sector is vital in executing and assessing the impact of EU sanctions on critical raw materials and managing the transportation, storage, and distribution of these resources. Sanctions may necessitate adjustments in logistics operations, such as identifying alternative supply routes, incurring increased transaction costs, and engaging with countries not subject to sanctions.

Regional trade agreements play a significant role in circumventing EU sanctions against Russia. These agreements can facilitate alternative routes and sources for critical raw materials, allowing sanctioned countries to maintain their trade activities. For instance, Russia has advocated for intra-regional trade within the Eurasian Economic Union (EAEU) to sustain trade with the European Union and other nations that have imposed sanctions. This strategy aims to utilize these countries as intermediaries to bypass sanctions and continue trade operations (Giumelli et al., 2021). The legal circumvention of sanctions can lead to the emergence of illicit trade phenomena. When countries identify methods to legally navigate around sanctions, it can create opportunities for illicit trade activities. The rise of multi-regionalism, driven by imposed or potential economic sanctions, may undermine the unilateral system of international trade regulations under the World Trade Organization. Additionally, sanctioned economies are increasingly leveraging innovation to navigate sanctions, which can inadvertently foster illicit trade activities (Investigate Europe, 2023).

Logistic sanctions are shaped by various factors influencing the behavior of sanctioned entities, including shortages in raw material supply, increased transaction costs for supply operations, restrictions on customs regimes, the search for alternative routes, and the necessity for engagement with countries not included in the sanctions lists (Sun et al, 2022). A critical moderating factor in this context is the establishment of regional trade agreements to address the challenges posed by imposed sanctions (Santeramo & Lamonaca, 2022). The evasion of sanctions, including logistical ones, through trade agreements between sanctioned and non-sanctioned states represents a transitional structure from illegal to legal trade and exemplifies the adaptation process to sanctions (Giumelli et al., 2021).

1.2 Supply shortage

The European Unionhas imposed extensive sanctions on specific states to address geopolitical tensions and human rights violations. However, these sanctions can inadvertently lead to supply shortages of critical raw materials, which are vital for various industries, including technology, construction, and energy (Salimian et al., 2024). The scarcity of resources in sanctioned countries often fosters an environment conducive to illicit trade practices. The effects of sanctions are multifaceted; while they aim to restrict economic activities in targeted nations, they also create market imbalances that illicit networks exploit (Vuola, 2015). A significant consequence of these supply shortages is the elevation of prices for raw materials, which can further destabilize markets in the EU and beyond (Cebotari, 2021). Consequently, businesses that rely on these materials can experience operational disruptions, forcing them to seek alternative suppliers. Such a search often leads to engagement with unregulated sources, which may include illegal markets that often bypass existing sanctions. This phenomenon has been documented in various sectors, from the mining of strategic minerals to the procurement of rare earth elements, where shadow networks flourish due to increased demand and decreased availability from sanctioned sources (Larch et al., 2022).

Moreover, the rise of technological advancements complicates the monitoring and enforcement of sanctions. The digital age has provided criminals with easier access to the tools necessary for covert operations, allowing illicit trade channels to thrive under the radar of regulatory bodies (Basu, 2014). The EU's reliance on raw materials necessitates prudent policy considerations that address both the challenges of supply shortages and the repercussions of engaging in illicit trade. In conclusion, the imposition of sanctions by the EU, while aiming to curtail aggressive and unethical actions, inadvertently fosters a response mechanism that encourages the development of illicit trade networks. The resultant search for alternative sources of raw materials serves as a stark reminder that sanctions, without complementary strategies for resource management and enforcement, may lead to unintended consequences. Thus, the hypothesis emerges that the pressing shortage of supplies leads to a search for ways to circumvent sanctions, potentially aggravating the very issues the sanctions were meant to resolve. The above arguments conclude the following hypothesis:

- H1: Supply shortages have a positive impact on logistical sanctions but lead to the search for workarounds.

1.3 Customs regime

The circumvention of European Union sanctions through different customs regimes has become a focus of concern for both policymakers and researchers. The complexity of customs procedures can inadvertently facilitate illicit trade, particularly in raw materials, by allowing operators to exploit loopholes in the existing regulatory framework. It has been noted that the diversity of customs regimes allows operators to engage in fraudulent misrepresentation of goods, often resulting in the rerouting of sanctioned materials (Forganni, 2019). This is particularly problematic given that raw materials are often the focus of strategic economic interests, requiring strong regulatory measures (Adam & Ahamat, 2023). In addition, there has been a shift towards informal trading networks where parties can evade control by operating through less regulated jurisdictions, thereby undermining EU efforts to maintain effective sanctions (Kupatadze & Marat, 2023). Studies have shown that integrating advanced technological measures into customs regimes can mitigate these problems by increasing transparency and traceability, thus helping to detect sanctions evasion (Gkoni et al., 2024). However, opportunities for circumvention remain widespread as long as there are differences in customs practices across member states (Bali et al., 2024). Given these findings, it is hypothesized that the introduction of a harmonized customs regime in the EU has a positive impact on reducing the circumvention of logistical sanctions. By standardizing customs procedures, increasing cooperation between member states, and strengthening enforcement measures, the EU can significantly disrupt the channels through which illicit trade thrives.

- H2: The Customs Regime has a positive effect on Logistic Sanction.

1.4 Transaction value

The imposition of European Union sanctions has significantly increased transaction costs associated with evading these restrictions, largely due to heightened transportation and additional logistics costs. As sanctions disrupt traditional trade routes and induce compliance costs, businesses are compelled to explore alternative, often risk-laden, channels. The need to navigate these complex logistics can lead to inefficiencies and increased operational expenses, further inflating transaction costs (Mykyta, 2025). Additionally, the development of illicit trade in raw materials has emerged as a primary consequence of these elevated transaction costs. As legitimate avenues for acquiring goods become restricted, black markets proliferate, often resulting in price surges and the deterioration of standardized supply chains (Bevan et al., 1989). Research indicates that criminal networks thrive under sanction regimes, capitalizing on the opportunity to meet illicit demands for resources while simultaneously exacerbating the risks associated with supply chain disruptions (Seepma, 2021). These escalating costs not only reflect the challenges inherent in circumventing EU sanctions but also serve to reinforce the economic isolation intended by such measures. Transaction costs, therefore, can be construed as an unintentional yet effective feedback mechanism for the broader goals of sanctions policy (Drezner, 1999). While the repercussions of increased transaction costs due to sanctions are multifaceted, they ultimately contribute to enforcing compliance and reducing the efficacy of illicit trading practices. Thus, the hypothesis emerges that increasing transaction costs may be interpreted as a positive effect of logistics sanctions, deterring illicit trade while promoting adherence to international norms and regulations.

- H3: Transaction Value has a positive effect on Logistic Sanction.

1.5 Alternative route

The imposition of EU sanctions has significantly changed the dynamics of commodity trade in the region and beyond. In particular, entities subject to these sanctions are increasingly seeking alternative routes through non-EU countries to facilitate their continued access to key resources. This shift is driven by the need to maintain supply chains while adhering to the regulatory frameworks dictated by the sanctions (Afesorgbor, 2019). As a result, trading networks often engage in complex logistical mechanisms that exploit vulnerabilities in international trade rules, allowing sanctioned entities to gain indirect access to commodities (Stepien et al., 2024). In addition, illicit commodity trade has expanded as a direct consequence of the sanctions. The emerging black market is characterized by a lack of regulation, as transactions often take place in jurisdictions that do not adhere to strict compliance measures (Basu, 2013). The emergence of middlemen makes tracking more difficult, thereby exacerbating the challenges regulators face in effectively enforcing sanctions (Bove et al., 2023). These developments highlight a paradox; while sanctions are intended to deter certain activities, they inadvertently encourage the very behavior they seek to suppress, leading to the proliferation of illicit trade networks operating outside of formal markets. In addition, the increased transaction costs associated with navigating these alternative routes have been a notable consequence of logistical sanctions. As businesses engage in more complex supply chains and face compliance hurdles, costs inevitably increase (Larch et al., 2022). Thus, while sanctions are intended to impose economic pressure on targeted entities, the associated increase in transaction costs may serve as a buffer against unregulated trade, potentially mitigating the adverse effects of illicit practices. In summary, the intricate dance of circumventing EU sanctions through alternative routes has had a multifaceted impact on commodity trade. This situation suggests that increased transaction costs, rather than simply burdens, may constitute a constructive friction that deters illicit trade. The above debate concludes the following hypothesis:

- H4: Alternative Route has a positive effect on Logistic Sanction.

1.6 Non-sanctioned country interaction

The interaction between non-sanctioned countries plays a crucial role in the effectiveness of logistics sanctions. When non-sanctioned countries collaborate, they create a robust network that minimizes the chances of sanctioned countries finding loopholes to circumvent restrictions.

Key academic research on international sanctions draws heavily on the seminal contributions of Kaempfer and Loewenberg (1988, 1999), which explain the resilience of large economies in the face of sanctions by emphasizing how their size contributes to their inherent self-sufficiency. A detailed discussion of the size of a target economy provides a more nuanced understanding of its ability to withstand economic constraints. Furthermore, the presence of "black knights"—third-party allies—can play a key role in mitigating the adverse effects of such sanctions. Finally, cooperation among non-sanctioned countries has been shown to have a positive impact on the logistical effects of sanctions, suggesting that cooperative strategies can enhance economic resilience. This hypothesis is supported by various studies and reports, which highlight the positive impact of such interactions on the enforcement of sanctions. A study by Li et al. (2024) found that firms in sanctioningcountries reduced exports of sanctioned products to Russia when their headquarters were in countries. However, domestic firms in neutral countries significantly increased exports of sanctioned products, undermining sanctions (Li et al., 2024). This indicates that while non-sanctioned countries can help enforce sanctions, their domestic firms may still find ways to bypass restrictions. Another report by the International Trade Centre (2023) emphasizes the importance of multinational enterprises (MNEs) in non-sanctioned countries complying with 'long-arm' sanctions. These sanctions restrict the export of products using technology or inputs from sanctioning countries, thereby ensuring that non-sanctioned countries do not become conduits for sanctioned goods (International Trade Centre, 2023). This compliance is essential for maintaining the integrity of the sanctions regime. Furthermore, a report by the United Nations Conference on Trade and Development (UNCTAD, 2023) highlights that non-sanctioned countries increased their exports of non-sanctioned products to Russia by 40%, while non-sanctioning countries reduced their exports by 80%. This shift in trade patterns underscores the role of non-sanctioned countries in supporting the sanctions framework. This highlights the need for coordinated efforts among non-sanctioned countries to ensure that sanctions are not undermined. In conclusion, the interaction between non-sanctioned countries has a positive effect on logistics sanctions. By collaborating and complying with international regulations, these countries can prevent sanctioned countries from exploiting loopholes. This cooperation is vital for the success of sanctions and the prevention of illicit trade in raw materials.

- H5: Interaction between Non-sanctioned Country Interaction has a positive effect on Logistic Sanction.

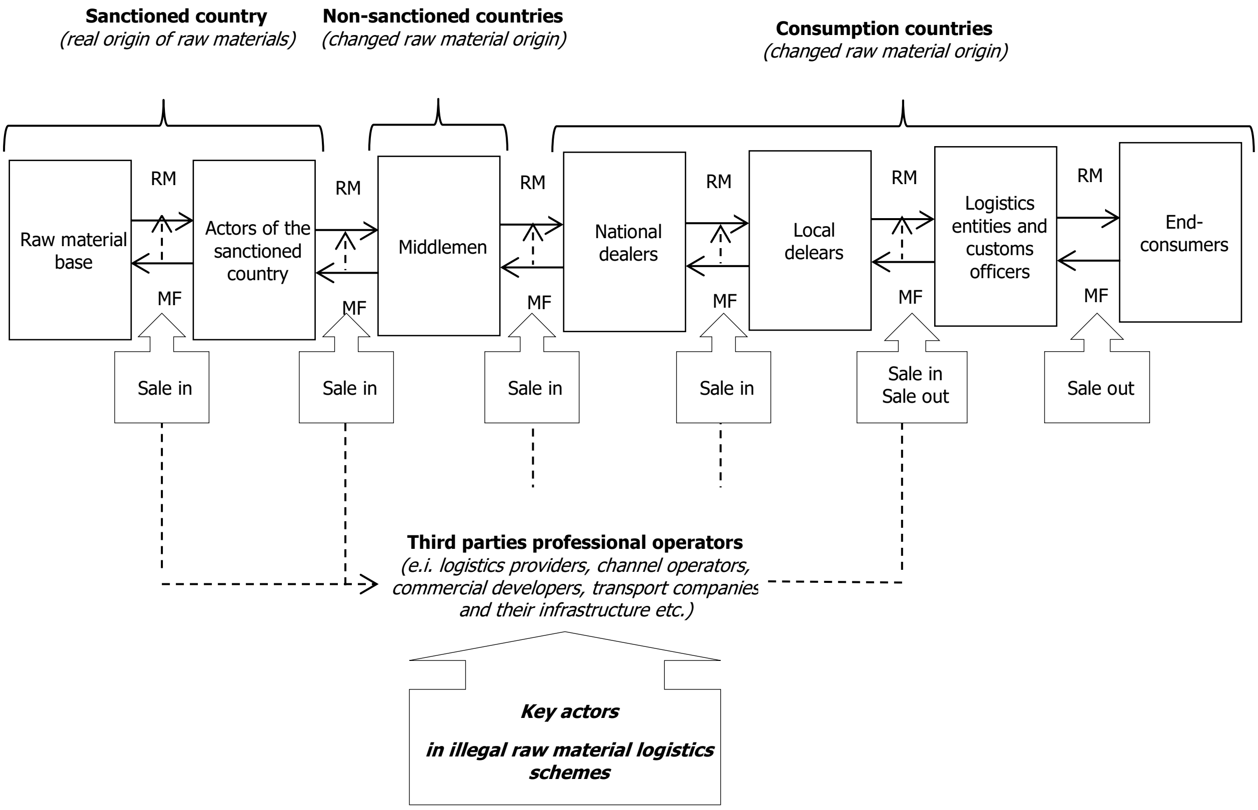
1.7 Regional trade agreement

One common pattern of sanctions circumvention involves the use of intermediary countries that are part of a regional trade agreement (RTA) with both the sanctioning and sanctioned countries. These intermediary countries can act as conduits for goods and raw materials, allowing sanctioned countries to access restricted items indirectly. For example, a study by Silingardi (2024) found that Russian firms were able to import high-tech components through Belarus, a member of the Eurasian Economic Union (EEU), despite EU sanctions. This highlights the role of RTAs in facilitating the flow of goods between sanctioned and non-sanctioned countries.

Another scheme involves the re-exportation of goods. Non-sanctioned countries within an RTA can import goods from sanctioning countries and then re-export them to the sanctioned country, effectively bypassing the sanctions. A report by the International Trade Centre (2024) documented instances where goods exported from the EU to Kazakhstan were subsequently re-exported to Russia, circumventing EU sanctions (International Trade Centre, 2024). This practice underscores the challenges in enforcing sanctions within the framework of RTAs. Furthermore, RTAs can provide legal cover for sanctioned countries to engage in trade by exploiting loopholes in the agreements. Research conducted by Flach et al. (2024) indicates that Russian enterprises leveraged preferential trade conditions under the Eurasian Economic Union to import goods that were otherwise prohibited by European Union sanctions. This illustrates the potential for RTAs to be exploited as a means of circumventing sanctions.

The above cases and arguments are summarized in Fig. 2 as a schematic model of the involvement of non-sanctioned countries in the practice of circumventing sanctions through RTAs.

Fig. 2: Schematic model of logistics sanctions circumvention involving non-sanctioned countries based on RTA



Note: RM – raw material; MF – money flow

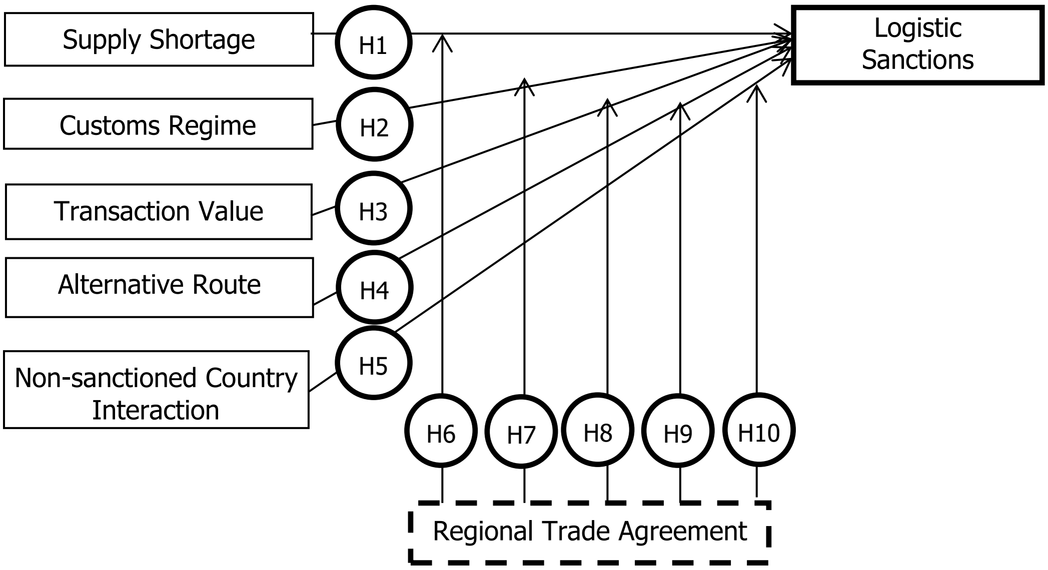
Source: own elaboration

The involvement of MNEs in RTAs also plays a crucial role in sanctions circumvention. MNEs with operations in both sanctioning and non-sanctioned countries can leverage their global supply chains to move goods across borders, bypassing sanctions. A report by the United Nations Conference on Trade and Development (UNCTAD, 2023) highlighted cases where MNEs re-routed their supply chains through non-sanctioned countries to continue trading with Russia (UNCTAD, 2023). This indicates the complexity of enforcing sanctions in a globalized economy.

In conclusion, regional trade agreements can inadvertently facilitate the circumvention of sanctions through various patterns and schemes involving third countries. The use of intermediary countries, re-exportation of goods, exploitation of legal loopholes, and involvement of multinational enterprises are some of the key mechanisms through which sanctioned countries can bypass restrictions. Addressing these challenges requires coordinated efforts and enhanced enforcement mechanisms within the framework of RTAs.

The above arguments conclude the following theoretical framework for research methodology in Fig. 3.

Fig. 3: Theoretical framework of a hypothetical approach



Note: thin line - independent variable; bold line - dependent variable; dashed line - moderating variable

Source: own elaboration

2 METHODOLOGY

2.1 Research methods

The study used a symbiosis of statistical methods to test the relationships between variables and their correlation. In particular, the following:

- Reliability analysis (Cronbach's alpha) - establishing the reliability of a group of survey items (Cronbach's alpha coefficient) and internal consistency on a unified scale, where higher numbers mean items with greater agreement (Tavakol & Dennick, 2011).
- Pearson's coefficient - determining the linear relationship and correlation between two variables, evaluating statistical hypotheses (Benesty et al., 2009).
- ANOVA tests - checking the survey results for significance in order to select the correct hypothesis based on the test of group mean equality. This minimizes the prevalence of errors or false positive results (Blanca et al., 2023).

All data collected for this study were analyzed using IBM SPSS Statistics software.

2.2 Research limitations

The subjective opinions of respondents, along with assumptions derived from potentially limited sources influenced by political ideologies, were excluded from the analysis to maintain the integrity of statistical significance indicators in the context of Russia's military aggression against Ukraine. This study primarily focuses on Ukraine and the European Union, where the extent of supply shortages has been assessed as a direct consequence of the logistical sanctions imposed on Russia affecting supply chains.

The timeframe of the research spans December 2024 to January 2025, utilizing data gathered through value judgments regarding the effectiveness of the logistical sanctions as reported in the survey. To validate the interpretations of the empirical evidence presented, hypothetical conclusions drawn from scientific research were contextualized in relation to the responses obtained from the study participants. The respondent sample is deemed representative of the relevant subject range, thereby ensuring the reliability of the generalizations made within the constraints of the specified temporal context, geographical focus, and the volume of comparable scientific literature available at the time of analysis.

2.3 Data and sources

The study involved 18 multinational logistics companies that operated during the war in Ukraine. These companies represent various sectors, including shipping lines, port terminal operators and authorities, intermodal terminal developers, operators of sea and river locks and canals, road hauliers, railway and rail terminal operators, and third-party logistics providers. Air freight logistics operators were excluded from the survey due to the closed airport infrastructure and their limited activity during the conflict. A total of 144 respondents were selected, and questionnaires were distributed online via Google Docs to gather their insights.

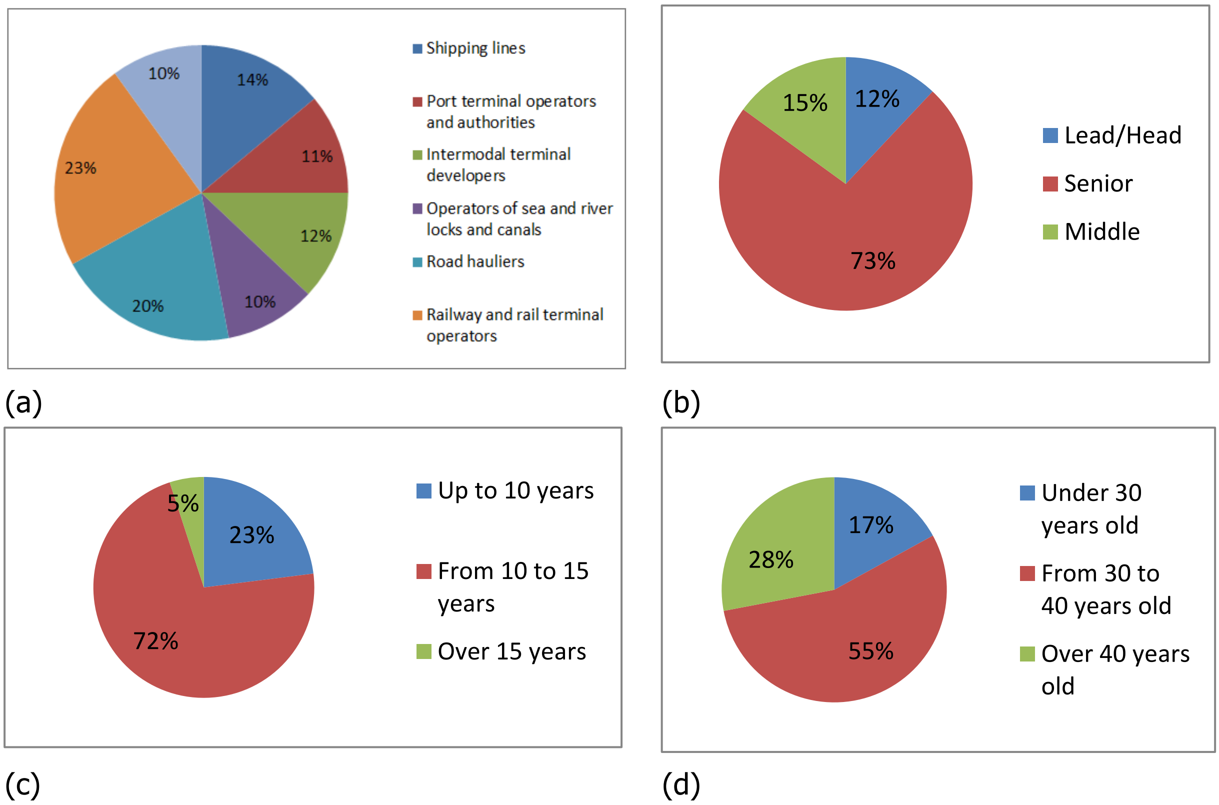
The questionnaire is divided into two sections. The first section contains closed-ended questions on all variables. The scale was used to assess the responses of all variables (See Fig. 1), which include the dependent variable (logistic sanction), independent variables (supply shortage, customs regime, transaction value, alternative route, non-sanctioned country interaction) and the moderating variable (regional trade agreement) on a Likert scale (Joshi et al, 2015) ranging from (1) strongly disagree, (2) disagree, (3) neutral, (4) agree and (5) strongly agree. Statements for all variables can be collected from various journal articles used in the literature review to formulate hypotheses, as well as from the questionnaire.

The second section is a professional overview, which contains questions on logistics field affiliation, work experience, titles and age. A nominal scale was used for this section of questions.

2.4 Professional overview of the respondents

The sample for this study includes 144 representatives working in 18 international logistics companies. Section 2 of the questionnaire contains professional survey questions. The professional portrait of the respondents shows that out of 144 respondents in the field of shipping lines – 14%, port terminal operators and authorities – 11%, intermodal terminal developers – 12%, operators of sea and river locks and canals – 10%, road hauliers – 20 %, railway and rail terminal operators – 23%, third-party logistics providers – 10%. In addition, the titles of the respondents include 12% - lead/head, 73% - senior, and 15% - middle managers. By work experience, the respondents are distributed as follows: up to 10 years – 23%, from 10 to 15 years – 72% and over 15 years – 5%. The age profile of respondents includes people under 30 years old - 17%, from 30 to 40 years old - 55%, and over 40 years old - 28%. The above questionnaire data is illustrated in Fig. 4 (a-d).

Fig. 4: Professional overview of the respondents: (a) Field; (b) Title; (c) Experience; (d) Age



Source: own processing

3 RESULTS AND DISCUSSION

3.1 Reliability analysis

When the goal is frequently measured, reliability analyses the stability of the results. Using Cronbach's alpha approach, the reliability of data about latent variables and operational constructs was evaluated (Tavakol & Dennick, 2011). While the construct is a fictitious variable that is assessed in it, Cronbach's alpha is a measure of dependability related to the discrepancy accounted for by the true mark of the underlying theory. In social sciences, if Cronbach's alpha is greater than 0.60, it indicates reliable data, and if it is less than 0.60, it indicates that the data is not reliable. For this study, we use Cronbach's alpha coefficient to evaluate the reliability of measurement tools.

Tab. 1 indicates that all the variables of this study have Cronbach's alpha larger than 0.60, which indicates that the data is reliable.

Tab. 1: Reliability Analysis of the Logistic Sanction Scale

Variable Names	**Abbreviation**	**Cronbach's Alpha**	**No. of Items**
Logistic Sanction	LS	0.93	3
Supply Shortage	SS	0.82	4
Customs Regime	CR	0.75	3
Transaction Value	TV	0.73	4

Variable Names	**Abbreviation**	**Cronbach's Alpha**	**No. of Items**
Alternative Route	AR	0.86	2
Non-sanctioned Country Interaction	NCI	0.60	3
Regional Trade Agreement	RTA	0.78	10

Source: own processing with SPSS software

3.2 Correlation analysis

A statistical method known as correlation illustrates how closely two variables are connected. We can interpret the correlation analysis for this study by Pearson's correlation coefficient (Benesty et al., 2009). The link between the two continuous variables is assessed using this statistical method. The bivariate correlation shows how a change in the independent variable causes a variation in the dependent variable. A correlation coefficient value close to ±1 indicates a perfect correlation, signifying that an increase in one variable is consistently associated with an increase (positive correlation) or decrease (negative correlation) in the other.The variations within the variables can be seen in Tab. 1.

In Tab. 2, there is 1 in the diagonal, and this is a mirror effect, as below and above 1 value are the same. Only the values that are significant at the 0.01 level are regarded. This means that they are significant at the 0.01 level.

Tab. 2 Pearson's correlation between variables

Variables	**LS**	**RTA**	**SS**	**CR**	**TV**	**AR**	**NCI**
LS	1						
RTA	0.16	1					
SS	0.64	0.12	1				
CR	0.42	0.13	0.36	1			
TV	0.25	0.11	0.25	0.48	1		
AR	0.39	0.18	0.29	0.53	0.29	1	
NCI	0.43	0.13	0.45	0.44	0.39	0.34	1

Note: Correlation is significant at the 0.01 level (2-tailed)

Source: own processing with SPSS software

The above Tab. 2 indicates that the variables are perfectly positively correlated with each other. These values are positive, which means that if one variable increases (dependent variable), another variable (independent variable) also increases. This also states that there is a strong association between the two variables. The strongest correlation exists between Logistic Sanction and Supply Shortage, Customs Regime, Transaction Value, Alternative Route, and Non-sanctioned Country Interaction, as all the value correlations are significant at the 0.01 level, as shown in the above Tab. 2.

3.3 Hypotheses testing

The likelihood of receiving outcomes from a statistical hypothesis test that are at least as extreme as the actual outcomes, assuming the null hypothesis is true, is known as the p-value in statistics. A p-value is a statistical measurement that is additionally used to test a hypothesis against actual data. The estimated probability is used in the p-value method of hypothesis testing to decide whether there is sufficient proof to reject the null hypothesis. Normally, a p-value of 0.05 or less is regarded as statistically significant, and in that case, the null hypothesis should be disregarded. If the p-value is larger than 0.05, the null hypothesis is not precluded because the deviation from it is not statistically significant (Blanca et al., 2023).

Tab. 3 shows the p-values for all the variables. The p-values are perfectly significant for all the variables so, it indicates that the result is statistically significant, and hence null hypothesis is rejected whereas the alternate hypothesis is supported. Therefore, hypotheses H1, H2, H3, H4, and H5 are supported, and there is a significant relationship between the dependent variable (Logistic Sanction) and independent variables (Supply Shortage, Customs Regime, Transaction Value, Alternative Route and Non-sanctioned Country Interaction).

Tab. 3 The findings of p-values for dependent and independent variables

Variables	**P-Value**	**Result**
Supply Shortage → Logistic Sanction	0.00	Supported
Customs Regime → Logistic Sanction	0.00	Supported
Transaction Value → Logistic Sanction	0.01	Supported
Alternative Route → Logistic Sanction	0.00	Supported
Non-sanctioned Country Interaction → Logistic Sanction	0.00	Supported

Note: → P-value is less than 0.05, indicates that hypothesis (H1 – H5) are accepted (supported)

Source: own processing with SPSS software

3.4 Moderation analysis

The moderator variable is the third variable used to inspect the power of the association between the independent and dependent variables. In addition, the moderator explains the magnitude of change among the independent and dependent variables, quantified by the linear regression coefficient of the product term. The product term, also called the interaction term, states the experimental consequence of the moderator on the relationship between the independent and dependent variables. In moderation analysis, it is important that the moderator variable does not have a causal relationship with the independent variable (Tavakol & Dennick, 2011). Moderation analysis is run in SPSS to see if the moderating variable (Regional Trade Agreement) moderates the affiliation amongst the dependent variable (Logistic Sanction) and independent variables (Supply Shortage, Customs Regime, Transaction Value, Alternative Route, and Non-sanctioned Country Interaction). To begin with moderation analysis, we first calculate the standardized values of an independent variable and a moderating variable. In addition, we calculate the intercept of each independent variable with the moderating variable by multiplying the standardized value of an independent variable by the moderating variable calculated before. Lastly, we run the linear regression analysis to test the interface effect amongst dependent, independent, and moderating variables.

The outcomes of the linear regression analysis demonstrate a significant causal connection between the independent variables (Supply Shortage, Customs Regime, Transaction Value, Alternative Route, and Non-sanctioned Country Interaction) and the dependent variable Logistic Sanction (p-value = 0.000). Since the p-value is ≤ 0.05, the relationship between the independent variables and the dependent variables is significant. A one-way ANOVA test is used to see the causal influence of the dependent and independent variables.

Moreover, moderation effect results can be seen in the coefficients after running a linear regression analysis. We can see the p-value of the interaction term of each independent variable with the moderating variable. Tab. 4 below shows the p-value of the interaction term (INT).

Tab. 4: Interaction Term (INT)

Variables	p-value
INT (Regional Trade Agreement & Supply Shortage)	0.08
INT (Regional Trade Agreement & Customs Regime)	0.12
INT (Regional Trade Agreement & Transaction Value)	0.17
INT (Regional Trade Agreement & Alternative Route)	0.86
INT (Regional Trade Agreement & Non-sanctioned Country Interaction)	0.30

Source: own processing with SPSS software

The analysis indicates that the interaction term exhibits p-values exceeding 0.05, as previously illustrated in the table. Given that the p-value surpasses the 0.05 threshold, it can be concluded that the moderator variable, Regional Trade Agreement, does not significantly influence the relationship between the independent variables — Supply Shortage, Customs Regime, Transaction Value, Alternative Route, and Non-sanctioned Country Interaction — and the dependent variable, Logistic Sanction. Therefore, hypotheses H6, H7, H8, H9, and H10 are considered rejected.

CONCLUSION

The EU's logistical sanctions against Russia have highlighted the vulnerability of global supply chains to geopolitical tensions and the importance of diversifying supply sources in countering the growth of illicit trade. The key findings from the study are as follows: (1) the emergence of illicit trade networks in response to the sanctions has been driven by the high economic value of critical raw materials and the disruption of legal supply chains; (2) illegal logistical channels and smuggling routes have become prevalent, exploiting the gaps in legal supply chains to transport and distribute critical raw materials; (3) regional trade agreements involving sanctioned and non-sanctioned countries have facilitated sanctions evasion, allowing sanctioned countries to maintain their economic activities despite restrictions.

To conclude, the study’s primary goal was to ascertain if a Regional Trade Agreement plays a moderating role in Non-sanctioned Country Interaction and Logistic Sanction in logistics companies. Moderation, reliability, and correlation analysis were carried out to find the results of this study. The findings proposed that Logistic Sanction had an optimistic effect of 0.43 on Non-sanctioned Country Interaction (p=0.00, p<.05). Non-sanctioned Country Interaction is one of the crucial variables to achieving Logistic Sanction. The results also matched the previous studies according to Giumelli et al. (2021). International logistics companies that had greater skills in interacting with non-sanctioned countries and were actors in logistics sanctions. Another result of this study indicates that logistics sanctions also had a positive effect of 0.64 on supply shortage (p=0.00, p<0.05). For achieving logistics sanctions, this aspect is also very important. The results of this finding are consistent with the results of previous studies conducted (Larch et al., 2022; Basu, 2014).

The next finding of this study indicates that logistics sanctions had a positive effect on the customs regime by 0.42 (p=0.00, p<0.05). The results of this finding are also related to previous studies conducted by other scholars (Kupatadze & Marat, 2023; Gkoni et al., 2024;

Bali et al., 2024). The fourth finding of this study indicates that logistics sanctions had a positive effect of 0.25 on Transaction Value ($p=0.01$, $p<0.05$). The results of the study are consistent with the results of previous studies (Bevan et al., 1989; Seepma, 2021). The last result of this study indicates that logistics sanctions had a positive effect of 0.39 on alternative route ($p=0.00$, $p<0.05$). The results of this finding are consistent with the results of previous studies (Bove et al., 2023; Larch et al., 2022). In addition, one of the important aspects that affects logistics sanctions is the participation of sanctioned countries with non-sanctioned ones in regional trade agreements (Li et al., 2024), and the effect will be negative. Finally, to summarize the results of this study, it was demonstrated that the dependent variable (Logistics Sanction) has a stable positive relationship with the independent variables (Supply Shortage, Customs Regime, Transaction Cost, Alternative Route and Non-sanctioned Country Interaction). Furthermore, the moderating variable (Regional Trade Agreement) does not moderate the relationship between the dependent variable and the independent variables.

Further research will focus on the following areas: the role of digital technologies, such as blockchain and artificial intelligence, in enhancing supply chain visibility and traceability; the impact of sustainability and circular economy practices on reducing dependence on raw material imports and promoting resource efficiency; the effectiveness of international cooperation and partnerships in addressing common challenges related to supply chain disruptions and geopolitical tensions. By addressing these areas, future studies can contribute to a deeper understanding of the complexities of global supply chains and the strategies needed to ensure their stability and efficiency in the face of geopolitical challenges.

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The Climate-Conscious Generation: The Influence of Sustainability Education and Influencers on Generation Z's Climate Responsibility

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Abstract: This study examines how prior education and influencers impact sustainability awareness among Generation Z in Slovakia. Generation Z is crucial to shaping trends around renewable energy, sustainable fashion, and responsible consumption. Their purchasing decisions are influenced by various factors. While previous research has highlighted the role of education and influencers in fostering socially responsible behaviors, few studies focus specifically on this topic. A survey among 412 respondents was conducted to explore the relationship between education, influencer impact, and the adoption of a sustainable lifestyle. The results show that mainly influencers significantly affect responsible awareness of environmental and social issues. These findings offer valuable information for policymakers, educators, and marketers on how to effectively leverage education and influencers to promote sustainability in Slovakia.

Keywords: Sustainability, Generation Z, Influencers, Prior Education

JEL Classification codes: M31, Q56, I25

INTRODUCTION

In 2015, the United Nations launched the Sustainable Development Goals, a set of 17 global goals aimed at achieving a sustainable future for all. Education has been widely recognized as a crucial tool in achieving these goals, as it can empower individuals to make informed and responsible decisions for the environment (Nguyen et al., 2022). The younger generation, particularly millennials and Generation Z, is often touted as the driving force behind the push for sustainable development (Yamane & Kaneko, 2021).

The relevance of sustainability education and the influence of climate activists, such as Greta Thunberg, on the environmental awareness and actions of Generation Z have been explored in several studies. These studies suggest that Generation Z, as digital natives, are more engaged with environmental issues through social media and are more likely to take pro-environmental actions (Anwar, 2019; Melissa & Sari, 2020). However, the extent to which this generation is truly driving sustainable development remains a topic of ongoing research and debate (Yamane & Kaneko, 2021).

Gen Z possesses significant sustainable development competencies, which positively influence their attitudes toward green consumption values (Cyfert et al., 2024). Access to diverse sources of sustainability knowledge enhances their understanding and engagement with sustainable practices (Cyfert et al., 2024). Generation Z, also known as the "digital natives", are the demographic cohort born between the mid-1990s and the early 2010s (Anwar, 2019). This generation has been exposed to environmental issues and sustainability from a young age, as they have grown up in an era of heightened global awareness of climate change and the need for sustainable development. Several studies have explored the environmental attitudes and behaviors of Generation Z, with mixed findings. One study found that Generation Z in Pekanbaru, Indonesia, tend to believe that social media is more important than the real world, which could hinder their engagement with real-world environmental issues (Anwar, 2019). However, another study conducted in Japan suggests that the younger generation, including millennials and Generation Z, is more likely to adopt sustainable lifestyles and is a driving force towards achieving the Sustainable Development Goals (Yamane & Kaneko, 2021).

On the other hand, there is also noted reluctance among Gen Z to engage deeply with sustainability topics, indicating a need for incentives to foster greater involvement (Mock et al., 2024). Despite high environmental awareness, Gen Z often prefers fast fashion due to its affordability and trendiness, revealing a contradiction in their consumption behaviors (Escourido-Calvo et al., 2025).

This study aims to investigate the role of sustainability education and climate influencers in shaping Generation Z's attitudes and behaviors towards environmental responsibility. Specifically, we focus on the perception of this topic from the perspective of students in Slovakia, where this topic remains insufficiently explored.

1 LITERATURE REVIEW

Several factors influence purchasing behavior, particularly among Generation Z, a group known for its values-driven consumption (Francis & Hoefel, 2018). Among these factors, sustainability education and influencers play a crucial role (Jones & Confort, 2020). Education shapes awareness and knowledge about sustainable practices, empowering young consumers to make informed decisions (Smith, 2019). Meanwhile, influencers serve as key opinion leaders, translating sustainability messages into engaging, relatable content that resonates with Gen Z’s digital-first lifestyle. The combination of formal education and digital influence significantly impacts whether and how young consumers engage in sustainable shopping behavior. Gen Z, as digital natives, are influenced by social media and educational frameworks that emphasize sustainability. Their awareness of environmental issues and ethical consumption is shaped by influencers advocating for climate responsibility, driving their commitment to sustainable practices and informed decision-making (Generation Z, 2023).

The impact of prior education

Education significantly influences consumers' environmental attitudes and behaviors by enhancing their knowledge and awareness of sustainability issues. This relationship is evident across various contexts, as education fosters eco-friendly shopping habits, promotes responsible consumption, and shapes attitudes towards environmental protection. According to Lee and Hung (2024), education significantly impacts consumers' eco-friendly shopping habits, as evidenced by studies in Indonesia and Taiwan, where increased knowledge about non-disposable products led to more sustainable purchasing behaviors. Schools that incorporate sustainability into their curricula, such as healthy eating initiatives, positively impact students' behaviors and community engagement (Tonis et al., 2024). According to Yulistiana (2022), there is a positive relationship between knowledge of environmental pollution and responsible environmental behavior. This suggests that increasing awareness and understanding of environmental issues can enhance individual responsibility and pro-environmental actions.

There is often a gap between environmental knowledge and actual pro-environmental behavior, highlighting the need for targeted educational strategies (Goldman et al., 2020). These may vary depending on whether the education is intended for primary, secondary, or higher education institutions. Experiential training in high schools has shown to elevate students' understanding of sustainable practices, resulting in long-term changes in consumption behavior and increased awareness of environmental issues (Betzler & Kempen, 2024). According to Piao & Managi (2023), education not only fosters sustainable behaviors but also contributes to economic development, as individuals with higher education levels tend to adopt more sustainable lifestyles and practices. Higher educational levels correlate with increased environmentally friendly behaviors, such as recycling and energy conservation, indicating that education enhances awareness and action towards sustainability (Piao & Managi, 2023). A focus on sustainability education helps Gen Z develop a strong orientation towards environmental stewardship, preparing them for leadership roles in sustainable development.

The relationship between education and sustainable awareness is multifaceted, highlighting the critical role of educational initiatives in fostering environmentally and socially responsible actions. Research indicates that educational programs, particularly those focused on sustainability, significantly influence individuals' intentions and behaviors towards sustainable practices. This connection can be explored through various dimensions, including pedagogical approaches, environmental knowledge, and socio-economic factors. Based on the above literature review, we formulate the following hypothesis.

- H1: Previous education in the field of sustainability has a positive impact on Generation Z's attitudes toward sustainability.

The impact of sustainability-focused influencers

Influencers play a crucial role in disseminating environmental messages, making climate issues relatable and urgent for Gen Z, thus enhancing their pro-environmental behavior (Wijaya & Kokchang, 2023). Influencers leverage social media to raise environmental awareness, significantly impacting Generation Z's green purchase intentions (Mudasir & Malik, 2025). The effectiveness of influencers is heightened when they advocate for sustainable practices, as their perceived credibility can enhance consumer trust and encourage sustainable choices (Mudasir & Malik, 2025; Jain, 2024).

For example, in the context of sustainable fashion, influencers can shift attitudes towards eco-friendly options, addressing the environmental impacts of fast fashion and promoting sustainable alternatives (Ge, 2024). Influencers can help mitigate negative perceptions associated with secondhand shopping, promoting it as a fashionable and sustainable choice, thus encouraging Gen Z to embrace this option (Boyer et al., 2024). Campaigns featuring influencers can leverage social proof to reduce stigma and enhance acceptance of sustainable fashion choices among Generation Z (Boyer et al., 2024). The beauty sector sees a preference for brands that genuinely focus on sustainability, with community reviews and influencer opinions playing a crucial role in shaping their purchasing decisions (Sagar et al., 2025). Based on the above literature review, we formulate the following hypothesis.

- H2: Generation Z's attitudes toward sustainability are formed by following sustainability-focused influencers.

2 METHODOLOGY

This paper presents the results of a research study aimed at identifying the attitudes and consumer behavior of Generation Z in relation to sustainable consumption. The study seeks to explore not only the general perceptions of sustainability among young consumers but also the key factors influencing their purchasing decisions, behavioral patterns, and the extent to which sustainability considerations impact their daily consumption choices.

The research was conducted in 2024 among university students from across Slovakia, providing a focused perspective on an important demographic segment known for its increasing influence on market trends and environmental awareness. The data collection process was carried out using the Computer-Assisted Web Interviewing (CAWI) method, ensuring efficient reach. A total of 412 respondents recruited from first and fourth-year university students by the cluster sampling method, all belonging to Generation Z (aged 18–24), participated in the survey, representing diverse regions of Slovakia.

The questionnaire was designed to comprehensively examine multiple aspects of sustainable consumption. It included a series of structured and semi-structured questions aimed at understanding respondents' attitudes toward sustainability, the sources of their environmental awareness, and their actual consumption behaviors. Additionally, the survey sought to identify potential gaps between their expressed values and real-world purchasing habits, providing valuable insights into the practical implications of sustainability within this generation.

By analyzing the collected data, this study contributes to a deeper understanding of how Generation Z in Slovakia perceives and engages with sustainability.

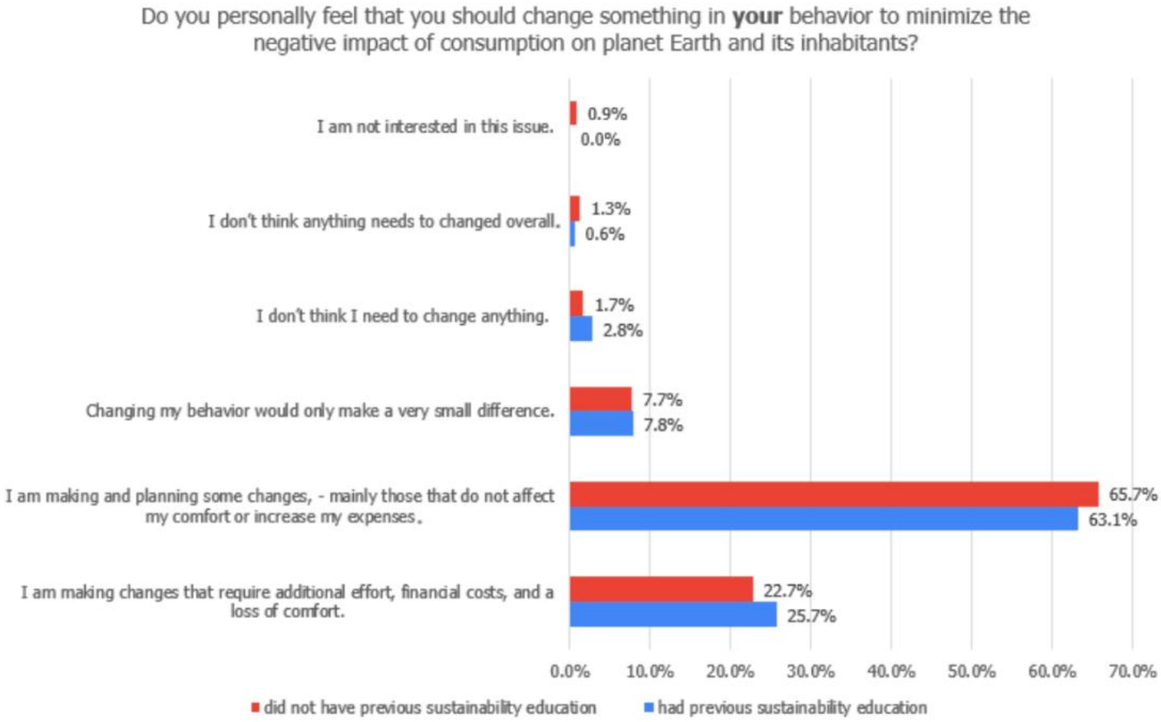
3 RESULTS AND DISCUSSION

The role of education and influencers in shaping the environmental attitudes and behaviors of Generation Z has been highlighted in the previous text in several studies. Subsequently, we will examine the results among Slovak students.

3.1 The impact of prior education to Gen´ Z sustainability in Slovakia

Previous education was examined through the question: "As far as you remember, did you attend any classes, courses, or educational programs focused on sustainability during your previous studies (at secondary school or university)?" A total of 43.4% of respondents answered yes. The following section presents the results of two key survey questions related to students' perceptions of their role in sustainable consumption. The first question explores whether respondents feel the need to change their behavior to reduce the negative environmental impact of their consumption. The second question examines whether they actively consider shopping more sustainably. The findings, visualized in the accompanying graphs (Figure 1 and Figure 2), provide insight into students' awareness of their consumer impact and their willingness to adopt more sustainable shopping habits.

Fig. 1 Influence of previous sustainability education on willingness to make efforts toward sustainable behavior



Source: proceedings of authors ‛primary data

A group of Generation Z students with prior education in sustainability demonstrated a slightly higher willingness to invest effort, financial resources, and personal comfort to adopt a more sustainable lifestyle compared to those without such education. However, a chi-square test revealed that this difference was not statistically significant (p = 0.685).

Fig. 2 Influence of previous sustainability education on willingness to shop more sustainably

Source: proceedings of authors´ primary data

Students with prior education in sustainability demonstrate a greater inclination to consider sustainability in their shopping decisions compared to those without such education. However, a chi-square test indicates that this difference is not statistically significant ($p = 0.216$). Based on this result, we cannot confirm or reject the hypothesis H1: Previous education in the field of sustainability has a positive impact on Generation Z's attitudes toward sustainability. The reasons for the lack of confirmation of the impact of previous education on students' attitudes toward sustainability in Slovakia may be as follows.

First, the quality and depth of sustainability education may vary significantly across institutions, leading to inconsistent learning outcomes. An interesting finding was that only 19.4% of respondents in our questionnaire were familiar with and able to define the term Sustainable Development Goals (SDGs).

Environmental education is a mandatory part of educational programs in Slovakia, from kindergartens to secondary schools. It is implemented as a cross-curricular topic, meaning that its content is integrated into various subjects. In primary and secondary schools, environmental topics are incorporated into school curricula, allowing schools to emphasize environmental aspects within different subjects or create a separate subject focused on environmental education. Some schools also design their educational programs with an environmental emphasis, highlighting the importance of environmental protection and sustainability (MINEDU, 2019). Despite the mandatory inclusion of environmental education in school curricula, its implementation in practice varies. According to 2019 data, environmental education in primary schools was most often integrated into subject content (94.3% of monitored schools), while only 13% of schools offered a separate subject focusing on environmental issues. Some schools also formally included environmental education without creating the necessary conditions to achieve their specific goals (MINZP, 2019). The digital native characteristics of Generation Z, coupled with the increasing integration of digital technologies in education, have opened new avenues for exploring the impact of digital technology on the learning characteristics of this generation. The study on the "Application of Digital Technology and the Learning Characteristics of Generation Z in Higher Education" suggests that the use of digital technology has become an essential part of the daily routine of Gen Z, and this change has implications for how they engage with and learn about environmental issues.

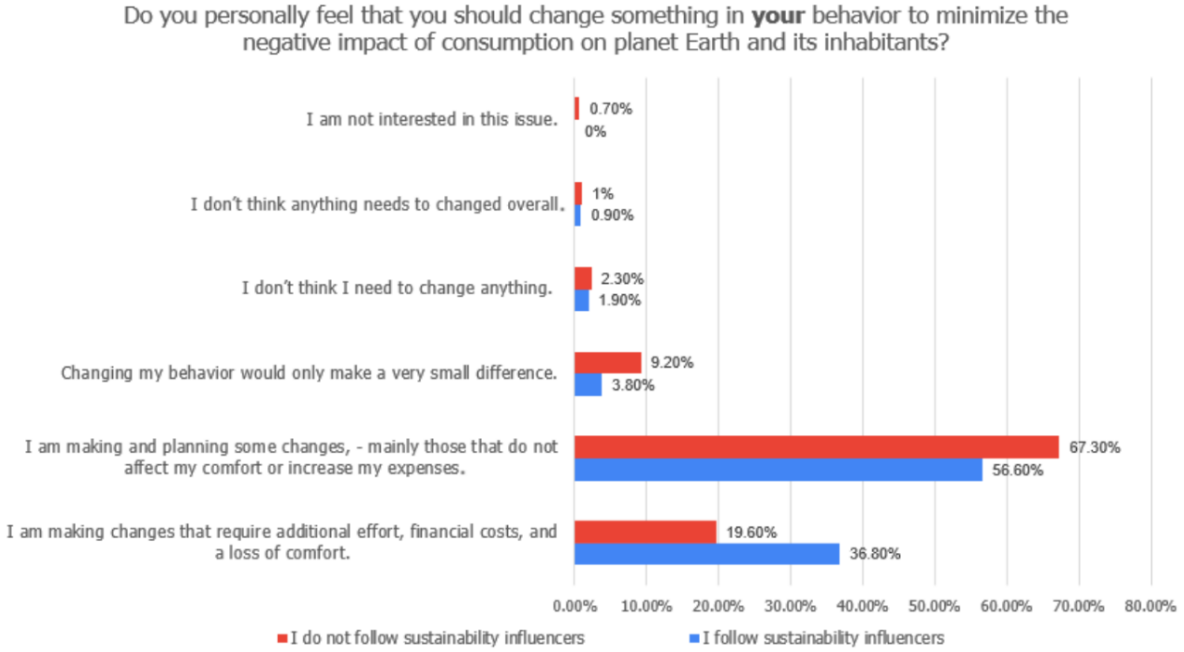
Second, the practical application of sustainability knowledge may be insufficient, meaning that even if students attended relevant courses, they may not have translated this knowledge into real-world behavior. The perception of Generation Z towards corporate social responsibility programs, particularly in the field of education, has also been investigated. The study found that Generation Z has a positive perception of such programs, indicating their interest in and support for sustainability initiatives.

Third, external influences such as social norms, peer behavior, or media exposure might play a stronger role in shaping students' attitudes toward sustainability than formal education alone.

3.2 The impact of social media influencers to Gen´ Z sustainability in Slovakia

We asked the same questions as in the previous case, but in relation to influencers (Figure 3 and Figure 4). To the question "Do you follow any influencers who address sustainability issues?", 25.7% of respondents answered yes.

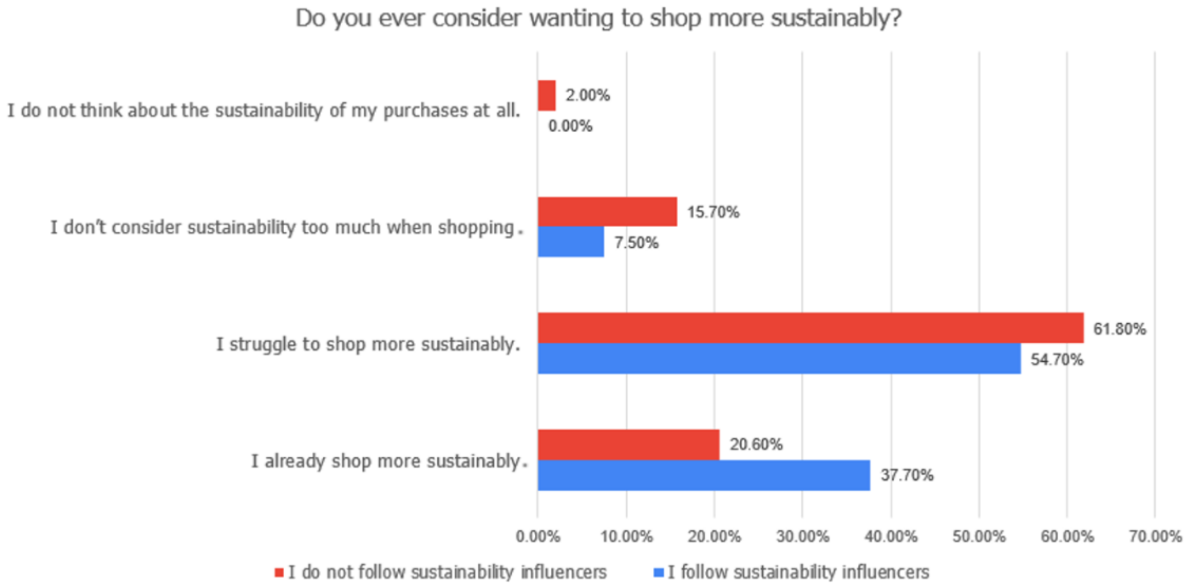
Fig. 3 The influence of social media influencers on willingness to make efforts toward sustainable behavior



Source: proceedings of authors´ primary data

The difference between Generation Z individuals who follow influencers promoting sustainability-related content and those who do not was analyzed using a chi-square test, which confirmed that the observed differences were statistically significant ($p = 0.001$). The findings suggest that young people who engage with sustainability-focused influencers have a greater awareness of the sacrifices associated with sustainable practices, recognizing that sustainability often requires compromising personal comfort. Furthermore, they demonstrate a higher willingness to invest time, energy, and financial resources into adopting sustainable behaviors.

Fig. 4 The impact of social media influencers on willingness to shop more sustainably



Source: proceedings of authors 'primary data

The distinction between Generation Z individuals who follow influencers promoting sustainability and those who do not was analyzed using a chi-square test, which revealed a statistically significant difference (p = 0.001). The findings suggest that young people who engage with sustainability-focused influencers are more likely to consider sustainability in their shopping decisions.

Based on these results, the hypothesis H2: "Following sustainability-focused influencers has a positive impact on Generation Z's attitudes toward sustainability" is supported. This is an interesting finding, as there are not many influencers in Slovakia focusing on sustainability. As previously mentioned, only a quarter of respondents follow them. Their names and frequency are presented in Table 1.

Tab. 1 Sustainability social media influencers in Slovakia

Name of influencer	**Country**	**Frequency**
Natália Pažická	Slovakia	22
Moma	Slovakia	3
Viktor Vincze	Slovakia	2
Michal Sabo	Slovakia	2
Milan bez mapy	Slovakia	1
Stella McCartney	United Kingdom	1
Greta Thunberg	Finland	2
Moby	USA	1

Source: authors ‛proceedings

Similarly, students also mentioned other lesser-known influencers or various initiatives such as PETA, Plant Based News, and Mercy for Animals. Commercial companies promoting sustainable brands were recorded only minimally.

Jain (2024) points out that, while influencers play a crucial role in promoting sustainability, there is a risk of superficial engagement, where the authenticity of their advocacy may be questioned. This highlights the need for genuine partnerships that resonate with the values of Generation Z to foster lasting behavioral change. According to Zatwarnicka-Madura et al. (2022), influencers have a limited impact on Generation Z's climate responsibility, as they prefer expert opinions, particularly from the energy sector. Education levels also play a role, with students showing greater awareness of green energy compared to their less-educated peers. Tao et al. (2024) highlight that emotionally evocative viral videos can effectively engage Generation Z, promoting problem recognition and motivation to act on climate change. This suggests that influencers and educational content can significantly enhance climate responsibility among this demographic.

CONCLUSION

This study explores the impact of sustainability education and influencers on Generation Z's climate responsibility in Slovakia. The findings indicate that while sustainability education raises awareness and knowledge, its direct influence on sustainable consumer behavior is limited. In contrast, influencers play a more substantial role in shaping attitudes and behaviors, as demonstrated by the statistically significant differences between respondents who follow sustainability-focused influencers and those who do not. This suggests that Generation Z in Slovakia relies heavily on digital sources for sustainability-related information, reinforcing the importance of social media in environmental advocacy. Despite the mandatory inclusion of environmental education in school curricula, inconsistencies in content depth and practical application may contribute to its limited impact on behavioral change. Furthermore, external factors such as peer influence, social norms, and media exposure appear to have a more pronounced effect on sustainable behavior than formal education alone. This highlights the need for more experiential and engaging educational approaches that translate knowledge into action. Given the growing influence of digital media, future research should further examine the role of influencers in fostering long-term behavioral changes rather than temporary engagement. Additionally, cross-cultural comparisons could provide insights into how sustainability education and influencer marketing vary across different contexts. Policymakers, educators, and marketers should consider leveraging influencers strategically and integrating interactive sustainability education programs to foster genuine and lasting environmental responsibility among Generation Z. One limitation of this study is that although the sample consists of university students who belong to Generation Z, it does not fully represent the diversity of this generational cohort. The respondents were first-year university students, which means that their attitudes and knowledge about sustainability may have been shaped primarily by their secondary education. As a result, the influence of university-level education — especially programs that actively integrate sustainability into their curricula — was not captured in this study. Future research could explore whether higher education with a strong emphasis on sustainability has a greater impact on the sustainable consumption behavior of young people.

ACKNOWLEDGEMENT

This research paper was supported by VEGA no. 1/0398/22 - The current status and perspectives of the development of the market of healthy, environmentally friendly and carbon-neutral products in Slovakia and the European Union.

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International Trade as a Component for a Country's Resilience to War: Case Study – Ukraine

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https://doi.org/10.53465/CEECBE.2025.9788022552257.155-169

Abstract: Building resilience to such an influential process as a war, that is the ability to adapt well to unexpected changes and events arising in the course of its going on, is a vital necessity for either a country's survival or its rebuilding in the after-war period. International trade is one of the most powerful tools for building resilience against human-made challenges like a war. International trade is an important source of money earning for Ukraine and it increased in its importance with the war actions going on on its territory. The following tools and methods of scientific research were used while conducting the research: empirical, statistical and comparative analyses, as well as the logical method, including deductive and inductive reasoning, the method of trends, different visualization tools like vertical and horizontal bar and pie charts as well as combined charts, etc. Ukraine noted either its exports or imports decrease in 2022, if compared to those of 2021, while noting its imports increase along with the further exports decrease in 2023. The projections of the country's international trade in general and its exports and imports in particular for the next two time periods are lower than the last available data values, showing the continuous and long-term impact of the war on the country's international trade, weakening, at the same time, its resilience.

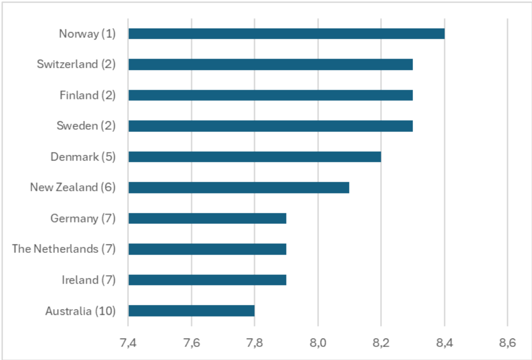
Keywords: International Trade, Exports, Imports, Trade Balance, Projection, Resilience, Ukraine

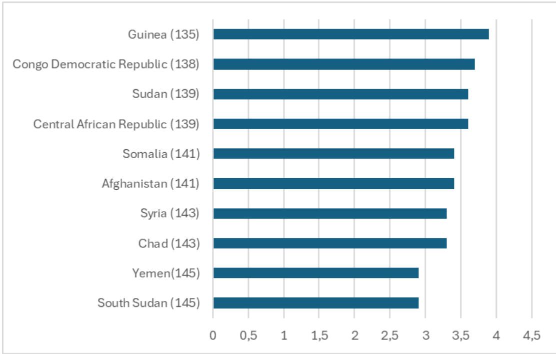
JEL Classification codes: H83, F14, F51

INTRODUCTION

Resilience is the process and outcome of successfully adapting to difficult or challenging life experiences, especially through mental, emotional, and behavioural flexibility and adjustment to external and internal demands (American Psychological Association, n.d.). When applied to a country, resilience means the extent to which a country can prepare, manage, and recover from a crisis, relative to the severity of that crisis (FFP, n.d.). In order to identify capacities and capabilities in countries under stress, the State Resilience Index (SRI) is calculated by Fund for Peace (FFP) to empower policy-makers, practitioners, and populations with context-specific, data-driven applications to diagnose risks and vulnerabilities and to develop solutions through collective dialogue (ReliefWeb, n.d.). The SRI measures 7 pillars of resilience, with gender integrated and mainstreamed throughout, and they are Inclusion, Social Cohesion, State Capacity, Individual Capabilities, Environment/Ecology, Economy, and Civic Space (Haken, 2022). The top 10 most resilient and the top 10 least resilient countries are presented in a chart form in Figure 1.

Fig. 1 10 Most and least resilient countries according to the SRI of FFP





10 Most Resilient Countries 10 Least Resilient Countries

Source: author's elaboration made on the basis of the data from (FFP, 2022a).

As far as one can see from the data visualized in the figure given above, the top ten most resilient country list is dominated by the high – developed European, especially Scandinavian, added by Australia and New Zealand. On the contrary, the list of 10 least resilient countries is filled with the African and Middle East countries.

When Ukraine was invaded in February 2022, many believed Kiev would quickly fall to the Russians but it did not (Haken, 2022). According to the State Resilience Index Annual Report 2022, the SRI of the country was 5.9 as of the said year, giving it the 51st place in the SRI ranking. More detailed – the pillar Inclusion amounted to 6.7, Social Cohesion – 4.6, State Capacity – 5.6, Individual Capabilities – 7.6, Environment/Ecology – 4.8, Civic Space 6.8, and Economy – 5.0 points (FFP, 2022b), allowing the country to be placed among the top third of all the researched countries. The top one third is not the top ten, of course. But, taking into account the fact, that the country manages not only fight against its aggressor but continue functioning economically, publicly and politically, the country's resilience needs to be studied. Such a shock as a war puts a lot of challenges in front of the public administration bodies and their officials as one should continuously be ready for a new challenge, being able to adapt to it with the new and, sometimes, creative or hard decisions in order the country in general and all its administrative parts in particular continue functioning without any tiny part of it collapsing, causing even more hardships. The country's functioning imply the successful or at least continuous functioning of different economy and social sectors, international trade including. International trade is important for any country, well – or not that well developed ones, as it gives it the opportunity to improve either its development level as a country in general or the ones of its citizens in particular. If a country is trying to continue functioning under a war conditions, international trade can be one of the most principal sources of income for the country, which importance is hard to be overestimated. Can Ukraine be called a resilient country, how directly and indirectly did the war impacted the country's international trade dynamics in general as well as its components in particular, did it influence the country's exports and imports structure and, if it did, in what way, what the projections of either the country's international trade or its components would be if the war ended in the year 2023 and how all the mentioned factors testify to the country's resilience to the war – these are the questions the author tried to answer while conducting the research presented in the given paper.

1 LITERATURE REVIEW

Among the research works concentrated on a country's resilience, one notes the works of the following scientists (but not abridged to) worth to be mentioned here: J. Höltge with their co-authors investigated how different country contexts influence and how resources interact for adolescent resilience (Höltge, Theron & Cowden et al. (2021), V. Haldane and their colleagues researched health systems resilience in managing the COVID-19 pandemic on the basis of the lessons from 28 countries (Haldane, De Foo & Abdalla et al. (2021), M. Renko, A. Bullough and S. Saeed explored the importance of entrepreneurial self-efficacy and individual resilience in forming the intent to start a business (Renko, Bullough & Saeed, 2020), a group of co-authors, led by O. Cantó, researched the welfare resilience at the onset of the Covid-19 pandemic in a selection of European countries as well as its impact on public finance and household incomes (Cantó, Figari & Fiorio, et al., 2022), J. Agyemang and their colleagues made an attempt to assess the governmental financial resilience during pandemics on the basis of the case of West Africa (Agyemang, Azure & Kimani et al., 2023), A. Syofyan and A. Nurfani indulged into the ways of implementation of fulfilment of constitutional rights in the perspective of national resilience (Syofyan & Nurfani, (2023), M. Ceron assessed the national recovery and resilience plans as the way of moving towards a next generation of fiscal coordination (Ceron, 2023), Guanying Huang and their colleagues explored influencing factors and their influencing mechanisms on urban resilience in China (Guanying Huang, Dezhi Li & Xiongwei Zhu et al., 2021), S. Nordhagen with a group of their co-authors investigated COVID-19 and small enterprises in the food supply chain and early impacts and implications for longer-term food system resilience in low- and middle-income countries (Nordhagen, Igbeka & Rowlands et al., 2021), D. D. P. Thompson made an analysis for the compounding challenges for disaster resilience in small island developing states (Thompson, 2022), F. Compagnucci and their colleagues attempted to assess the asymmetric responses to shocks as well as the role of structural change on resilience of the Euro area regions (Compagnucci, Gentili & Valentini et al., 2022), etc.

The following scientists researched the war resilience issues, that is a group of authors, led by G. Celi investigated the asymmetric impact of war: resilience, vulnerability and implications for EU policy (Celi, Guarascio & Reljic et al., 2022), M. Blessley and S. M. Mudambi explored disruption and resilience in the food bank supply chain as a consequence of a trade war and a pandemic (Blessley & Mudambi, 2022), G. E. Saputro and S. Suwito worked on understanding expansion for the economic resilience in asymmetric warfare (Saputro & Suwito, 2022), E. Paliichuk investigated the problems of human trafficking awareness among Ukrainian youth under war conditions (Paliichuk, 2023), Y. Dmytruk and their colleagues made a preliminary assessment of the effects of war in Ukraine on its soils, drawing on the particular resilience of particular soils and make allowance for their weaknesses (Dmytruk, Cherlinka & Cherlinka et al., 2022), R. Kolodii discussed on the notion of the pedagogy of Cyber-WAR, while explaining Ukraine's resilience against Russian Cyber-aggression (Kolodii, 2024), B. Hajir, S.Clarke-Habibi and N. Kurian tried to expose the ethical stakes of dismissing resilience in conflict-affected contexts (Hajir, Clarke-Habibi & Kurian, 2021), G. Garcia-Garcia and their co-authors explored resilient food supply chains in the face of the Russo–Ukrainian war, while harnessing the power of the internet of thing (Garcia-Garcia, Parra-López & Jagtap et al., 2023), A group of colleagues, led by R. Goodwin, worked through such a phenomenon as the national resilience in Ukraine following the 2022 Russian invasion (Goodwin, Hamama-Raz & Leshem et al., 2023), M. C. Shevell and M. S. Denov made an attempt to unpack the empirical and theoretical complexity that surrounds 'resilience', with particular attention to its application to war-affected children and youth (Shevell & Denov, 2021), T. G. Benton with their co-authors researched the Ukraine war and threats to food and energy security, convincing governments invest to build the long-term resilience of societies and economies against global shocks (Benton, Froggatt & Wellesleyet al., 2022), etc. As far as it is obvious from the analysis of the literature sources available in the World Wide Web at the time frame of the article creation, the research works, indulged into the country's resilience, its definite functioning sphere is mostly meant, without giving a broader picture of it. The scientists researching the war resilience issues concentrate themselves mostly on the notion applied to the single population categories, like children or adolescents, etc. Therefore, the scientific gap, identified after the literature sources analysis, made above, can be perfectly fit in with the research presented in the given paper.

2 METHODOLOGY

In order any conducted research to be the most reliable possible, the right methods and tools are to be chosen and used, giving either the subjects interested in it the broadest overview for the analyzed topic possible. The following tools and methods of scientific research were used while conducting the research presented in the given paper: empirical, statistical and comparative analyses, as well as the logical method, including deductive and inductive reasoning, the method of trends, different visualization tools like vertical and horizontal bar and pie charts as well as combined charts, etc. For better research conduction and its results presentation, the empirical statistical and comparative analyses as well as the textual method and the method of trends, added by different visualization tools, like bar (horizontal and vertical) and pie charts as well as linear and combined graphs, etc. were used and presented in the paper.

The data for the research were taken from the official publications of the State Statistics Service of Ukraine, available on its web page, the links to which were given in the reference list. The time frame for the analyzed data is 23 time periods, that is years, from 2001 to 2023 included. The commodity structures for the exports and imports of Ukraine were presented for the years 2001, 2021, 2022 and 2023. The said years were chosen because of the following reasons – the year 2001 is the year of the earliest available data, 2021 is the last pre-war year, 2022 – the first war year and the year 2023 is either the second war years or the year of the most recent available data.

The trend lines for the analyzed data sets were built with the help of an appropriate function, which was chosen from the exponential, linear, logarithmic, polynomial and power ones. The technical expression of the exponential function is as follows:

$$f(x) = a^x \tag{1}$$

where ‘a’ > 0 and not equal to 1,

‘x’ is any real number (BYJU’S, n.d.).

A linear function is a function that represents a straight line on the coordinate plane (CueMath, n.d.), built according to the following formula:

$$y = mx + b \tag{2}$$

where 'y' – the dependent variable,

'm' – the slope of the line,

'b' – the y-intercept of the line, and

'x' – the independent variable (CueMath, n.d.).

The trend line built, which was built with the help of the logarithmic function, used the following formula:

$$y = b \times \ln(x) + c \tag{3}$$

where ‘y’ is the dependent variable, ‘x’ is the independent variable, 'b' is the slope and

'c' – the intercept (XcelanZ, 2018).

A polynomial function is commonly used to catch the major ups and downs of the fluctuating data sets. Therefore, the quadratic trinomials were used for the research, the technical expression of which is:

$$y = ax^2 + bx + c \tag{4}$$

where 'y' is the dependent variable,

'a' and 'b' are coefficients,

'x' – the independent variable,

and 'c' is the constant (Vedantu, 2024).

The technical expression of a power function is the following formula:

$$y = ax^b \tag{5}$$

where 'y' is the dependent variable,

'x' – the independent variable,

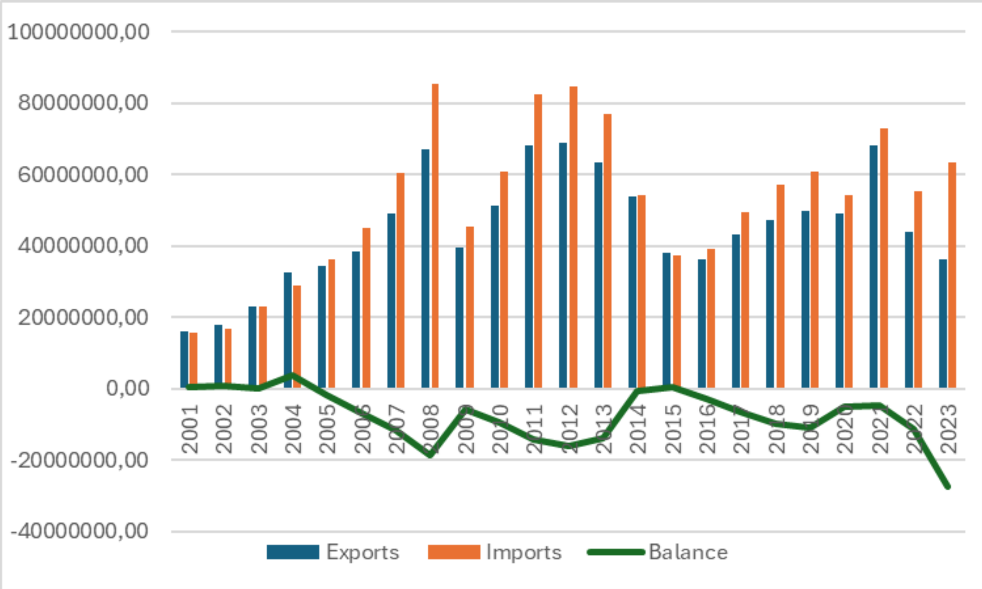
and 'a' and 'b' are the parameters of the function, meaning – the unction coefficients or constants, found by the least squares method (Officetooltips, 2023).

The criterion for the choice of the appropriate function was the R^2 coefficient values as the measure for the trendline reliability (Microsoft, 2022). Though, the said criterion has its limitations, it is commonly used as one of the goodness-of-fit statistics. Only two time periods were decided to take for the projections making because of the uncertainty of the current situation Ukraine is in, which, in turn, would make longer projections less reliable. Despite the abundance of factors influencing the international trade of a country, which is engaged into the war going on on its territory, the applied methods and tools as well as the results of their application are to give an overview of one of the scenarios for the current situation development in the near future for the decision makers to make the best decisions possible under the given circumstances.

3 RESULTS AND DISCUSSION

Resilience to war is not smth, that just exists/is available as it is. It should be worked out through hard time-consuming labor, endless efforts and hard decisions. International trade is one of the means, that can help a country to provide sources for its fight, help withstand and continue functioning even under such extreme conditions as war ones, as trade encourages the reallocation of resources to more efficient activities, and thus opens up opportunities and creates jobs (World Bank Group, n.d.). The way Ukraine is striving to withstand its aggressor, trying to continue functioning under the war conditions, is analyzed further, making stress on the country's international trade dynamics as one of the means to maintain war resilient. The dynamics for the international trade of Ukraine, depicted as its exports, imports and balance dynamics, is visualized in Figure 1.

Fig. 1 International commodity trade of Ukraine, thsd USD

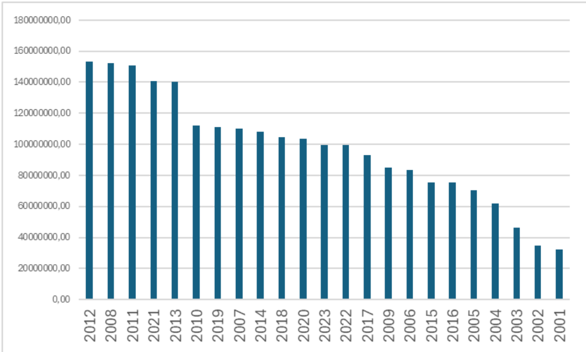


Source: author's elaboration made on the basis of the data from (State Statistics Service of Ukraine, 2024(b).

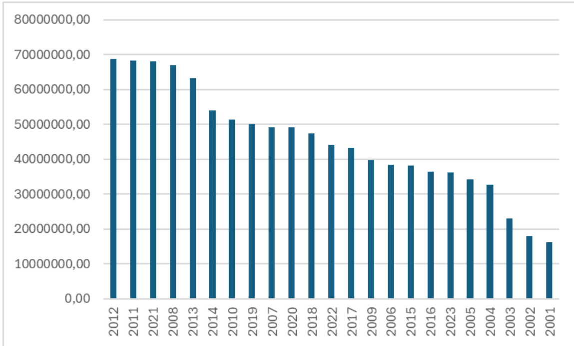
The data, visualized in the figure given above, indicate a rather sharp changeability of all the components of trade, though some cyclicality can still be noticeable while examining closely the said dynamics. Therefore, the international trade of Ukraine dynamics can be hypothetically divided into three upward and two downward periods groups. The former are from 2002 to 2008 included, from 2010 to 2012 included and from 2017 to 2021 included. The dynamics of Ukraine's commodity exports is very much similar to that of its international trade, while the imports one differs as for its direction, especially in 2023. The decrease of exports with the parallel increase of imports in the year 2023 can be simply explained by the war influence as the country has scarcer resources to maintain and increase both its inland production and exports, which, in turn, provoked the increased demand of different commodities, that had to be extensively imported because of the reasons mentioned earlier. Analyzing the differences of the said international trade in general as well as its components, we note the similar positivity/negativity for the mentioned differences in all the researched international trade components. That is – the positive changes of either the international trade in general or exports and imports in particular in the time frame of 2000 to 2008 and from 2010 to 2012 included and the negative ones in 2009 as well as from 2013 to 2015 included. Afterwards we observe the negative changes as of international trade in general and exports in particular with the positive change by imports in 2016. From that time only one dissimilarity of the said international trade components differences was observed and that was in the year 2023, the possible causes of which have been stated above. The dynamics as well as the year-to-year differences of the international trade balance is absolutely different from those described earlier because of the balance essence itself. So, in the years 2002, 2004, 2009, 2013 – 2015, 2020 and 2021 we observe the positive change of Ukraine's trade balance if compared to the previous years, while in the remaining years the changes were negative, which, in turn, might be caused by a bunch of different factors of either economic or political nature.

In order to expand the research, either the international commodity trade of Ukraine in general or its components in particular were composed and visualized in the descending order (Figure 2).

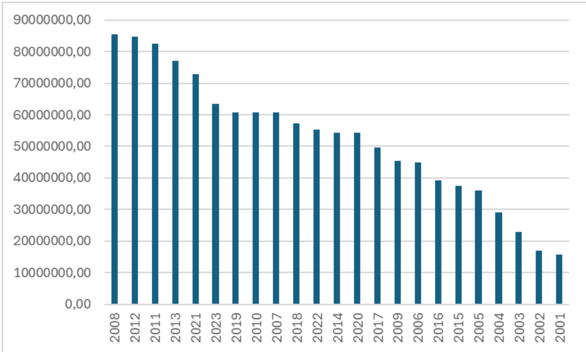
Fig. 2 International trade of Ukraine in the descending order



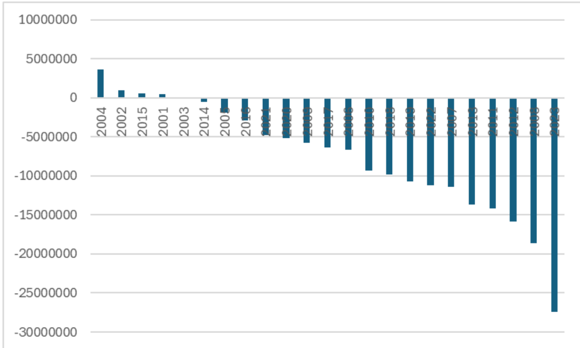
International Commodity Trade



Exports



Imports



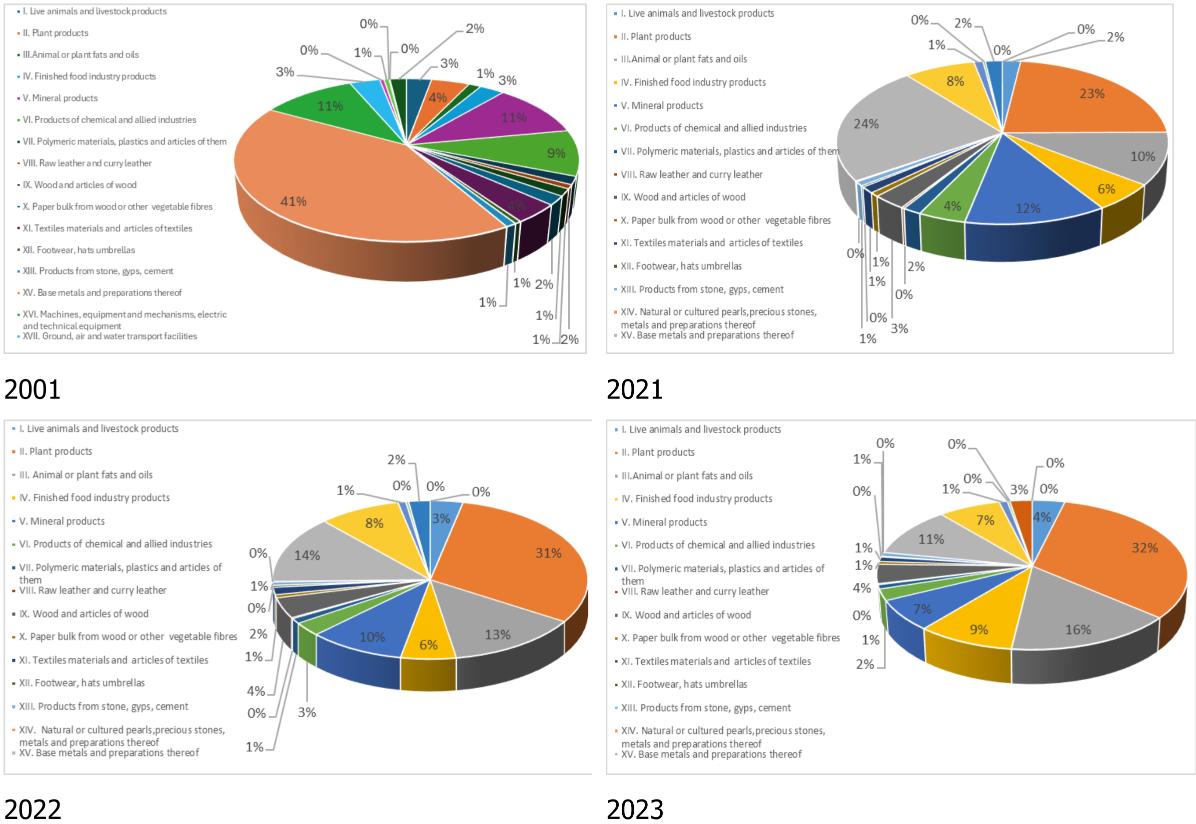
Trade Balance

Source: author's elaboration made on the basis of the data from (State Statistics Service of Ukraine, 2024(b).

As far as it can be seen from the data visualized in the figure given above, the biggest value of Ukraine's international trade as well as its exports was observed in 2012, while the smallest one – in 2001, as in the latter year the country was not that revived from the epoch changes of the 90-s and was still developing its international trade potential, finding the new trade routes and partners. In the case of the country's imports its biggest value was in 2008 while the smallest one also in 2001. If we look at the trade balance descending graph, its biggest positive value can be observed in the year 2004 while the smallest, that is the biggest negative, one was in 2023. The explanation of the latter phenomenon has already been given above, stating the direct and indirect war consequences as the most powerful influencing factor.

Diving deeper into the research, the commodity structures for the exports of Ukraine in the years 2001, 2021, 2022 and 2023 were calculated with the results being visualized in Figure 3.

Fig. 3 Commodity structure for the exports of Ukraine in certain years

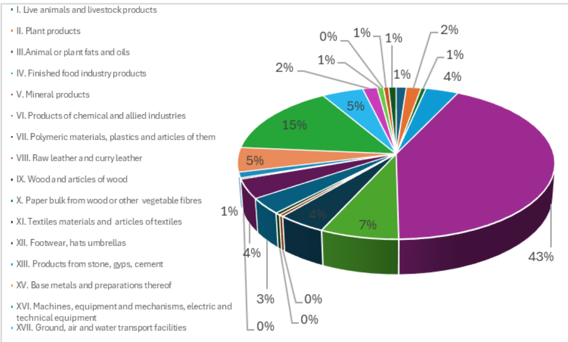


Source: author's elaboration made on the basis of the data from State Statistics Service of Ukraine, 2024a

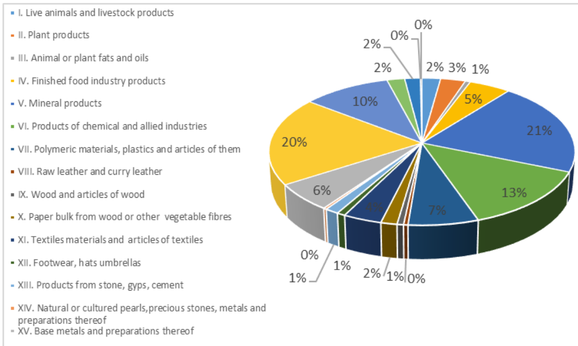
Having examined the data presented in the figure given above, it can be stated, that the commodities, mostly exported in 2001, contained (in the descending order) Base metals and preparations thereof (41.3%), Mineral products (10.8%) and Machines, equipment and mechanisms, electric and technical equipment (10.5%). Three mostly exported commodities were chosen to be presented here as they amount more than 10% of Ukraine's total exports. So, we see, that the commodity exports of Ukraine in the mentioned year was mostly industrially oriented. In addition, the analyzed exports cannot be called diversified as the first three commodities account for approximately 60% of the country's total exports. Comparing the commodity exports structure of 2001 with that of 2021, the following differences should be noted. First of all, the number of commodities accounting for more than 10% of the country's exports increased from three to four, making it more diversified. Secondly, their list has changed, containing (in the descending order) Base metals and preparations thereof (23.5%), Plant products (22.8%), Mineral products (12.4%) and Animal or plant fats and oils (12.4%). In addition, the country's exports could not be further called industrially oriented as the exports parity shifted from the mentioned industrial products in the direction of the agri-food ones. The mentioned shifts can be explained by the events of the years 2013 – 2014, that is the annexation of the Crimea and parts of Luhansk and Donetsk regions, in which metallurgical and heavy industries plants were situated, which, in turn, made the country look for another exports merchandises. In the case of Ukraine they were the agricultural and food products. More detailed, the shares of the industrial and the agri-food products, which have more than 10% in the country's exports, are almost equal amounting to approximately 35% for each group. In the year 2022 the shift from the industrial to agri-food products in Ukraine's commodity exports went further. So, the first place as for the share in the exports commodity structure took Plant products (30.5%), the second one - Base metals and preparations thereof (13.6%) and the third - Animal or plant fats and oils (13.5%). Another change, if compared to the exports structure of 2021, is the renewed non-diversification of the country's exports as the share of the first three mostly exported products amount to approximately 57%, approaching the level of the year 2001 with the difference, that the biggest share of the country's exports was taken by agri-food products in the year 2022. The second war year intensified the changes in the exports commodity structure, which began in the first-war year, meaning – the shift of Ukraine's exports into the agri-food direction intensified as the shares of Plant products and Animal or plant fats and oils increased of approximately two percentage points, while Base metals and preparations thereof decreased of approximately three percentage points in 2023, if compared to that of 2022. So, the commodities, which were exported the most in the year 2023, are Plant products (32.4%), Animal or plant fats and oils (15.6%) and Base metals and preparations thereof (10.8%). The non-diversification level for the commodity exports of Ukraine remained more-or-less the same, if compared to that of 2022, as the total share for the commodities, having more than 10% of the country's exports, accounted of approximately 59%. So, the agri – food products, in details – the plant ones, increased in its importance and exports value for Ukraine with the course of the war, while the goods connected with heavy metal industries – decreased, which is fully understandable as the country needs metal and goods made of it for its own purposes, especially for the defense ones, while plant products production overcome the country's own population consumption, giving it the opportunity to export them, supporting Ukraine in its further functioning.

Going further with the research, the commodity structures for the imports of Ukraine in the years 2001, 2021, 2022 and 2023 were calculated and the results – visualized in Figure 4.

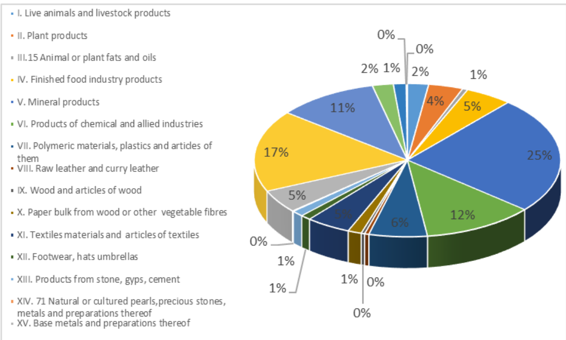
Fig. 4 Commodity structure for the imports of Ukraine in certain years



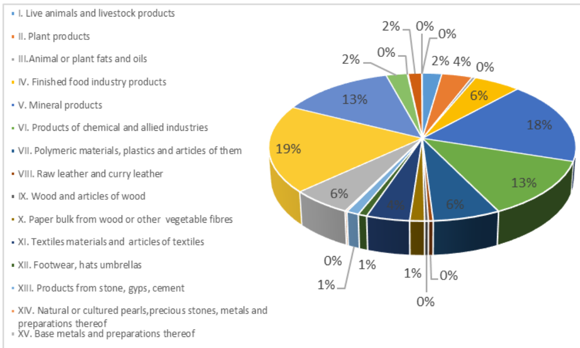
2001



2021



2022



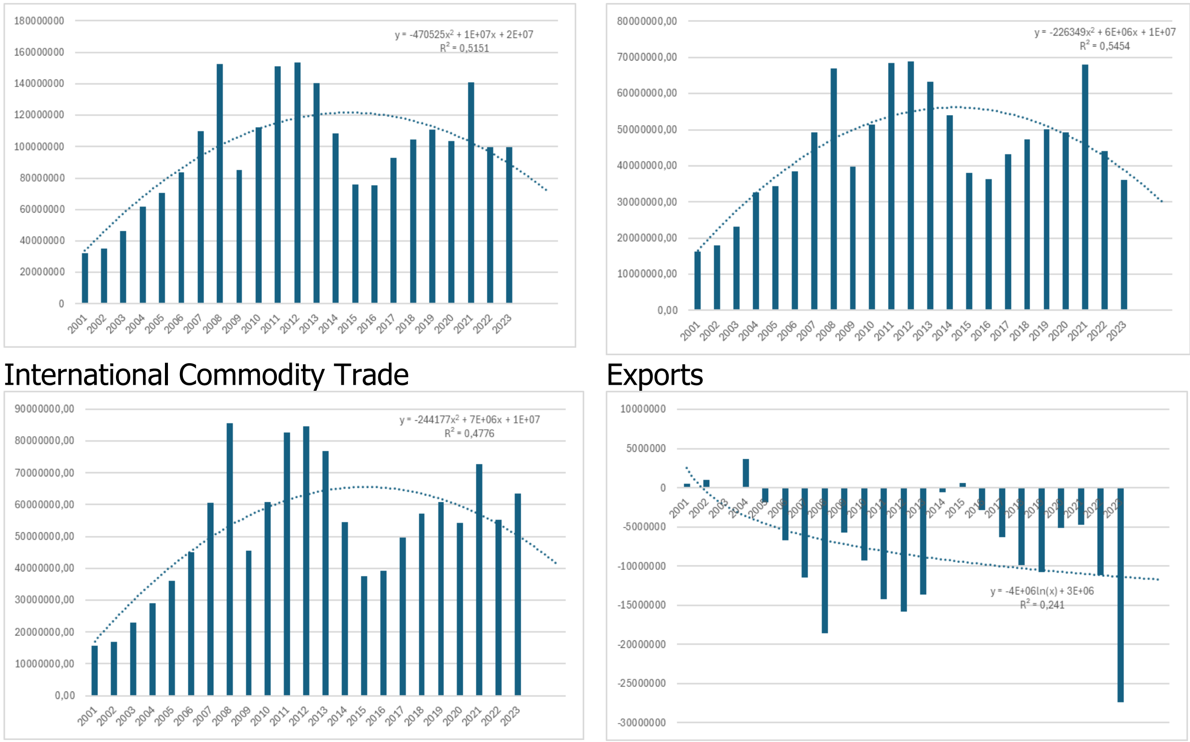
2023

Source: author's elaboration made on the basis of the data from State Statistics Service of Ukraine, 2024a

Either the data visual presentation study or the calculations results analysis give one the right to state, that the commodity imports structure of Ukraine differ in some way from that of the exports one, having, at the same time, definite similarities as well. Firstly, the number of commodities, having the imports share of more than 10% amount of two, not three as of exports, ones. They are Mineral products (42.6%) and Machines, equipment and mechanisms, electric and technical equipment (15.1%). But, just like in the exports case, the imports diversification level is rather low as two commodities account for almost 58% of the country's total imports. Another similarity between the commodity exports and the imports structures is the industrial character of both as of the analyzed year. 2021 brought some definite changes into Ukraine's commodity imports structure. These are – firstly, the said imports became more diversified as four commodities appeared to have the imports share of more than 10%. They are Mineral products (20.6%), Machines, equipment and mechanisms, electric and technical equipment (19.5%), Products of chemical and allied industries (13.4%) and Ground, air and water transport facilities (10.4). What didn't change through the course of time is the industrial orientation of the country's commodity imports. Another interesting issue about the commodity imports structure of 2021, if compared to that of 2001, is, that, on the one hand, the commodity Mineral Products remained on the first place in the imported commodity list, but its share in the total commodity imports decreased approximately twice. It cannot be stated, that the year 2022 brought many changes to the commodity imports structure, if compared to that of 2021. Either the list of commodities, having more than 10% in the country's total imports, or the commodities position in the said list remained the same, though their shares changed more or less. That is - Mineral products (23.7%), Machines, equipment and mechanisms, electric and technical equipment (16.6%), Products of chemical and allied industries (11.2%) and Ground, air and water transport facilities (10.2%). As you see, the industrial orientation for the country's commodity imports didn't change as well. In 2023 we observe either some changes in Ukraine's commodity imports structure or the similarities with the one of 2022. The list of the commodities, that have more than 10% of the country's total imports, remained unchanged, though the positions as well as the commodities shares underwent some changes. So, the commodities, having more than 10% of the country's imports, are Machines, equipment and mechanisms, electric and technical equipment (17.7%), Mineral products (16.7%), Ground, air and water transport facilities (12.3%) and Products of chemical and allied industries (11,7%). The increase for the shares of either Machines, equipment and mechanisms, electric and technical equipment or Ground, air and water transport facilities may be explained by the country's increased need for those goods because of the war going on in it. In addition, it is to be noted, that either the industrial orientation or the commodity imports diversification didn't change a lot.

Despite the extreme instability of either the global political and economic situation in general or the circumstances Ukraine has to function under nowadays, the projections for either Ukraine's international trade in general or its components in particular were attempted to be calculated and visualized in Figure 5.

Fig. 5 Trends and projections for the international trade of Ukraine



Source: author's elaboration made on the basis of the data from (State Statistics Service of Ukraine, 2024(b).

What attracts the viewer's attention, after casting a look at the data visualized in the figure given above, is the similarity of the trend lines as of Ukraine's international trade, exports and imports. Only trade balance's trend line stands out of this row, but that, in turn, is of no wonder taking into account the essence of the trade balance's notion. So, taking into consideration either the changeability of the three former data sets or the values of the R^2 coefficient, the trend lines for Ukraine's international trade, exports and imports were built with the help of the polynomial functions. The trend line for the country's trade balance was built with the help of the logarithmic function. The trend lines for the first three components of Ukraine's international trade have the upward direction to the time period of 2014 – 2015 with the opposite, that is downward, one afterwards. Therefore, the projections for the next two time periods are lower, than the last data available in all the three data sets, which, in turn, can be explained by the long-term impact of the war going on in Ukraine. As for the trade balance projections, they are to be approximately at the level of the year 2021, showing the balance's reduction, but with the later negative balance's decrease.

Ukraine takes the first pages in different mass media for almost three years already and it is not because its beautiful landscapes or tasty national dishes, but because of the war taking place on the country's territory. Alongside with the war going on, more and more issues are revealed either in the mentioned mass media or scientific works, pointing to the new, forgotten or not mentioned previously facts, details, issues, each of which has its impacts either on the war proceeding, the country's way of functioning or every single person living. The new circumstances/details/issues also change either the current situation or influence the future state of matters. Thereby, the continuation of the research presented in the given paper is a mere logics in order to give the country and its officials more research results and suggest different options in order to help either the country or its citizens be resilient and withstand all the difficulties of the nowadays situation. The necessity to continue the research simultaneously imply the limitations to the further research, cause directly and indirectly by the war, like, for example, unavailability or delay for the statistical data provision, lack or scarcity for the specialists in different economy and social spheres, uncertainty either for the general situation development or definite territories destiny, etc.

CONCLUSION

Resilience is commonly understood as the capacity to withstand, absorb, cope with and adjust to varied types of threats, both environmental and human-made (Adini, Stolero & Peleg, (2022). According to the analysis of the World Bank, conducted in 2023, Ukrainians have been resilient in the face of economic adversity, have had deprivation moderated by reliance on other family members and the government, and have begun readjusting to the new realities (World Bank Group, 2024).

As international trade is one of the most powerful tools to help a country cope with the home-made challenges, the analysis of either Ukraine's international commodity trade or its components testify to its changeable dynamics in general. More detailed, in 2022 we observe the decrease of either the country's exports or imports if compared to the previous year, which can be explained by the direct war influence. Consequently, in 2023 the exports decrease with the simultaneous imports increase can be observed, being another, more deep war influence as the country has scarcer resources to maintain and increase both its inland production and exports, which, in turn, provoked the increased demand of different commodities, that had to be extensively imported. The lower capacity to export accompanied by a greater demand for imports, among the other factors, testify for the decreasing of Ukraine's war resilience.

The general tendency for the commodity exports of Ukraine during the war years is the intensification for the shift of the exports commodity structure into the agri-food direction, while its un-diversification remained practically unchanged, that is rather high. In addition, it is to be noted, that either the industrial orientation or the commodity imports diversification didn't change a lot during the war years with minor changes of the commodity shares. The trend lines for Ukraine's international trade, exports and imports have an upward direction to the time period of 2014 – 2015 with the opposite, that is downward, one afterwards. Therefore, the projections for the next two time periods are lower, than the last data available in all the three data sets. So, the results of the conducted research testifies to the decreasing level of the country's resilience to the war, if being measured according to its international trade analysis. Of course, international trade amount/value is only one of the components, the analysis of which can notify about a country's resilience level. But, when talking about a country, that is having war actions taking place on its territory, international trade increase in its importance giving the country financial and non-financial sources for its withstanding and continuous functioning under the extreme circumstances of a war. While having in mind the research expanding, one should bear in mind that many factors influence Ukraine's international trade amount/value in particular and, thereby, the country's resilience to war in general, like the annexation of about 20% of the country's territory, the logistics problems for the goods' export/import, the agricultural land area, that cannot be cultivated because of the war actions going on on them, mines and pollution, insufficient number of workers and so on. But the way and strength of the said factors influencing Ukraine's international trade currently with the attempt to make its projections would be a topic for the future research.

The research itself as well as its results, presented in the given article, can be of great interest and help either for inland or foreign politicians (and not European only as the mentioned war had its direct and indirect influence on many countries and processes on the global level), public administration officials, big and small companies indulged into international trade, decision makers of all the levels, academic society representatives as well as experienced and beginners in statistics and data analysis.

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Generational Shifts in Sustainable Consumption: A Longitudinal Study of Generations X and Y in Slovakia

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https://doi.org/10.53465/CEECBE.2025.9788022552257.170-184

Abstract: This study explores the evolution of sustainable consumption attitudes and behaviours over the past decade among Generations X and Y in Slovakia, focusing on waste management and packaging considerations. Utilising data collected over 11 years through four waves of qualitative and quantitative research, the study examines changes in consumer behaviour and attitudes towards sustainability. The findings reveal significant shifts in pre-purchase and post-purchase behaviours, highlighting increased awareness and action towards sustainable packaging and waste separation. Generation X displayed slightly higher levels of consideration for packaging sustainability, while women consistently showed greater concern for the environmental impact of product packaging compared to men. The study also identifies generational and gender differences in sustainability practices, providing insights into the factors influencing sustainable consumption. The results underscore the importance of targeted social marketing efforts to promote sustainable behaviours across different demographic groups. The study's implications suggest opportunities for businesses to align their products with consumer preferences for sustainability and highlight the need for ongoing monitoring and adaptation of sustainability interventions.

Keywords: Sustainable Consumption, Consumer Behaviour, Generation X, Y, Household Waste Management, Pre-purchase Considerations

JEL Classification codes: M31, Q56

INTRODUCTION

The sustainable consumption was first defined in 1994 on Symposium in Oslo (Norway) as "the use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations." (Roy, 2021) The emergence of sustainable consumption as a global imperative in the latter half of the 20th century meant a necessary change in the marketing approach. The change of consumer attitudes and behaviour from consumptive to sustainable became one of the top goals of worldwide social marketing efforts. Consumers were not supposed to be motivated to buy and consume more, but utilizing social marketing encouraged to decide wisely in their purchases and choose such behaviour that will bring a better quality of life for them as well as for the following generations.

The change in consumer behaviour towards sustainability in past decades is visible. According to a recent Deloitte study (The Sustainable Consumer 2023) consumers are becoming more environmentally conscious and are adopting sustainable lifestyles by choosing goods that are more durable, reusable, or repairable. Research done by Gleba (Gleba, 2018) found that consumers are generating less waste and recent results from McKinsey and Company (Consumers Care about Sustainability—and Back It up with Their Wallets, 2023) show the trend of growing sales with environmentally and socially responsible products as well as consumers willing to pay more for sustainable products.

What is important to understand is that most of the academic studies that analyse sustainability in attitudes and behaviour use samples of students or young people, making it a limitation for the generalization of the results (Kirby & Zwickle, 2021). Yet on the other hand, several studies (Casalegno et al., 2022; Mammadli, 2023; Onel & Mukherjee, 2014; Prayag et al., 2022) imply age as a defining feature predicting the intensity of pro-sustainable attitudes and eco-sensitive behaviour. Therefore, this study offers a perspective of longitudinal study where it searches for sustainability behaviour features and their change in time not only among young people, but monitors two prominent generations – X and Y. It follows Generation Y changing life phase from early adulthood to middle-aged adults and Generation X moving closer to senior age, meanwhile monitoring the change of sustainability features in their consumer behaviour as well as discovering differences between generations in their attitude towards sustainable behaviour.

In this paper first the theoretical background is established by explaining the generational cohort theory. Later relevant and recently published studies covering the topics of sustainability attitudes and behaviour are introduced. Next, the ideas of various authors indicating the influence of age, generational cohorts and gender are explained. The process of gathering of the data in four waves as well as sample constitution and research model is explained in the methodology section, where the formulation of research questions and hypotheses is to be found as well. Finally, we discuss the results and highlight the conclusions of our study as well as frame limitations and formulate the future research intentions.

1 LITERATURE REVIEW

1.1 The Generational cohort theory

The theory behind the research focused on generations is based on the Generational cohort theory proposed by Neil Howe and William Strauss in their book "Generations: The History of America's Future, 1584 to 2069" that was published in 1991 and later elaborated in following publications (Howe & Strauss, 2009, Strauss & Howe, 1991). The theory combines two approaches to studying social phenomena: the generational theory and cohort analyses. While the first focuses on understanding specifics of an age group, the analyses groups formed based on important shared features (Okros, 2020) Authors of the generational cohort theory introduced the idea that individuals sharing similar historical contexts and cultural experiences develop distinct values, attitudes, and behaviours (McCrindle, 2018) Therefore it is understandable that each generation can be characterized by unique circumstances, such as economic conditions, parental influences, technological advances, and major events, leading to variations in personality traits, preferences, and behavioural tendencies (Howe & Strauss, 2009; McCrindle, 2018; Okros, 2020)

According to Strauss and Howe's generational cohort theory (Howe & Strauss, 2009), as a generation transitions from youth to young adulthood, they will strive to address a challenge faced by the previous generation of young adults. In midlife, they will work to rectify this issue and eventually assume the role of guiding elders as members of the previous generation pass on. This theory has led many to use it as a framework for predicting the defining traits of future generations.

Although Howe and Strauss' concept of generation cohorts (Strauss & Howe, 1991, Howe & Strauss, 2009), has been widely used as an explanatory factor in numerous research studies across diverse fields such as psychology, sociology, education, political science, marketing, management, and medicine (Zwanka & Buff, 2021), the specific boundaries between these generations have not been universally agreed upon. Different authors have varied in their delineation of birth years and the duration of each generation. While the original theory proposed that a generation cohort would last approximately 20 years, the specific periods are not consistently defined, as the names of the cohorts vary, making it more difficult to understand and compare research results. According to Howe and Strauss (2009), the four generations of the Millennial century are Baby Boomers, Generation X, the Millennial Generation, and the Homeland Generation. The accompanying Table 1 illustrates that each of these generations has been part of a formative era and therefore exhibits a "generalized life approach."

Tab. 1 Generational cohorts of Millennial century according to Howe & Straus

Name of the generation	Type of life approach	Year of birth	Formative era
Baby Boom Generation	Prophet (Idealist)	1943 – 1960	High: Superpower America
Generation X	Nomad (Reactive)	1961 – 1981	Awakening: Consciousness Revolution
Millennial Generation	Hero (Civic)	1982 – 2004	Unravelling: Culture Wars, Postmodernism
Homeland Generation	Artist (Adaptive)	2005–	Crisis: Great Recession, War on Terror

Source: authors based on Howe & Straus 2009 and van Twist & Newcombe 2021

Many authors, in addition to Howe and Strauss's delineation of Millennial century age cohorts, tend to narrow the time span and adjust the boundaries by a few years. Frequently, the literature adopts a taxonomy comprising Generation Y and Z (McCrindle, 2018; Prayag et al., 2022; Stelling, 2023; Zwanka & Buff, 2021) In this taxonomy, the Millennial generation is often used interchangeably with Generation Y. However, with the shortened birth time-span, Howe and Strauss's Millennials would encompass both Generation Y (referred to as Millennials) and Generation Z.

Tab. 2 Generational cohorts according to McCrindle

Name of the generation	Year of birth
Baby Boom Generation	1946 – 1964
Generation X	1965 – 1979
Generation Y	1980 -1994
Generation Z	1995 -2009
Generation Alpha	2010 -

Source: authors based on McCrindle 2018

1.2 Sustainability attitudes and behaviour

Sustainability attitudes and behaviours are intertwined and influenced by various factors, as evidenced by recent research across different contexts and populations.

The crucial aspect is the relationship between attitudes and behaviours. Attitudes are behavioural predictors (Ovais, 2023). According to Swaim (Swaim et al., 2014), attitude represents the strongest influence on environmental sustainability intention. Baßler & Sprenger (2021) emphasized that positive attitudes towards sustainability can drive behavioural changes, suggesting that individuals with favourable attitudes are more likely to engage in sustainable practices.

Yet, attitudes do not always translate into actions. Prakash et al. (2023) highlighted the gap between positive attitudes and actual behaviour, indicating that awareness of green products is only minimally mirrored in purchasing decisions based on environmental factors. This opens the topic of an attitude-behaviour gap. Recent research among Millennials (Cairns et al., 2022) uncovered their tendency to act in opposition to their sustainability attitudes when purchasing fast fashion, resulting in feelings of cognitive dissonance.

The role of knowledge in shaping behaviours is also significant. Gallo et al. (2023) suggest that attention to environmental sustainability (knowledge about it) can influence consumer behaviour. Cogut et al. (2019) proved that there is a correlation between sustainability awareness and increases in sustainable behaviour. As well as Oinonen (Oinonen et al., 2023) in his research, found that perceived knowledge and outcome expectations affect engagement in sustainability action (behaviour) among young people in Finland. The study of Mohamed Saleh et al. (2022) shows that sustainability knowledge and sustainable attitude significantly impact the students' sustainability intention. Nevertheless, the effect of sustainability knowledge was less than the effect of the sustainable attitude. Ovaris came to the same conclusion (Ovais, 2023) that a sustainability attitude impacts sustainability behaviour more than sustainability knowledge, which is usually higher than sustainability attitude and behaviour.

Despite the previously emphasised positive relation between knowledge and behaviour, Alsaati et al. (2020) researching students´ knowledge and behaviour found out that despite the lack of knowledge about sustainability (particularly regarding recycling materials and energy consumption measures) they show a high level of involvement in sustainability actions.

Other factors that influence sustainability behaviour are according to Lavuri et al. (Lavuri et al., 2023), are values and social consumption motivation. Researching the sustainable consumption behaviour in China and India, the authors found that pro-environment self-identity and attitude mediate the relationship between stimulus and response factors in driving sustainable behaviours. Viccaro et al. (2023) emphasize personal norms and environmental concern and their role. Furthermore, Mathers-Jones & Todd (2023) highlight individual factors such as eco-anxiety and action competence, which can influence sustainability behaviours. They demonstrated that higher eco-anxiety predicts greater behavioural engagement (Mathers-Jones & Todd, 2023). Additionally, Ovais (2023) suggest that economic concerns can also influence sustainability behaviour.

1.3 The impact of generation, age and gender on sustainability attitudes and behaviour

According to most of the later referenced authors, generational cohorts, age, and gender play significant roles in shaping sustainability attitudes, knowledge, and behaviours.

Generational differences impact the intention to buy green and sustainable products. Casalegno et al. (2022) identified age as a key factor in the choice of environmentally friendly products. Ivanova et al. (2018) identified a generational effect on responsible consumer behaviour, particularly in the relationship between personal environmental concern and moral obligation to the environment with the intention to purchase environmentally responsible products. Mammadli (2023) also argues for intergenerational differences as a factor that plays a role in shaping sustainability attitudes and behaviours. Viccaro et al.(Viccaro et al., 2023) similarly noted that personal norms and environmental concern have different impacts across generations, highlighting the importance of considering generational perspectives in sustainability research.

Research by Nichols and Holt (2023) suggests that attitudes towards sustainability are more positive among younger consumers and women. According to them, gender and generational cohort differences contribute to variations in consumer reactions to sustainability initiatives, particularly in the food and grocery industry. Onel and Mukherjee (2014) found that gender and age differences influence eco-sensitive behaviours. While age differences primarily explain behaviours such as recycling cans and bottles, gender differences are associated with purchasing pesticide-free fruits/vegetables and avoiding environmentally harmful products.

Prayag et al. (Prayag et al., 2022) also highlight the significant influence of age on environmental attitudes and behaviours, with differences observed among generational cohorts. Moreover, Balińska et al. (2021) explored relationships between gender, place of residence, income, and pro-environmental behaviour and concluded that all these factors have a role in influencing sustainability behaviours.

In conclusion, understanding the complex interplay between generational cohorts, age, gender, and sustainability attitudes and behaviours is crucial for developing effective sustainability initiatives and promoting environmentally responsible practices among diverse populations.

2 METHODOLOGY

The goal of this paper is to describe the changes in attitudes towards sustainable consumption and the transformation of behavioural patterns towards sustainability, particularly focusing on waste management and packaging considerations, which happened during the last decade among individuals representing Generations X and Y.

The data that became the source for analysis and presented results were gathered in Slovakia in the time-span of 11 years in four waves of qualitative and quantitative research.

Research Phase 1 was done in 2012 by collecting qualitative data by semi-structured personal face-to-face interviews with forty participants from Generation X and forty participants from Generation Y, proportionally men and women, living in country and urban areas, flats and houses, with primary, secondary and university education. The goal of this phase was to understand different behavioural patterns regarding sustainability. This phase helped to uncover the motives and barriers to sustainable consumption as well as what participants consider to be their role in sustainability. The results helped to guide further research goals as well as form Phase 2 questionnaire.

In research Phase 2 the quantitative data were collected from 217 respondents, proportionally Generation X and Y, male and female, living in country and urban areas, in flats and houses (refer to Table 3 for further details). The data from this research are analysed and compared to later quantitative data from Phase 4.

Before launching another quantitative phase monitoring the development in the researched field, a decade later, a need for understanding the changes first emerged. The qualitative Phase 3 was conducted to determine which of the topics researched in 2013 are no longer perceived as relevant by participants.

The quantitative data gathering in Phase 4, in 2023, used CAWI method to ask 392 respondents proportionally from Generation X and Y, men and women, living in country and urban areas about sustainability of their consumption (refer to Table 3 for further details).

Table 3 Number of participants in quantitative waves of the research

	2013	**2023**	**Total**
Generation X	109	201	310
Generation Y	108	191	299
Male	108	195	303
Female	109	197	306
TOTAL	217	392	609

Source: research results

Based on the literature research and current state of knowledge, the following research questions Q for the qualitative phase and research hypotheses H for the quantitative phases were formulated:

Q1: Which environmental challenge do consumers believe they have substantial influence over?

Q2: What types of household waste management behaviour do consumers have?

H1 (Pre-purchase Sustainability Considerations of Generations X and Y):

Individuals from Generation X and Generation Y vary in their consideration of packaging sustainability before making a purchase.

H2 (Gender Differences in Pre-purchase Sustainability Considerations):

There is a significant difference in the proportion of men and women considering packaging sustainability before making a purchase.

H3 (Post-purchase Sustainability Behaviour of Generations X and Y):

Generation X and Generation Y individuals have different behavioural patterns in household waste management.

H4 (Gender Differences in Post-Purchase Sustainability Behaviour):

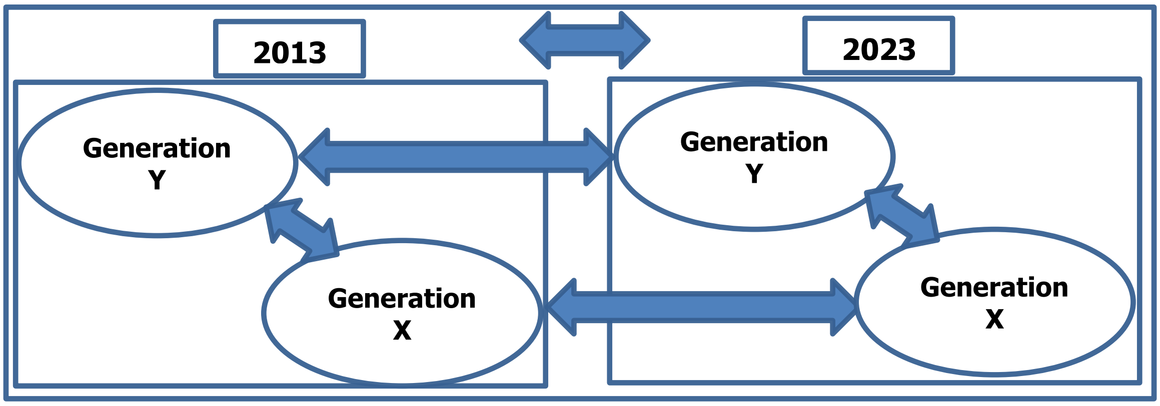
Waste separation behaviour differs significantly between men and women.

H5. (Evolution of sustainability attitudes and behaviour of consumers)

There has been a substantial change in pre-purchase packaging attitudes and household waste management behaviour during past decade.

To find out if the research hypotheses are valid, the data from 2013 and 2023 had to be compared on various levels as it is pictured on the Scheme 1. The quantitative data from 609 respondents were analysed by means of IBM SPSS software. The Chi-square goodness of fit test was used to find out if measured differences have statistical significance.

Scheme 1 Research model



Source: authors

3 RESULTS AND DISCUSSION

Based on the results of the qualitative research done in the first phase (2012), participants identified the excess of waste as the primary ecological threat that they believe they can minimize through their decisions and feel they should (Q 1). They recognize that waste causes many other problems and that they have the power to influence it through their daily decisions, particularly in two areas: reducing potential waste through pre-purchase decisions and effectively managing product residues (post-purchase decisions).

Therefore, the presented results of quantitative phases aim to direct the focus of monitoring of consumer sustainability attitudes and behaviour to two phases: pre-purchase and post purchase and analyse it from the perspective of packaging. In the pre-purchase phase, it is monitored whether and to what extent consumers consider the packaging in which the product is packaged and perceive it as one of the evaluation parameters. In the post-purchase phase, the research identifies four different approaches to handling packaging and product residues.

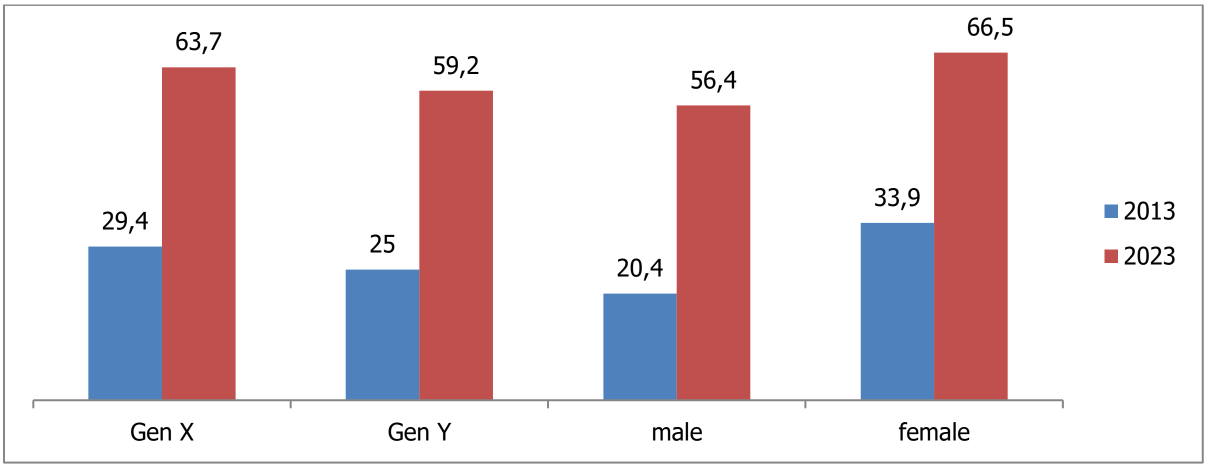
3.1 Pre-purchase sustainability considerations

When researching the environmental issues that participants perceived as relevant for them in order to change their behaviour (in the first phase, 2012), most of the interviews brought out the topic of household waste management. Participants felt that in this area, they can do something that matters without investing too much neither money nor energy. Interestingly, linking the waste and purchase decisions was not that common. Some participants understood the cause-effect relationship and cautiously chose the better alternative when purchasing. As there was a need to quantify this pre-purchase attitude of preferring the alternative that is better for the environment, the quantitative phase in 2013 measured it. Respondents were asked, if they consider the packaging and its ecological impact before purchasing, searching to find the more sustainable choice. In the qualitative phase in 2022 the household waste management topic appeared again as a necessary part of sustainable living. The results show that the cause-effect relationship between purchase decisions and waste perceived by participants was much clearer. Participants spoke about the importance of choosing the right products in the right packaging, preferring less packaging and avoiding plastics that are not recyclable. The quantitative Phase 2023 measured the attitude to compare it with results from 2013.

Monitoring consumers' sustainability attitudes in the pre-purchase phase, particularly regarding packaging decisions, reveals a significant shift in attitudes towards sustainability

(H6). Statistically significantly (n=609, p = 0.0), the percentage of people considering if the package is recyclable or limiting purchases and usage of single-use packaging increased (see Figure 1).

Fig. 1 Considering the packaging (pre-purchase stage)



Source: research results

For Generation X the share of respondents that take sustainability of packaging into product purchase consideration increased from 29.4% to 63.7%, and for Generation Y grew from 25% to 59.2%. Both generations´ sustainability grew. The difference in the level of package sustainability considerations in the pre-purchase stage is higher among Generation X in both 2013 as well as in 2023. The difference between the generations did not change as it is 4,4% in 2013 and 4,5% in 2023, yet the statistical difference between generations calculated with use of the Chi-square goodness of fit test is significant (n=392, p=0,011) in the 2023 results (H1).

Interestingly, gender seems to play a significant role in understanding the differences in considering product packaging sustainability in the pre-purchase phase. The increase in packaging sustainability awareness among men was from 20.4% to 56.4%, and among women, it was from 33.9% to 66.5%. Both men and women show increasing interest in how the packaging of the product influences the environment but it is important to note that the differences between men and women in considering the recyclability of packaging are statistically significant (the research carried out in 2013 n=217, p=0.025 and the research carried out in 2023 n=392, p=0.040). Women have a more sustainability-conscious attitude in their pre-purchase stage than men (H2). They tend to consider the type of packaging from the perspective of reusing, recycling, or reducing more than men.

3.2 Post-purchase sustainability behaviour

As previously discussed, the findings from the qualitative Phase 1 highlighted the perceived significance of household waste management as a prominent topic in participants' understanding of how individuals can reduce their environmental impact. In the first phase, the participants described their way of managing household waste and four types of approaches based on typical behavioural patterns were identified **(Q2)**. The following four types were quantified in Phase 2 (2013) to gain more insight about their behaviour and frequency in the population.

The approach "I do not separate waste", stands for people that, from various reasons, do not separate waste nor recycle. In some cases, reasons for that are out of their control – such as for example, the place they stay in does not offer possibilities of waste separation or recycling. In many other cases, their behaviour is caused by lack of motivation (why should I), lack of knowledge (how should I) or subjective norms.

The type "occasional separator" has inconsistent behaviour when it comes to separation and recycling. The participants´ decisions on whether to separate or not are strongly dependent on circumstances and mood at the moment. Approximately 50 to 60 percent of their waste is unseparated.

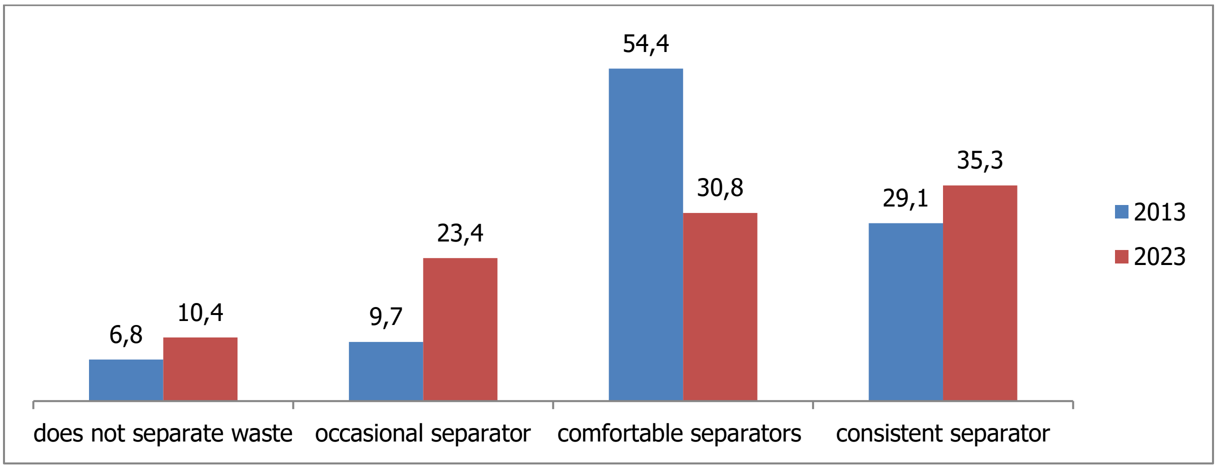
A "comfortable household waste separator" maintains consistent separation practices unless it involves additional effort or time. They are inclined to skip separation tasks that require extra steps beyond simply discarding the item. Common barriers for them include packaging that requires the removal of various components or materials or items that need to be washed before disposal. According to self-evaluation, these individuals estimate that they dispose of roughly 20-30% of items that could potentially be sorted with added effort.

The behaviour of "consistent waste separators" remains persistent, regardless of the additional effort that waste separation may require at times. Yet they still confess that there is approximately 10-20 percent of waste that they do not separate due to various reasons.

Results from the qualitative Phase 3 in 2022 suggest a shift in waste management behaviour, prompting the quantitative Phase 4 in 2023 to monitor and quantify this change among Generation X and Y populations.

Comparing the behaviour of Generation X (Figure 2), the percentage of those who occasionally separate increased from 9.7% to 23.4% (statistically significant, n=310, p = 0.0), while the percentage of comfortable separators decreased from 54.4% to 30.8%. Simultaneously, although mildly, the percentage of non-separating individuals slightly increased from 6.8% to 10.4%.

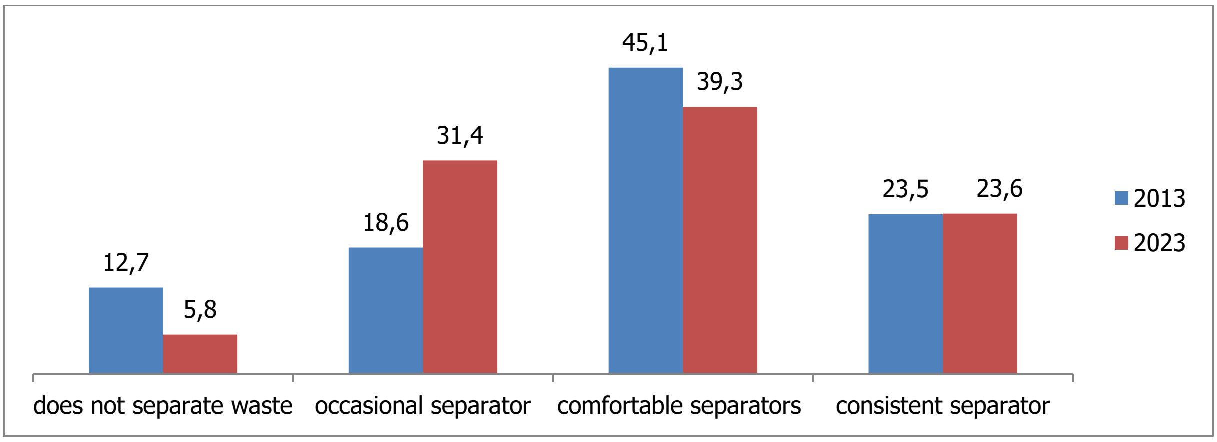
Fig. 2 Waste separation behaviour of Generation X



Source: research results

Among Generation Y (Fig. 3), the percentage of those who do not separate waste decreased by half (from 12.7% to 5.8%), and the percentage of comfortable separators also decreased from 45.1% to 39.3%. There was a statistically significant increase (n=299, p=0.0) in the percentage of those who occasionally separate waste, from 18.6% to 31.4%. The percentage of consistent separators remained unchanged.

Fig. 3 Waste separation behaviour of Generation Y

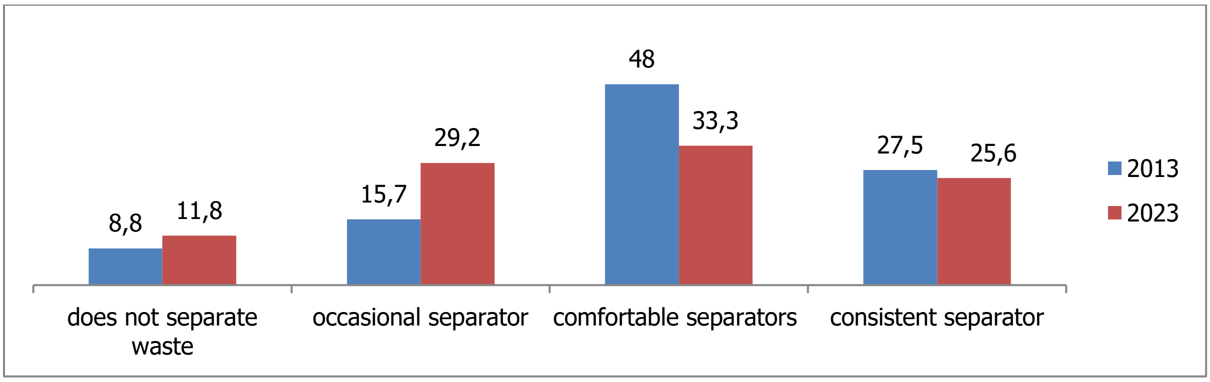


Source: research results

During the analysis, it became evident that distinctions in behavioural patterns of X and Y concerning waste separation did not emerge until recently. Whereas the earlier comparisons between Generation X and Generation Y did not reveal substantial discrepancies, recent findings (year 2023) demonstrate that Generation Y displays a higher tendency toward occasional and comfortable waste separation compared to Generation X (n=392, p=0,009). Conversely, Generation X demonstrates a stronger inclination towards consistent waste separation (H3)

When analysing differences in waste management of men and women, among males (Fig. 4), there was a notable increase (n=303, p=0,0) in the percentage of those who occasionally separated waste (Year 2013 versus Year 2023)

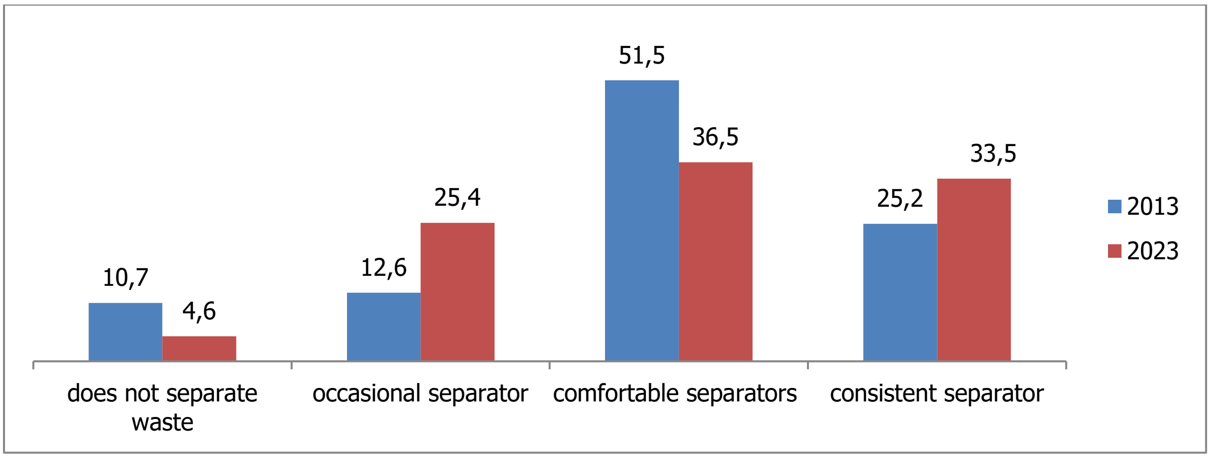
Fig. 4 Waste separation behaviour among males



Source: research results

Among women (Figure 5), there was a statistically significant increase (n=306, p=0.0) in the percentage of those who occasionally separate waste, from 12.6% to 25.4%, as well as in the percentage of consistent separators, from 25.2% to 33.5%. The percentage of comfortable separators decreased from 51.5% to 36.5%, and the percentage of non-separators decreased from 10.7% to 4.6%.

Fig. 5 Waste separation behaviour among females



Source: research results

During the analysis, it was found that in 2013, there were no significant differences in household waste separation behaviour between men and women. However, the study conducted in 2023 identified statistically significant differences (n=306, p=0.028). Among men, there was a higher percentage of non-separators (11.8% vs 4.6%), while among women, there were more consistent separators than among men (33.5% vs 25.6%) (H4).

CONCLUSION

This study is aimed to investigate changes in attitudes towards sustainable consumption and behavioural patterns related to waste management and packaging considerations among individuals representing Generations X and Y over the past decade. The research methodology involved four waves of qualitative and quantitative data collection spanning from 2012 to 2023 in Slovakia.

The key findings are the following:

Pre-purchase Sustainability Considerations: The research identified a significant increase in the proportion of individuals considering packaging sustainability before making a purchase, indicating a positive shift towards environmentally conscious consumer behaviour. Both Generation X and Generation Y showed growth in sustainability awareness, with Generation X displaying slightly higher levels of consideration for packaging sustainability. Hypothesis 1 was confirmed by results from the 2023 quantitative research.

Gender Differences in Pre-purchase Sustainability Considerations: The study revealed significant differences between men and women in terms of their attitudes towards packaging sustainability. Women exhibited a higher level of sustainability consciousness in their pre-purchase decisions compared to men, consistently showing greater concern for the environmental impact of product packaging. Hypothesis 2 was confirmed by research results of both quantitative waves.

Post purchase Sustainability Behaviour: Analysis of waste management behaviour indicated notable changes over the years, among both Generation X and Generation Y. While authors´ earlier research did not reveal significant differences between the two generations, the findings from the recent wave showed that Generation Y displayed significantly different behavioural patterns especially a higher tendency towards occasional and comfortable waste separation compared to Generation X that showed stronger inclination towards consistent waste separation. Hypothesis 3 was confirmed by results from the 2023 quantitative research.

Additionally, differences in waste management behaviour between men and women became more pronounced over time, with women exhibiting a higher percentage of consistent waste separators compared to men. Hypothesis 4 was confirmed by results from the 2023 quantitative research.

The overall results show that attitudes and behaviours regarding waste management and packaging considerations have changed over the past decade, moving towards greater sustainability. Hypothesis 5 was verified by comparing the results from the second and fourth phases.

Implications:

The findings of this study have several implications for Reformative Sustainability Marketing (Kemper & Ballantine, 2019), especially in understanding and promoting sustainable consumption behaviours among different demographic groups. Firstly, the significant increase in awareness of packaging sustainability among both generations suggests a growing concern for environmental issues and a willingness to make more sustainable choices. This presents opportunities for businesses to align their products and packaging with consumer preferences for sustainability.

Secondly, the observed gender differences highlight the importance of considering gender-specific approaches in sustainability initiatives and marketing strategies. Tailoring messaging and educational campaigns to resonate with the sustainability values and concerns of men and women could enhance engagement and behaviour change.

Lastly, the evolving trends in household waste management behaviour underscore the need for ongoing monitoring and adaptation of sustainability interventions. Recognizing and addressing the unique barriers and motivators influencing waste separation practices among different demographic groups can inform targeted interventions aimed at promoting more sustainable behaviours.

Limitations and future research:

The first and most important limitation of the generalisation of study results is that the study had been done in a central European country and therefore, results may be influenced by culture specifics, the country's waste management policy and the extent of social marketing communication that is specific for this region. The second limitation is that the data were collected through self-reports from the participating individuals, which introduces a risk of response bias. This bias may occur from the social desirability associated with certain attitudes and behaviours related to sustainability research.

In the future, research should continue to monitor the differences in sustainability attitudes and behaviours between generations and focus on determining the extent to which they are influenced by the life phase of individuals or by characteristics typical of the generation.

In conclusion, this research contributes to our understanding of the dynamics of sustainable consumption behaviour among Generations X and Y, shedding light on key factors shaping attitudes and behaviours related to waste management and packaging considerations. By leveraging these insights, policymakers, businesses, and organizations can develop more effective strategies to foster a culture of sustainability and drive positive environmental impact.

ACKNOWLEDGEMENT

VEGA 1/0064/23 Research and Modelling of Standards for Integrated Management and Sustainable Development of Commercial Enterprises.

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Visitor Management as a Strategy Increasing Resilience of Urban Destinations

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https://doi.org/10.53465/CEECBE.2025.9788022552257.185-196

Abstract: The rapid growth of urban tourism in Slovakia highlights the need for effective visitor management to ensure sustainability and resilience. This study examines the implementation of visitor management tools in Slovak urban destinations, focusing on their role in mitigating negative tourism impacts. Using cluster analysis, cities were classified according to their life cycle stages, identifying opportunities and barriers for visitor management implementation. Data was gathered through structured questionnaires and expert interviews. The findings reveal a lack of systematic visitor management, emphasizing the need for data-driven strategies and digital innovations. The study offers policy recommendations to enhance urban tourism resilience and sustainability.

Keywords: Visitor Management, Urban Tourism, Destination Resilience, Sustainability, Slovakia.

JEL Classification codes: L83, O18, R58, Z32

INTRODUCTION

The extremely dynamic changes that the tourism industry has experienced in recent years require an innovative approach to this changing reality. The rapidly growing tourism demand underlines the need for clear guidelines that will contribute to tourism development in line with the principles of sustainable development. Urban tourism, in particular, has emerged as one of the fastest growing and most economically significant forms of tourism (Spirou, 2008; Selby, 2012; Morrison & Maxim, 2021). Following the easing of restrictions imposed due to the COVID-19 pandemic, the popularity of visits to urban destinations has increased significantly. According to UN Tourism research (2023), an increase of up to 58% in city visitation was recorded in 2022 compared to the previous year. Similarly, CityDNA (2023) indicates a substantial recovery of urban tourism in Europe, with cities experiencing an average growth of 79.6% in 2022 compared to pre-pandemic levels in 2019. In this context, visitor management is an essential tool to manage complex situations to minimize the negative impacts of tourism on the urban environment. Traditionally associated with natural destinations, visitor management has gained strategic importance for urban tourism; however, its application in Slovak cities remains underexplored. There is a pressing need for a coordinated and data-driven approach to destination management that balances the interests of tourists, local communities, and policymakers while ensuring environmental sustainability and economic resilience. This study addresses this research gap by examining the awareness, implementation, and potential of visitor management strategies in Slovak urban destinations. Specifically, it aims to:

Analyze the extent to which visitor management tools are applied in Slovak cities.

Identify opportunities and barriers for their implementation based on the life cycle stages of urban destinations through cluster analysis.

Propose strategic measures to enhance the resilience and sustainability of urban tourism.

Visitor management should be a top priority, as high visitor volumes often negatively impact cities' environments and the resources on which tourism success is built. The current post-pandemic situation and forecasts indicating an increasing trend in visitor numbers highlight the need to focus on managed tourism development. Only a city that respects its limits and considers social inclusiveness, economic prosperity and environmental protection can be successful and attractive on the international tourism market in the long term. Ensuring sustainable tourism development is therefore a key factor in balancing economic growth, the needs of local communities and the interests of visitors, leading to more resilient destinations.

By integrating visitor management with resilience planning, this research contributes both theoretically and practically to the ongoing discourse on sustainable urban tourism. The findings provide valuable insights for policymakers at the regional and national levels, supporting the long-term competitiveness and sustainability of Slovak urban destinations. Moreover, the study offers practical recommendations for tailoring visitor management strategies to cities at different stages of their tourism development cycle, ensuring a balanced and sustainable approach to urban tourism growth.

1 LITERATURE REVIEW

Given the challenges and dynamics of tourism development, there is an increasing need for destinations to manage their visitors with effective management approaches and adopt best practices to ensure sustainable development and competitiveness of destinations (Albrecht, 2017). Tourism can be seen as a driver of economic development of countries mainly due to its economic benefits such as income growth, employment growth as well as stimulating economic activity through increased business transactions in the destination (Matzana et al., 2022; Urbina et al., 2023). Although tourism has a positive impact on the economic development of a destination, uncontrolled and unplanned development, focused mainly on economic objectives, can be responsible for many negative effects on the destination's environment. Çolak et al. (2020) argue that as a destination gains popularity and visitor numbers increase, challenges emerge that may conflict with the principles of sustainable development.

1.1 Urban destinations

Cities as tourism destinations have become easily accessible to visitors because of globalization and digitalization, attracting them with their wide range of leisure options. The importance of urban destinations can be confirmed by the WTTC (2022) estimate that the largest 300 cities account for approximately 45% of the share of all international arrivals. In the case of the European continent, cities attract visitors because of their diversity, cultural richness and dynamic environments.

According to Morrison & Coca-Stefaniak (2020), urban destinations, with developed tourism, play an important role in a country's economy. The development of tourism in urban destinations is highly dependent on the development of the culture of the destination. Europe maintains its leading position as a cultural tourism destination thanks to its efficiently developed infrastructure and diverse cultural heritage offer. It is estimated that cultural tourism accounts for 40% of European tourism (www.ec.europa.eu, 2022).

The intensive growth of tourism in destinations cannot be seen only through its positive economic consequences. Rapidly increasing visitor numbers can pose threats to destinations in relation to the principles of sustainable development. Tourism growth in destinations with rich cultural, historical or natural heritage encroaches on their indigenous environment, which may result in transforming the social, cultural and/or economic nature of the destination (Gowreesunkar & Vo-Thanh, 2020). Destinations should be wary of the various impacts of unsustainable tourism development, as a decline in quality in one area can have a significant impact on quality in other areas. Failure or delay in addressing tourism imbalances can lead to a reduction in the overall quality of the destination's product, a weakening of its image, and the migration of residents to outlying areas of the city.

1.2 Visitor management

Visitor management is an innovative concept for many destinations, with its tools representing the introduction of innovations in destination management. Innovation is now strategically essential for tourism planning and effective visitor management in urban destinations. According to Kvasnová and Marciš (2020), innovations, in the context of tourism destinations, represent changes aimed at introducing new and better products or services and implementing new destination management processes.

Visitor management is part of destination management, but it is not a traditional role of destination management, as it responds to recent events and current trends in consumer behaviour. Excessive tourism, as well as the experience of the COVID-19 pandemic and the terrorist attacks, have increased the need for more careful and systematic visitor management. Visitor management refers to all management tools and interventions that regulate the movement and behaviour of visitors in a destination, thereby influencing visitor experience and satisfaction (Albrecht, 2017).

Visitor management draws attention to places that are frequented and overcrowded and creates practices to reduce visitor pressure on attractions, influencing visitor behaviour, increasing visitor safety, while not diminishing visitor experience and satisfaction. Visitor management is effective when it is appropriately staffed with knowledge of sustainable development, the destination and its needs, and has relevant information about visitor arrivals at attractions, visitor movements, visitor needs, and the views of residents (Gajdošíková, 2020). The essence of visitor management is to deliberately regulate the number of visitors to the resort, influencing the direction of tourist flows and consumer behaviour to maintain the unique character of tourism development resources, safety, visitor experience and residents' satisfaction. When visitor management is implemented appropriately, the destination can also benefit from the economic value it brings to the destination in the form of directing visitors to paying attractions and influencing their consumption.

UNESCO recommends the following measures in its guides on ensuring sustainable tourism at World Heritage Sites: (a) limiting access of visitors; (b) dispersing visitors in space and time; (c) introducing pre-sale ticketing systems; (d) introducing price differentiation; (e) dispersing visitors at the destination; (f) offering different experiences, products and services to visitors to reduce pressure and focus on the small number of attractions that are recommended to be visited to see. The UN Tourism (2018) has also made recommendations on how to regulate visitor numbers and behaviour, given the prevalence of overtourism, particularly in urban destinations. Digitalization and innovative technologies in the tourism sector provide development actors with key data that can significantly impact destination management, overall visitation and the sustainability of the entire sector. Analysing large amounts of data enables the identification of patterns and trends that are key to effective tourism management and strategic planning in a destination location. We conclude that visitor management based on accessing actual visitor data represents a key and innovative tool for smart and sustainable destination development.

1.3 Strategy increasing resilience

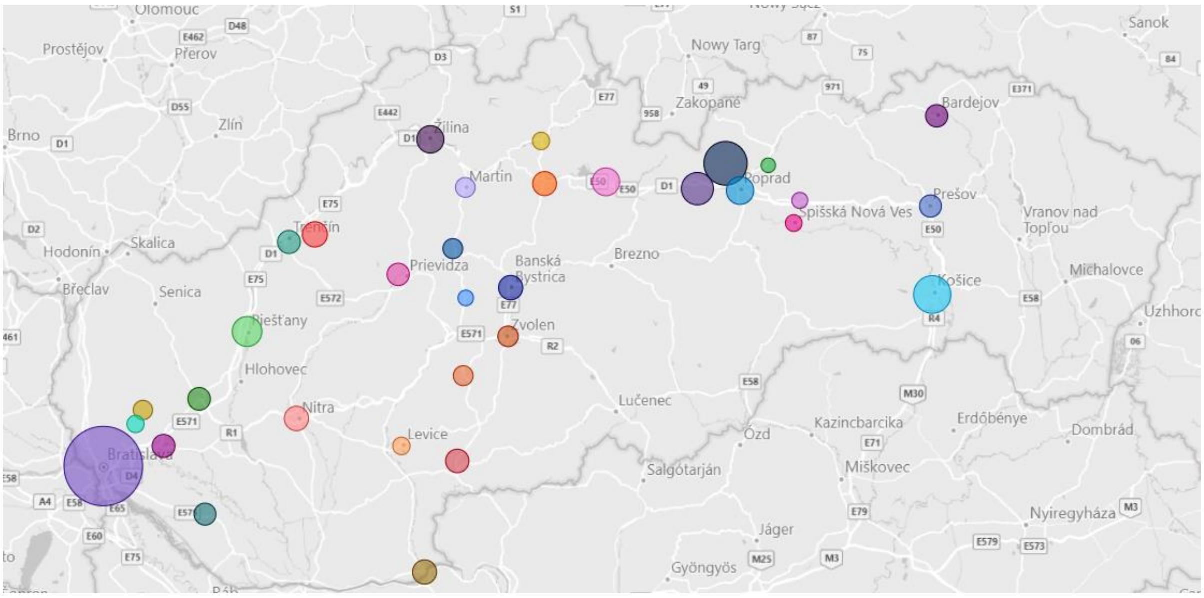
Strategic planning is intended to prevent uncontrolled development to avoid unhealthy growth and the negative effects that tourism can cause in a destination. Planning is therefore not intended to be a response to the adverse effects of tourism development, but to prevent them. Sustainability is, in general, about providing for and meeting both present and future needs. However, the concept of sustainable development does not consider the sudden changes and negative phenomena faced by tourism businesses and destinations. For tourism development to be sustainable, businesses and destinations need to be able to adapt or transform in response to negative situations and crises when necessary (Heslinga, 2022). Resilience is not an alternative to sustainability, but an essential part of sustainable tourism development (Butler, 2018; Saarinen & Gill, 2019). While sustainability refers to long-term development that balances environmental, economic, and social factors, resilience focuses on processes that enable an organization to survive and recover from negative events. Sustainable tourism development is not possible without resilient businesses and destinations, and we also understand resilience as an integral part of sustainable development (Saarinen & Gill, 2019; WTTC & ICF, 2022). Through a conscious tourism development strategy, a destination can increase its resilience and harness the potential of tourism for destination enhancement. Tourism development planning should be integrated into the destination in a way in which it blends and merges with the already existing life and environment in the destination.

2 METHODOLOGY

The aim of the study is to analyse the application of visitor management tools in Slovak urban destinations and to explore their potential for increasing the resilience and sustainability of urban destinations.

The cities listed in Figure 1 were used as the input data for the cluster analysis, which aimed to provide an up-to-date assessment of tourism development in these cities and to categorize them according to their life cycle phase. In the life cycle analysis, the initial "exploration" phase and the final "stagnation" phase were excluded. This decision was made based on the analysis of data from the studied cities, none of which exhibited characteristics corresponding to these phases. The analysis was conducted using data from the three-year period 2017–2019, focusing on the peak visitation period and excluding the impact of the pandemic. Input data for the analysis were sourced from the Slovak National Statistics Office, including average values for cumulative visitor numbers, number of overnight stays, number of accommodation establishments, accommodation revenue, and collected accommodation taxes.

Fig. 1: Urban tourism destinations by number of visitors



Source: Own elaboration (2024)

Note: The scores are proportional to the number of visitors in 2019.

Based on this analysis, the selected urban destinations underwent a more in-depth investigation. The goal was to examine the awareness of tourism stakeholders in these cities regarding sustainable tourism development, with particular attention to visitor management concepts. Primary data were gathered through communication with representatives from the regional tourism organizations in each selected urban destination. A structured questionnaire, consisting of 14 questions, was the main instrument for data collection. The survey was conducted between March 25 and April 15, 2024. Additionally, the national-level approach was analyzed through an interview with a representative of the Ministry of Tourism and Sport of the Slovak Republic. This interview provided insight into the awareness of these entities regarding visitor management in cities, the current state of visitor management, and the preparedness of destinations for future challenges related to overtourism.

In the data analysis process, several mathematical and statistical methods were employed, including descriptive statistics and cluster analysis. The collected data were processed using SPSS and MS Excel, with the results presented in graphical and tabular formats. Based on these findings, the potential of the destinations for the implementation of visitor management was evaluated.

3 RESULTS AND DISCUSSION

The tourism products of Slovak destinations are attracting an increasing number of visitors eager to explore them. Nowadays, when the statistical indicators of city visitation are returning to the level of the period before the COVID-19 pandemic, we perceive the need to adapt destination management to a new approach that coordinates visitation and eliminates the negative impacts of tourism on the environment of the destination.

Sustainable tourism policy in Slovakia is shaped by the European framework to which the country has committed as an EU member state. Specifically, this framework is outlined in the document Transition pathway for tourism, which details the key actions, objectives, and conditions necessary to achieve the green and digital transformation, as well as the long-term resilience of the tourism sector (ec.europa.eu, 2022).

At the national level, a Strategy for the Development of Sustainable Tourism to 2035 is being prepared. This strategy is intended to present measures and conditions through which we can fulfil the commitments that Slovakia has made. The main objective of the strategy is 'to reduce seasonal disparities by creating a comprehensive tourism offer through the sustainable use of the country's potential while increasing the economic growth of the regions and improving the recognition of Slovakia as an attractive and authentic destination.

3.1 Clustering of urban tourism destinations

As of 2024, Slovakia has 141 towns registered according to its territorial-administrative arrangement. This represents less than 5% of the total number of municipalities of 2 927 (www.minv.sk). The importance of urban tourism in Slovakia is confirmed by the statistics on the number of visitors to urban destinations in Slovakia in the analysed period 2017-2019 (Tab. 1). Data from the Slovak Statistical Office (2024) for this period show that more than 70% of visitors visit urban destinations. Despite the overall annual increase in the number of visitors in Slovakia, the share of urban destination visitation is stable. This confirms the fact that urban tourism dominates the structure of tourism in Slovakia and cities are the most preferred destinations of visitors.

Tab. 1: Overview of the number of visitors to cities in Slovakia

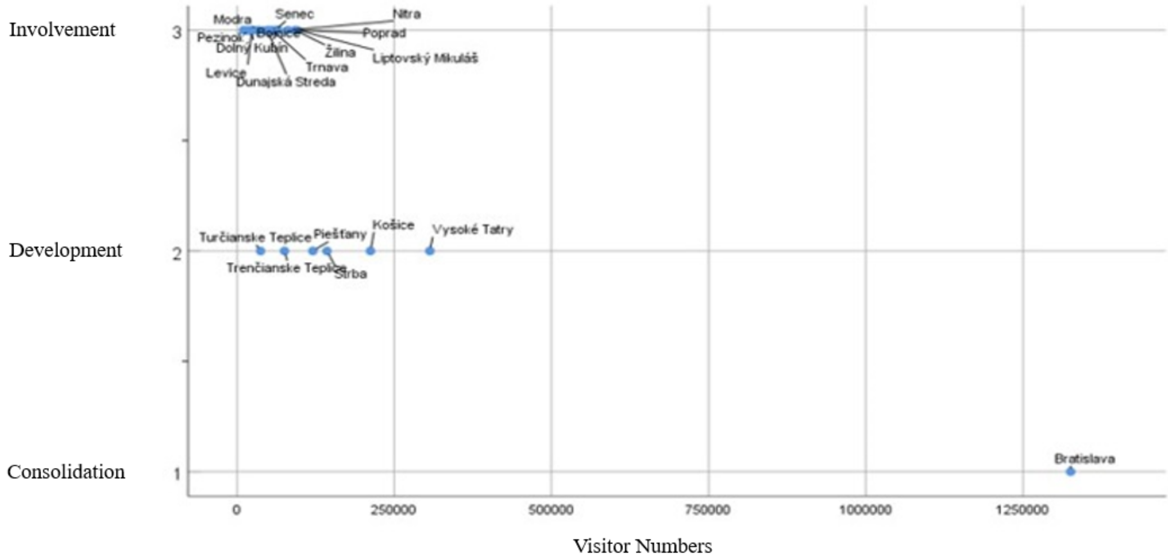
	2017	**2018**	**2019**
Number of visitors to the cities	3 751 978	3 914 509	4 534 344
Number of visitors to other destinations	1 623 495	1 681 898	1 898 590
Σ Number of visitors	5 375 473	5 596 407	6 432 934

Source: Own elaboration according to Statistical Office of the Slovak Republic (2024)

Based on the selected criteria, we divided the cities into 3 groups using the cluster analysis method, representing the different stages of the life cycle of a destination, i.e., involvement, development and consolidation (Fig. 2). The results of the F-test show whether there are statistically significant differences between the clusters with respect to the variables studied. The p-value indicates that the observed differences are not random. In this case, all p-values are equal to zero (0.000), indicating that there are statistically significant differences between clusters for all variables examined. Consequently, it is possible to classify the cities under study into distinct life cycle stages.

The analysis focused on the destinations life cycle phases, resulting in the classification of the cities in the sample into three groups. It was found that only one city, Bratislava, was placed in the highest consolidation phase. This phase is characterized by higher visitor numbers, which may exceed the local population, as well as the gradual reaching of the destination's carrying capacity. The destinations Vysoké Tatry, Košice, Štrba, Piešťany, Trenčianske Teplice, and Turčianske Teplice were included in the development phase. The development phase is characterized by rapid tourism growth, high visitor numbers at certain times of the year, and the international significance of the destination. The remaining 26 cities were categorized into the third phase, involvement. The involvement phase is characterized by the organized development of tourism, a growing number of visitors, and the seasonality. The hierarchical arrangement of the destinations is visually represented in the dendrogram (Fig. 2), which illustrates the similarities and distances between the cities based on the analysed criteria.

Fig. 2: Distribution of Slovak cities into stages of the life cycle of the destination



Source: Own elaboration (2024)

Dendrogram shows that destinations in the same stage of the life cycle tend to cluster closer together. Cities in the engagement stage form one compact group, distinct from cities in the development and consolidation stage. The dendrogram also visualizes the distances between clusters, indicating the degree of distinctiveness between different stages. A destination in the consolidation stage shows the largest differences compared to the other clusters, indicating its advanced state in the life cycle of the destination. The following Table 2 visualizes the final mean values, which are calculated as the average values for each variable within each stage.

Tab. 2: Final mean values of the distribution of the life cycle stages of the destination

Cluster number/ Criterion	1	2	3
Number of visitors	1 325 653	149 200	48 299
Number of overnight stays	2 754 092	519 600	134 914
Number of accommodation facilities	220	60	33
Revenue from accommodation (EUR)	105 909 815	17 218 158	3 099 443
Accommodation tax (EUR)	4 681 955	596 646	143 002

Source: Own elaboration (2024)

Comparing the values between stages highlights the characteristic differences in the life cycle stages of the destinations in the research set. A life cycle analysis of urban destinations provides insight into the state of tourism development in selected cities in the pre-pandemic period. As discussed in literature review, destinations go through different phases and cycles of development over time. It is necessary to examine this evolution and the different cycles of a destination over time to ensure the continued competitiveness and sustainability of the destination's resources. If destination begin to experience adverse changes in the social and/or environmental dimension, destination management tools must be taken to ensure responsible and prosperous development of the destination. In this context, the concept of visitor management is a relevant tool.

3.2 Application of visitor management tools in the identified clusters

In the following section, the analysis of tourism development in Slovak destinations will be conducted. Through this analysis, a closer insight into the current state of tourism development will be provided, including its approach to sustainable development and visitor management. This approach will consider the categorization of urban destinations based on their life cycle phases.

In the consolidation phase, Bratislava is a metropolitan centre with international connections and a rich historical and cultural heritage, which makes it an attractive city for domestic and foreign tourism demand. In 2023, the city's visitor arrival rate was compared to 2019 (SOE, 2024). It can therefore be expected that in the near term, the city's visitor arrivals will exceed pre-pandemic levels. Table 3 presents an overview of the specific measures implemented in Bratislava to support sustainable and environmentally responsible tourism development.

Tab. 3: Activities of the City of Bratislava in relation to sustainable tourism development

Activity	Impact on the destination
Low-emission transport options	Reduced traffic congestion and greenhouse gas emissions
Cycling offer	Diversification of tourism
Product Bratislava Card	Promotion of cultural and historical facilities
Promotion of lesser-known attractions in the city	Dispersion of visitors outside the city centre
Promotion of natural and rural sites	Dispersion of visitors outside the city centre
Support for local entrepreneurs and craftsmen	Local economic development

Source: Own elaboration (2024)

During the primary research, it was determined through a representative of the Bratislava Tourist Board that visitor management tools are currently utilized only minimally in Bratislava, and the concept is not explicitly incorporated into its tourism-related activities.

A common characteristic of the cities classified in the development phase is their recognition of the importance of sustainable development, with environmental, social, and cultural aspects integrated into their tourism development strategies. Signs of overtourism have been identified in each of these destinations at certain times of the year. Additionally, all cities promote off-season travel and implement measures to mitigate seasonal fluctuations in visitor arrivals. While the concept of visitor management is regarded as a useful tool, its systematic implementation has not yet been undertaken. However, some visitor management tools are already being applied in practice. Respondents were asked to identify activities that would be relevant for their city's future tourism development strategy. The responses are summarized in Table 4.

Tab. 4: Overview of current and prospective activities in cities in the "development" stage

Current activities	Prospective activities
promoting off-season travel strengthening of the tourism infrastructure promotion of lesser-known sites mobile app with information	regulation of car traffic electronic reservation systems tracking the movement of visitors analysis of visitor behaviour data mobile app with information

Source: Own elaboration, 2024

The application of visitor management tools in the destinations classified in the involvement phase was subsequently examined. In these destinations, tourism development represents a key sector for both the local and regional economy. The concept of sustainable tourism development is well understood across all analysed destinations, and measures are actively being developed to ensure the long-term sustainability of the tourism sector. However, all destinations in this phase experience significant fluctuations in visitor arrivals throughout the year. Awareness of visitor management and its associated tools was identified in only one-third of the destinations.

CONCLUSION

Currently, the state of tourism development in Slovak destinations is not as critical as in other European destinations, as evidenced by the predominance of the early phases in their life cycle. However, for Slovak destinations to become competitive, sustainable and resilient destination in line with the EU vision and the strategy of the Ministry of Tourism and Sport, the issue of visitor management needs to be given adequate attention. Proactive visitor management is a key to avoid future negative impacts and to support the long-term sustainability and attractiveness of Slovakia's urban destinations. Slovakia's urban destinations should not rely on traditional destination management practices. On the contrary, they should adapt their management activities to new possibilities and methods that are focused on current and future priorities and specific needs of tourism development in Slovakia.

It is considered essential to create the conditions for a comprehensive digitisation of the tourism sector, including its services and infrastructure. A key priority should be to ensure access to up-to-date and accurate data on visitor arrivals to individual cities. This approach will enable the effective identification and assessment of visitor arrivals at destination points in real-time, which is essential for taking specific measures to regulate or promote tourism. The digitisation of the tourism sector should be complemented by a visitor management policy that ensures that tourism development is in line with the Sustainable Development Goals. This policy should include a comprehensive assessment of the current situation of tourism development, including the setting of carrying capacity for each destination.

In this study, a cluster analysis was performed, through which the urban destinations in Slovakia were divided into three life cycle phases. Based on the results of this division, the possibilities for better implementation of visitor management instruments, in accordance with the actual needs of the destination, are reflected upon in the following section (Table 5).

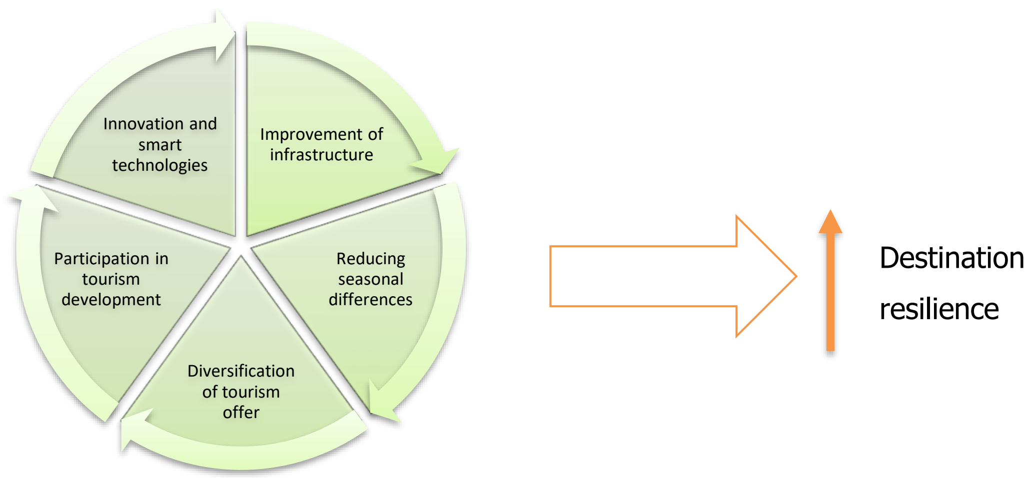
Tab. 5: Visitor management instruments according to the life cycle phase

Life cycle phase	Proposed measures
Consolidation	Improving visitor registration through smart sensors and GPS data Using big data and analytics to understand visitor behavior Implementing digital tools for trend analysis (e.g. Google Trends) Improving marketing communication based on analytical results Expanding the range of attractions to promote an even distribution of visitors
Development	Modernisation of infrastructure (accessibility, public spaces, information systems) Creating attractive products and promoting off-season travel Regulating car traffic and building emergency car parks Strengthening public transport capacity and links between attractions Targeted marketing communication to differentiate from competing destinations
Involvement	Intelligent visitor tracking systems (sensors, GPS data) Predicting trends and identifying problem areas in tourism Effective traffic management based on analytical results Improving the quality of public transport and infrastructure Promotion of lesser-known attractions to distract visitors

Source: Own elaboration, 2024

The successful implementation of visitor management is closely linked to the individual characteristics and significance of a given destination. As the research has shown, there is currently no city in Slovakia that pays systematic attention to the concept of visitor management and systematically implements its measures. To improve this situation, we have developed a series of proposals and measures (Fig. 3). Some of these suggestions could be applicable in all destinations, regardless of their phase of the destination life cycle. At the same time, it is important to note that the extent of implementation of these measures will depend on the individual conditions and needs of each city. The proposed measures are aligned with the principles of sustainable tourism development and should therefore contribute to sustainable tourism development in addition to better visitor management.

Fig. 3: Proposed visitor management measures in urban destinations



Source: Own elaboration, 2024

At the same time, there is a need to raise awareness among visitors about local rules and recommendations for promoting responsible behaviour in Slovak destinations. The implementation of these measures at the national level will enable more effective management and optimisation of visitor arrivals, which will contribute to a sustainable and balanced development of tourism in Slovakia. In this way, we can achieve a harmonious link between the increased competitiveness of destinations and the protection of their natural and cultural heritage, thus ensuring their resilience. Effective dissemination of visitor management awareness is a key element for ensuring sustainable tourism development. This process involves not only informing the public and stakeholders about the importance and benefits of managed tourism development but also ensuring their active participation in achieving the set objectives.

ACKNOWLEDGEMENT

The research was funded by the Scientific Grant Agency of the Ministry of Education, Science, Research and Sport of Slovak Republic via the project VEGA 1/0136/23: From resilience to sustainability. The impact of data on sustainable and competitive development of tourism.

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Linguistic Strategies in Tourism and Hospitality Marketing: A Comparative Study of Serbia and Romania

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https://doi.org/10.53465/CEECBE.2025.9788022552257.197-213

Abstract: This paper examines the language of tourism and hospitality marketing in Serbia and Romania, focusing on the interplay between cultural identity and global influences. It analyses the use of anglicisms, regional features, and cultural references in marketing materials to uncover patterns shaping consumer behaviour and destination branding. By employing a comparative analysis of language strategies in both countries, the research highlights the role of language in creating persuasive narratives, and bridging the gap between local authenticity and global appeal, revealing generational differences in preferences. The findings offer insights into linguistic strategies that reflect cultural identity, support economic growth, and address evolving traveller expectations. It provides practical insights for marketing professionals and linguists, striving to create effective, culturally sensitive marketing strategies in the dynamic tourism industry of South-eastern Europe.

Keywords: Hospitality Marketing, Tourism Discourse, Linguistic Identity, Serbia, Romania, Anglicisms in Tourism and Hospitality

JEL Classification codes: I23, M31, O33

INTRODUCTION

Tourism and hospitality marketing rely heavily on language to shape consumer perceptions, create compelling narratives, and establish brand identity.

This study aims to analyse the linguistic strategies employed in tourism and hospitality marketing in Serbia and Romania, investigating the role of anglicisms in branding and advertising. It seeks to identify cultural and generational differences in language preferences while providing recommendations for crafting effective, culturally sensitive marketing strategies. By examining marketing materials from both countries, the study aims to highlight how language choices impact consumer perceptions, brand identity, and engagement in the tourism sector. Furthermore, this research strives to bridge the gap between linguistic authenticity and the demands of globalization, offering insights into how marketing professionals can optimize their communication strategies to appeal to diverse demographics. By conducting a comparative analysis, the research uncovers key patterns in how tourism and hospitality brands communicate with diverse audiences.

Namely, this study employs a comparative approach, analysing marketing materials such as brochures, websites, advertisements, and social media content from Serbian and Romanian tourism agencies and organizations, hotels and restaurants. Textual analysis is conducted to identify linguistic patterns, including the frequency and function of anglicisms in marketing discourse.

Additionally, the research conducted for this paper includes a customer survey. Namely, the survey analysis is an important component of this study as it provides valuable insights into the perceptions, preferences, and attitudes of tourists regarding the use of anglicisms in tourism marketing materials. By gathering direct feedback from consumers, the survey allows the research to capture the impact of linguistic choices, such as the incorporation of English words, on the decision-making process of potential tourists. Understanding how consumers interpret and respond to these marketing strategies is essential for identifying the effectiveness of such linguistic approaches in attracting and engaging different target audiences.

Additionally, the survey data serves to complement and enrich the corpus analysis by providing a real-world perspective on how consumers perceive linguistic trends in tourism marketing. While the corpus analysis focuses on the frequency and context of anglicisms in marketing materials, the survey offers a more nuanced understanding of how these linguistic features influence consumer behaviour, brand perception, while also shedding light on the socio-cultural dynamics shaping language attitudes and usage patterns.

By addressing these questions, the research aims to provide a comprehensive analysis of the linguistic landscape in Serbian and Romanian tourism marketing, contributing to the understanding of how language shapes consumer behaviour and cultural perception.

The focus on Serbian and Romanian tourism and hospitality marketing materials is driven by linguistic, cultural, and economic factors. As neighbouring countries with interconnected historical and economic ties, Serbia and Romania share similar tourism dynamics while exhibiting distinct linguistic influences. Both nations have experienced a growing influx of English borrowings in professional and commercial discourse, particularly in tourism and hospitality, where global trends and international branding play a crucial role.

Linguistically, this study provides a comparative perspective by examining two languages from different language families - Serbian, a Slavic language, and Romanian, a Romance language - while also considering the influence of English, a Germanic language, which serves as the dominant global lingua franca of modern times. This contrast allows for a deeper analysis of how anglicisms are integrated into structurally different languages, both morphologically and syntactically. Furthermore, the author’s bilingual proficiency in Serbian and Romanian, combined with a doctorate in English linguistics, provides a unique and authoritative perspective on the subject. As a connoisseur of all three languages, the author is uniquely positioned to conduct a nuanced analysis of language contact, borrowing, and adaptation in tourism and hospitality discourse, offering valuable insights into linguistic globalization trends in the region.

Furthermore, findings from this study will provide valuable insights for marketing professionals and linguists offering guidance on how to create effective, culturally resonant marketing strategies that appeal to both local and international travellers. The research contributes to a deeper understanding of the evolving role of language in tourism and hospitality, particularly in the context of globalization and digital communication.

1 LITERATURE REVIEW

1.1 Language and cultural tourism

Previous studies on tourism discourse about linguistic globalization and national identity preservation are rather scarce. However, in the domain of language and cultural tourism a few studies offered a sociolinguistic and discourse-based perspective on the intersection of language and cultural tourism, a concept closely aligned with the field of "sociolinguistics of tourism" (Thurlow & Jaworski, 2010:1). It explores the role of language and communication in the realm of cultural tourism, as well as the discursive strategies that support language ideologies in cultural and event tourism.

The scientific research focusing on language in tourism and hospitality is still in its early stages. Initial research has primarily concentrated on sociolinguistics, particularly discursive analysis of various tourism contexts, examining language use and representation (Cohen & Cooper, 1986:554; Heller, 2003; Boudreau & White, 2004:328; Manca, 2008:370; Jaworski & Pritchard, 2005:3; Jaworski, 2009:663). Sociolinguistics focuses on the ways in which language elements are used to achieve social goals in the broader representation of cultural and other identities within tourism (Coupland, 2003:420; Cos, 2006:15). Further research in sociolinguistics has also addressed the role of language in presenting cultural identities within tourism destinations (Pietikäinen & Kelly-Holmes, 2011; Coupland et al., 2003; Cos, 2006; Thurlow & Jaworski, 2011; 2013; Ploner, 2013).

Understanding the use of language in both cross-cultural and event tourism settings is crucial. Additionally, it is essential to grasp how cultural event destinations market themselves and how hosts and guests collaboratively create tourism experiences (Lauren, Hall-Lew & Lew, 2014:344). As Thurlow and Jaworski (2011:289) point out, language occupies a central role in the tourist experience, influencing its representation and realization.

1.2 Serbian and Romanian linguistic literature

Anglicisms refer to words which have been borrowed from English and integrated into Serbian to varying degrees (Prćić 2005:59). For the purpose of this research, Prćić's (2005:130-134) scale of justification levels has been used. Prćić differentiates between fully unjustified, unjustified, conditionally justified, justified and fully justified anglicisms. Prćić's five-level classification demonstrates the varying degrees of anglicism integration in Serbian lexicon. Hence, it forms the foundation for the corpus-based analysis conducted in this study. Additionally, following Prćić (2005:120-123), the anglicisms in this study have been subcategorized according to their meaning, form and use into three groups: raw, obvious and hidden anglicisms.

The study of anglicisms in Romanian is rooted in the fields of language contact, borrowing, and sociolinguistics, particularly regarding their adaptation to Romanian phonological and morphological structures. Avram (1997:9) considers English borrowings a natural and inevitable stage of linguistic evolution rather than a negative phenomenon. Furthermore, Pârlog (2004, 2005, 2024) has extensively researched anglicisms in Romanian, analysing their integration across linguistic registers. Pârlog highlights the complexity of language contact in a globalized world, acknowledging that the influx of English terms reflects Romania's integration into international networks. However, she also emphasizes the risks of excessive reliance on anglicisms, which may erode the native lexicon and cultural identity. Another prominent linguist, Greavu (2018), has conducted in-depth research on English influence in Romanian. She examines the socio-cultural and linguistic factors driving the adoption of English loanwords, such as globalization, technological advancements, and media exposure.

1.3 Serbian and Romanian linguistic literature in hospitality and tourism

While extensive research exists on anglicisms in sports, economics, mass media, and IT, relatively few studies focus on their role in the hospitality and tourism industry in Serbian and Romanian. Notably, Lazović has conducted pioneering research on the integration of anglicisms in hospitality and tourism terminology in Serbian and Romanian. Her studies highlight the impact of globalization on language use in these fields. Lazović (2020:71-83) found that anglicisms often replace native terms due to their modern appeal and linguistic economy, as English words are generally shorter and more marketable. This phenomenon has significant implications for branding and consumer engagement. Lazović (2018:780-782) further examined the role of anglicisms in communication technology within the tourism and hospitality industries, identifying both profession-driven and status-driven motivations for their adoption. Her research provides a comparative analysis of commonly used anglicisms in Serbian and Romanian, offering translational equivalents in both languages. Similarly, Lazović (2015:1-10) explored global linguistic trends, demonstrating the profound impact of English on Serbian and Romanian tourism discourse. Furthermore, Lazović (2024:179-193) examined the impact of anglicisms in the tourism and Romanian and Serbian hospitality lexicon by focusing on generational differences in language use and acceptance. Through linguistic analysis and surveys, she explored the evolving linguistic landscape and its effects on intergenerational communication and identity.

The findings from Lazović's research are essential for understanding the linguistic landscape of tourism and hospitality in Serbia and Romania. Her work illustrates how English terms shape industry communication, offering practical insights for language policy, translation practices, and marketing strategies.

2 METHODOLOGY

This study employs a qualitative and quantitative comparative analysis of Serbian and Romanian tourism marketing discourse. The mixed-methods approach enables a deeper understanding of linguistic strategies by combining textual analysis with audience perception studies. Using comparative linguistic analysis, the study examines the role of anglicisms, cultural markers, and generational language preferences within the tourism and hospitality industry of both countries.

The corpus for this study was compiled through a structured selection process to ensure a representative and objective analysis of anglicisms in Serbian and Romanian tourism and hospitality marketing discourse. The selection criteria focused on promotional materials widely used in the industry, including official websites of national tourism organizations, hospitality businesses, travel agencies, and event organizers. Additionally, digital and print marketing materials such as brochures, advertisements, and social media campaigns from leading hotels, restaurants, and tourism service providers were included. The corpus was also extracted from texts from travel blogs, online booking platforms, and media sources that significantly influence consumer perception. The corpus examples encompass words, phrases and sentences where English words, i.e. anglicisms were used in Serbian or Romanian marketing texts. The examples from the corpus have been copied form the mentioned sources without any alternations.

The anglicisms in the corpus were selected based on their relevance, frequency of use, and impact within the tourism discourse, ensuring that the analysed texts reflect contemporary linguistic trends in both countries.

By analysing these sources, the research aims to clarify the extensive use of anglicisms and their influence on the Serbian and Romanian language. Furthermore, it aims to explore how these borrowed English terms integrate into and transform the linguistic landscapes of both countries, highlighting the complexities of language assimilation and adaptation within the evolving domains of tourism and hospitality.

Data interpretation includes statistical analysis of word frequency and contextual qualitative analysis of marketing materials to uncover patterns in linguistic strategies. The corpus includes

1000 sentences, phrases, and words in which anglicisms have been used in Serbian and Romanian marketing materials.

The Serbian portion of the corpus was accessed during January and February 2025. revealing 556 distinct anglicisms that varied from raw and obvious to hidden anglicisms. Only the first occurrence of each anglicism was recorded, excluding frequent repetitions. The Romanian segment of the corpus was accessed between January and February 2025. The corpus documents 513 different anglicisms, excluding repetition, including both raw and adapted forms.

The anglicisms from the corpus have been analysed according to their linguistic patterns, semantics and function. Additionally, the investigation focused on three key aspects: domain-specific relevance, degree of adaptation and anglicism integration patterns.

To assess the effectiveness of different linguistic strategies, consumer perception was measured through a survey analysis. The methodology used for the survey involved a carefully designed multiple-choice questionnaire aimed at gathering quantitative data on the perceptions of anglicisms in tourism marketing among different generational groups in Serbia and Romania. The survey was divided into three sections: Demographic Information, Language Perception in Tourism Marketing, and Brand and Consumer Engagement. Each section was structured to capture relevant insights on the use of English loanwords in tourism marketing materials, their impact on consumer perceptions, and how language choices influence consumer behaviour in these industries.

The survey was distributed to a diverse sample of 200 participants, including both professionals and non-professionals in the tourism and hospitality sectors. The survey aimed to analyse and explain the generational perceptions of anglicisms in tourism marketing in Serbia and Romania. By categorizing respondents into two distinct age groups - **older generation (51 and above)** and **younger generation (18-50) -** the results highlight clear differences in how these groups view the use of English terms in tourism and hospitality marketing.

3 RESULTS AND DISCUSSION

As English has become the dominant language of international tourism and digital communication, anglicisms frequently appear in tourism marketing across Serbia and Romania. Words such as *luxury resort, city break, wellness spa,* and *boutique hotel* are commonly used to signal modernity and global appeal. While these borrowings enhance the destination accessibility to international tourists, they also raise concerns about cultural dilution and the erosion of linguistic identity.

3.1 Semantic and functional analysis

The study conducted an in-depth analysis of the role of anglicisms in tourism discourse, examining their presence and function across various communication contexts. The investigation focused on three key aspects: domain-specific relevance, degree of adaptation and anglicism integration patterns.

Domain-specific relevance

Anglicisms were most commonly found in key domains of tourism-related language, particularly in contexts where international terminology enhances clarity, prestige, and marketability. Their prevalence was observed across various subfields, including accommodation descriptions, wellness and spa services, food and beverage menus, tourism marketing materials, and event tourism.

- Accommodation descriptions

The research conducted for this paper has shown that English terms were widely used in hotel and lodging descriptions to highlight luxury, modernity, and alignment with international hospitality standards both in Serbian and Romanian part of the corpus. This analysis has shown that anglicisms are most frequently used in accommodation descriptions, accounting for 29% of the entire corpus. The examples illustrate how anglicisms are seamlessly integrated into native language structures, often without modification, contributing to a mixed linguistic register that reflects the globalized nature of the hospitality industry. For example:

1) *Hotelul pune la dispozitie oaspetilor recepție 24/24, **Wi-Fi** – în hol, 3 **baruri**, **centru spa & wellness, fitness, restaurant, room service, babysitting, rent-a-car, transfer aeroport, jet ski** în apropiere.*

This Romanian example showcases extensive use of English borrowings which are interwoven with native Romanian words. Notably, "24/24" is a direct calque of the English "24/7," reflecting influence at the syntactic level as well. The direct adoption of English words suggests that English terminology is perceived as more prestigious or internationally recognizable.

2) *20 de camere **duble family**, 192 de camere **duble twin** si matrimoniale; 8 apartamente, Camerele **lifestyle** sunt de la etajul 1 pana la etajul 6.*

The term *duble family* (intended as "double family") is an example of hybridization, combining the Romanian *dublă* with the English *family*. Additionally, *lifestyle rooms* (camerele lifestyle) is a direct borrowing, reflecting the trend of luxury branding in hotel descriptions.

3) *Hotel poseduje 98 standardnih soba, 138 **superior** soba, 23 **duplex suites** i **6 superior suites** ... 3 **ekonomi soba**, 6 **club soba** (max 2 osobe), 4 **club** apartmana, **9 terrace** apartmana, 8 **garden** apartmana.*

This Serbian example displays an extensive use of English terms, such as *standard, superior, duplex suites, club, terrace, garden*. The term *economi soba* reveals a spelling mistake (*economi* instead of *economy*), indicating a partial adaptation that does not align with standard English spelling conventions.

4) *Gostima je na raspolaganju recepcija 24h, **room servis**, 5 restorana... **šoping** centar, usluge pranja veša, **sauna**, **jacuzzi**, zdravstveni centar/**SPA, fitnes** i teretana...*

The presence of anglicisms like *room servis, shopping centar, jacuzzi, SPA, fitness* highlights the tendency to integrate English terminology directly into Serbian hotel discourse. However, the word *fitnes* is a phonologically adapted form of *fitness*, following Serbian spelling norms by omitting the double *s*.

The analysis of anglicisms in Serbian and Romanian hospitality discourse reveals several key trends. Many English terms, such as *Wi-Fi, spa & wellness, room service, babysitting,* and *rent-a-car*, are incorporated without any modification, indicating their full acceptance into professional discourse. In contrast, some borrowings undergo phonological adaptation, as seen in *fitnes* and *economi*, which reflect attempts at integration but result in non-standard spellings. Additionally, hybrid formations and calques, such as *dubla family* and *split klima uređaj*, illustrate how English influences local terminology, often blending with native linguistic structures. Furthermore, inconsistencies in spelling, exemplified by *economi* (instead of *economy*), *fitnes* (instead of *fitness*), and *duble* (instead of *double*), suggest a lack of formal standardization in the adoption of anglicisms, highlighting the dynamic and evolving nature of English influence in the tourism and hospitality sectors.

- Event tourism

The terminology associated with festivals, cultural events, and entertainment-oriented tourism showcased a significant number of anglicisms: 26% of the entire corpus. This linguistic trend highlights how event tourism integrates English terminology across various domains, including art, literature, sports, wellness, and business. The widespread adoption of unmodified English words reflects a shift in branding strategies, where English serves as a bridge between local cultural identity and global market accessibility. As shown in the following examples:

*5) **Open Mic** de poezie*
*6) Festivaluri de **LIFESTYLE | Sport, Wellbeing**, Modă, etc din 2025*
*7) Beogradski sajam knjiga • sajam obrazovanja • **media market***
*8) Međunarodni festival studentskih pozorišta „**Urban fest**"*

The analysis of the corpus related to event tourism has revealed that anglicisms are used in the 97% of the event names and also in the marketing texts describing the events as well as in the event programs. The frequent use of raw anglicisms, such as *Open Mic, Street FOOD Festival,* and *Winter Events & Spa Travel Market*, suggests a deliberate strategy to enhance international appeal and align with global trends. They are used in their original English form without any spelling or morphological modifications. Even in mixed-language contexts like *Festivaluri de LIFESTYLE*, English terms stand out, reinforcing their perceived prestige and communicative efficiency.

- Wellness and spa hotels

The wellness tourism sector exhibited a strong reliance on English terminology. Anglicisms related to wellness and spa terminology encompass 22% of the entire corpus. Borrowed terms such as *wellness*, *spa retreat*, *detox program*, *massage therapy*, and *fitness package* were commonly used to attract international clientele. Specialized services, including *hot stone massage*, *aromatherapy*, and *hydrotherapy*, were almost exclusively presented in English, as these concepts often lacked widely accepted native equivalents. For example:

*9) **Saunele** si piscinele **spa-ului** sunt parte a unui adevarat Circuit Spa de detoxifiere*
*10) hoteliere din aceste stațiuni funcționeză centre **wellness SPA** și sala de **fitness***
*11) **Medical fitness** studio i **power plate** trening*
*12) **Antistres** masaža celog tela u trajanu od 30 min*

These corpus examples highlight the prevalent use of anglicisms in wellness and spa tourism, often blending English terms with Serbian and Romanian structures. Phrases like *Medical fitness studio i power plate trening* and *korišćenje wellness & spa centra* retain English elements, reflecting global branding strategies. Meanwhile, terms such as *Antistres masaža celog tela* and *Saunele si piscinele spa-ului* demonstrate partial adaptation, where English loanwords integrate into local grammatical frameworks, sometimes leading to inconsistencies. In Romanian, *Sala de fitness* and *centre wellness SPA* illustrate the normalization of English borrowings.

Overall, these examples underscore the dominance of English in wellness and spa marketing, where raw or minimally adapted anglicisms enhance international appeal and prestige. While some terms undergo slight morphological adjustments (*spa-ului, relaksiranje*), most remain unchanged, reflecting the industry's reliance on English to signal modernity and exclusivity.

- Food and beverage menus

Anglicisms played a significant role in shaping the language of gastronomy, particularly in menus and restaurant promotions. The analysis of the corpus has shown that borrowings like *brunch*, *cocktail*, *smoothie*, *buffet*, *fine dining*, and *finger food* were used extensively, reflecting global dining trends and the influence of international cuisine. For example:

*13) **VegFriptura Spare the Lamb, Super Duper VegMici***
*14) Tofletă: Ingrediente: Potrivit la **breakfast, brunch** sau oricand.*

*15) **BIO MIX** RUKOLA obrok salata, **Krispi** salata sa piletinom, **Šefova** salata.*
*16) Od pića su u ponudi ceđeni sokovi i **smutiji,** kraft **pivo i kafa.***
*17) Za doručak ili **branč** možete naručiti **pesto omlet, avokado tost** ili činiju sa **acai** bobicama.*

These examples and other corpus examples from this section illustrate the growing presence of English terminology in food menus, especially in the context of plant-based and health-conscious offerings. Terms like *VegFriptura Spare the Lamb* and *Super Duper VegMici* combine catchy English adjectives with local dishes (*mici*), signalling modernity and international appeal. Additionally, expressions like *Double Perfection Meniu* and *BIO MIX RUKOLA* combine English terms with Serbian phrases, showing how local menus use English to signify modernity and cater to international audiences. The inclusion of words like *smoothies* and *acai* in phrases like *ceđeni sokovi i smutiji* further highlights the widespread influence of global dining trends, with English terms becoming fully integrated into Serbian food culture.

- Tourism marketing materials

The corpus analysis has proven that language of tourism advertising relies heavily on English borrowings to enhance promotional effectiveness. Common anglicisms included *special offer*, *early booking*, *all-inclusive*, *city break*, and *last-minute*, as these terms conveyed urgency and exclusivity while appealing to internationally minded consumers. Travel agencies and online booking platforms frequently employ English words and phrases in advertising slogans, loyalty programs, and digital marketing campaigns, reinforcing the globalized nature of tourism discourse. For example:

*18) Reducerile **Early Booking** au început! **Resorturi** pe plaja cu **all inlcusive.***
*19) **Ofertele last minute:** City Break by Traveliana.*
*20) Hotel je **pet friendly.***
*21) **First minute** popust. Usluga na bazi **all inclusive.***

These examples demonstrate the extensive use of anglicisms in tourism marketing, particularly in promotional offers and hospitality terminology. Many of these borrowings appear in their raw English form, reflecting their strong international branding appeal. Their use suggests that these terms are widely understood by the target audience, eliminating the need for translation or adaptation.

Additionally, some phrases incorporate English words into local grammar, such as *First minute popust* and *Hotel je pet friendly*, where English borrowings are seamlessly integrated into Serbian sentence structures. Meanwhile, *Resorturi pe plaja cu all inclusive* and *Usluga na bazi all inclusive* show how the anglicism is retained unchanged, in both Romanian and Serbian contexts. This reliance on English terminology highlights the globalized nature of tourism marketing, where English is used to convey prestige, modernity, and international accessibility.

3.2 Linguistic categorization of anglicisms

Applying Prćić's (2005: 130-134) five-level justification scale, the anglicisms in the corpus were categorized to reflect their degree of necessity in the context of Serbian and Romanian tourism and hospitality discourse.

Fully unjustified anglicisms

Fully unjustified anglicisms are instances where direct equivalents in Serbian or Romanian exist, but the English term is used in its place without a clear reason. These terms are often used due to convenience, familiarity, or the perceived prestige of English, even when a native alternative would suffice. Examples of **fully unjustified anglicisms** in the corpus include:

*22) **Resorturi All** sau **Ultra All Inclusive.***

*23) Usluga na bazi **all inclusive**. (doručak, ručak, večera - švedski sto).*

In these examples the anglicisms *all-inclusive* could easily be replaced by the native Serbian equivalent *sveuključujući* or the Romanian term *totul inclus*. Both these translations express the same notion without the need for the English term. The use of *such anglicisms* has little justification other than for branding or marketing purposes, where English may be considered more globally recognized, especially in tourism-related contexts.

The corpus notes other examples of fully unjustified anglicisms such as: *marketing* instead of *reklama* and *comercializare* or *booking* instead of *rezervacija* and *rezervarea*.

The widespread use of fully unjustified anglicisms in Serbian and Romanian tourism discourse reflects several linguistic and socio-cultural trends. While these English terms have direct and often more suitable native alternatives, they continue to be used for practical reasons, mainly for their global recognizability and association with international branding. In many cases, the English term is adopted because it is already ingrained in the global tourism lexicon, making it easier for international travellers to understand and creating a sense of modernity or prestige.

From a linguistic perspective, these fully unjustified anglicisms raise questions about the balance between preserving the integrity of the native languages and accommodating the globalized influence of English. The use of English in this context is often not driven by necessity, but by a desire to align with global trends and to maintain competitiveness in the tourism market. This phenomenon illustrates how language can be shaped by commercial and marketing imperatives, leading to the unnecessary adoption of English words even when native equivalents would be more appropriate.

Unjustified anglicisms

In the analysis of anglicisms within tourism and hospitality discourse, a significant category involves borrowings that could have been translated into Serbian or Romanian without losing their original meaning. These borrowings are often the result of **marketing practices** or **linguistic convenience**, where English terms are favoured for their global appeal and perceived prestige, even when native equivalents would convey the same idea effectively. For example:

*24) Reduceri **last minute** – descoperă discounturile linii septembrie*

*25) **First minute** popust*

These corpus examples highlight the widespread use of English terms in Romanian tourism discourse, even when direct native equivalents exist. The term *last minute* could be replaced by *poslednja ponuda* and *ultima oferta*, while *first minute* could be translated as *prva ponuda* or *ofertă anticipată*. Despite these alternatives, the English terms persist, reflecting the influence of **global marketing strategies** associated with English in international tourism. The frequent use of these anglicisms shows the preference for English in promotional contexts, likely driven by **brand recognition** and the standardization of terminology across international platforms. This phenomenon is indicative of the **globalization of tourism** and the desire for consistency in advertising materials, where English words are seen as more accessible and appealing to a global audience, even when native equivalents would suffice.

Conditionally justified anglicisms

This category includes instances where the use of English terms is considered justified due to their ability to provide a more concise, recognizable, or universally understood alternative in specific contexts. For example:

*26) In intregul hotel este disponibil acces gratuit la **internet WiFi.***

*27) **WiFi** je omogućen u celom hotelu.*

The above examples illustrate conditionally justified anglicisms, where the use of English terms, despite the availability of native equivalents, is deemed acceptable due to specific contextual factors. In both cases, the term *WiFi* is favoured over the more literal native translations, such as *internet fără fir* or *bežični internet*, because it provides a more concise, recognizable, and universally understood reference, particularly in the context of global tourism. The widespread use of conditionally justified anglicisms in marketing and hospitality services makes it more efficient for both service providers and customers, as it instantly conveys the intended message without the need for additional explanation.

This reliance on anglicisms reflects a broader trend in the tourism sector, where globalization and standardization of services often necessitate the use of English terms to ensure clarity and consistency across international markets. Therefore, while native alternatives exist, the use of conditionally justified anglicisms in this context is considered justifiable, as it caters to the expectations of an international audience familiar with the term.

Justified anglicisms

Justified anglicisms introduce nuanced meanings absent from native lexicons. The corpus revealed justified anglicisms (about 7%) as being difficult to translate with a short phrase or a clause. For instance:

28) Sala de conferinte este dotata cu ecran proiectie, videoproiector, ***laptop,*** *DVD player.*
29) Biznis centar nudi ***laptopove*** *gostima.*

The use of the word *laptop* in both Romanian and Serbian serves as a **justified anglicism** due to its global recognition. While both languages have native equivalents (e.g., *calculatoare portabile* in Romanian or *prenosni računar* in Serbian), the term *laptop* is widely accepted and commonly used across various industries, especially in business and technology sectors, due to its concise and unambiguous nature. Replacing *laptop* with a longer native phrase would not only be less efficient but could also cause confusion in international settings where the English term is universally recognized.

These examples show that, in certain contexts, **anglicisms** are **justified** because they offer concise, specific meanings that are difficult to replicate with native terms. They are particularly useful in the **tourism, hospitality, and business sectors**, where **globalization** demands standardized terminology that can be universally understood. As a result, using English words in these contexts is often seen as more **efficient** and **pragmatic**, allowing clear communication and reducing ambiguity.

Fully justified anglicisms

Fully justified anglicisms address lexical gaps with no direct Serbian or Romanian equivalent.

30) Centru ***Spa, Wellness & Fitness***
31) U sklopu hotela je i ***spa*** *centar…* ***fitness*** *sala,* ***wellness*** *caffe.*

The examples provided fall under the category of fully justified anglicisms as they represent lexical gaps in both Serbian and Romanian, where no direct equivalent fully captures the intended meaning of the English terms. Namely, the words *spa* and *wellness* are used because they refer to a specific concept that has no concise, universally accepted native equivalent. While words like Serbian *banja* or Romanian *băi* (*spa*) or *zdravlje* / *bunăstare* (*well-being*) might convey some elements of these notions, they fail to encompass the full scope of modern, international *spa* and *wellness* experiences, which typically involve a combination of relaxation, fitness, and holistic health services. Replacing *spa* with *banja / băi* or *wellness* with *zdravlje / bunăstare* would additionally require longer, descriptive phrases that do not encapsulate the complete meaning, such as *wellness pentru îmbunătățirea stării fizice și mentale* (wellness for improving physical and mental state), which would not be as **efficient** or **recognizable** to an international audience. Similarly, in the Serbian example, *spa centar* and terms like *fitness sala* and *wellness caffe* are understood globally and signify a specific type of service offering that goes beyond simple health or fitness facilities. Thus, these terms are fully justified anglicisms because they introduce new concepts that would otherwise require complex explanations or lose their precise meaning in translation.

A comparative analysis of the anglicisms adaptation revealed that while Serbian and Romanian exhibited similar patterns of anglicism adoption, Romanian displayed a higher percentage of direct borrowings.

3.3 Degree of adaptation

The extent to which anglicisms were adapted into the native language varied between Serbian and Romanian. Serbian demonstrated a tendency for phonological and morphological modifications, which aligns with Serbian spelling conventions. As seen in the following example:

*32) internet Wi-Fi (besplatno), **room service** (plaća se)*
*33) parking (do popune mesta), **room servise**,*
*34) … recepcija 24h, **rum servis**, 5 restorana…*

Such examples indicate the uncertainty or even ignorance of the user of the anglicisms especially since there is a Serbian translational equivalent: *usluživanje u sobi* which could have been used instead.

In contrast, Romanian anglicisms largely retained their original English forms, indicating a higher level of direct linguistic borrowing and less phonetic integration. However, there were instances of morphological modification in the Romanian part of the corpus a well:

*35) Alege un resort cu **Aquapark***
*36) **Aquaparcurile** cu multe tobogane pentru toate vârstele.*
*37) piscine pentru copii, **Aqua Park***

Such examples indicate the uncertainty or even unawareness of the user of the anglicisms especially since there are Romanian translational equivalents which could have been used instead and it is found on the same website:

*38) **Parcul acvatic** al hotelului cu 22 tobogane*

This inconsistency may stem from several factors, including the absence of standardized terminology, varying levels of English proficiency among content creators, and the influence of local phonetic adaptation. Such discrepancies can impact brand identity and professional credibility, potentially causing confusion among international visitors and diminishing the overall perception of service quality.

Referring to the degree of adaptation of anglicisms into Serbian and Romanian some similarities and differences can be observed, especially regarding suffixation.

As it has been previously mentioned, the Serbian language is more prone to morphological adaptation of anglicisms mainly because it makes the addition of suffixes easier and more natural. For example: *stu**dia**, stud**ija**, jacuzzij**em**, WiFi**-jem**, suit**ova**, snowborder**a***. As it can be seen form these examples, the analysis of the corpus has revealed many discrepancies regarding the actual suffix addition. Namely, in some examples the hyphen has been used (*WiFi**-jem***), in some there has been some degree of morphological alternation after which the suffix has been added (stid**ija**), and in some examples the Serbian suffix has simply been added to the raw anglicisms in its original English form (*jacuzzij**em**, suit**ova**, snowborder**a***).

In the case of the Romanian language, suffixes have been directly appended to the English form of anglicisms without any modifications: *spa-**uri**, resort**uri**, bar**uri**, souvenir**uri**, suvenir**uri**, discount**urile**, site-**ul**, weekend**uri**.* Instances of morphological alternations were minimal (*suvenir**uri***), which could be attributed to the writer's lack of adherence to English spelling conventions. Additionally, as observed in the Serbian examples, hyphens are employed with anglicisms ending in vowels (*spa-**uri**, site-**ul***).

3.4 Anglicisms integration patterns

The study identified three primary ways in which anglicisms were incorporated into Serbian and Romanian tourism discourse, demonstrating distinct patterns of linguistic adaptation that align with broader theoretical categorizations of anglicisms. These categories: direct borrowings, calques, and hybrid formations, closely intersect with the classification of raw, obvious and hidden anglicisms proposed Prćić (2005:120-123), revealing the varying degrees of integration and visibility of English influence in the local languages.

Direct borrowings as raw anglicisms

These include terms like *wellness*, *spa, first minute, business class*, *check in, check out, room service* and *all-inclusive*, which were adopted without modification and are instantly recognizable as English-origin words. Such borrowings maintain their original spelling and pronunciation, making them transparent markers of globalization in tourism discourse. The analysis revealed that around 63% of the recorded anglicisms were raw borrowings, meaning they were integrated into the Serbian text without any orthographic or phonological adaptation. The findings indicate that around 85% of the anglicisms in the Romanian corpus are raw, maintaining their original English form without orthographic modifications. However, while some anglicisms show morphological adaptation, all recorded instances follow English pronunciation norms.

As raw anglicisms, they emphasize international prestige and ease of communication but simultaneously diminish the use of native equivalents. Their prevalence in marketing and branding suggests that they function as status symbols, catering to an international audience rather than prioritizing linguistic adaptation.

Calques as obvious anglicisms

Loan translations retain the conceptual structure of the English original while conforming to the grammatical norms of the target language. Despite their native appearance, these calques remain obvious anglicisms due to their direct structural correspondence with English, making their foreign origin easily traceable.

The corpus notes as much as 24% of such examples. In the Romanian language: *teren tenis, teren sport, sala fitness, transfer aeroport-hotel-retur, sistem audio, alarmă fum, restaurant bufet*. Despite the fact that the Romanian translational equivalents do exist and are more often than not used on the same website, most likely to avoid repetition. To point out some spelling alterations: *bufet, sistem*. Translation equivalents of the Romanian obvious anglicisms are as follows: *teren de tenis, teren de sport, sala de gimnastică/sport, transport de la aeroport la hotel și retur, sistem de sunet, alarmă de fum, restaurant cu autoservire*. Similar occurrence can be observed in the Serbian language: *milkšejk, roming, hamburger, vaučer, čekirati, džogirati, lobirati, lajv, pripejd, super, top ponuda, bufet doručak, etc.* Likewise, the Serbian translational equivalents can easily be found on the websites: *pljeskavica, prijaviti se, trčati, zagovarati, direktan prenos / uživo, unapred plaćena usluga, odličan, jako dobar, izuzetan, najbolja ponuda, doručak na bazi švedskog stola.* It is important to point out that some obvious anglicisms are in fact merged into the Serbian language and used without translational equivalent: *milkšejk, roming, vaučer*.

These examples illustrate how loan translations attempt to preserve native linguistic norms while maintaining the structure of the English original. However, their direct correspondence with English makes their borrowed nature evident. Adjusting phrase structures to better align with Serbian and Romanian syntax enhances fluency and consistency while justifying the overt influence of English.

Hybrid formations as hidden anglicisms

These adaptations blend English and native linguistic elements, subtly integrating foreign language influence into local discourse. For example:

39) Bacău ***Fest Monodrame*** *este un eveniment cultural*
40) ***Šekspir festival***

The direct translation in the Serbian example creates an unnatural phrase structure. A more linguistically appropriate adaptation would be to align the event name with Serbian syntax: *Šekspirov festival* or *Festival Šekspirovih dela*. Similarly, in the Romanian example, *Bacău Fest Monodrame*, the phrase structure does not fully align with Romanian linguistic conventions. An interesting curiosity is that a more natural translation can be found on the same website referring to the same cultural event: *Festivalul Monodramei Independente 2024 la Brașov*. This phrasing follows Romanian syntactic norms, demonstrating that a more linguistically appropriate structure is already in use.

This classification reveals the nuanced ways in which globalized tourism discourse shapes local languages. While some terms remain unchanged due to their international appeal, others undergo subtle modifications. The degree of adaptation depends on cultural attitudes toward language preservation, the dominance of anglicisms in tourism branding, and the necessity for linguistic efficiency in cross-cultural communication.

3.5 Generational perceptions of anglicisms in hospitality and tourism marketing

This section examines generational differences in the perception of anglicisms in tourism and hospitality marketing among Romanian and Serbian respondents. The survey was conducted among 200 participants, with 100 native Serbian speakers and 100 native Romanian speakers. Participants included industry professionals, students, and individuals outside the tourism and hospitality sector. The study categorized them into two groups: the older generation (51 and above) and the younger generation (18-50). The objective was to assess their attitudes towards the use of anglicisms in marketing materials, preferences for native vs. borrowed terminology, and how these choices influenced perceptions of authenticity and modernity.

The survey analysis revealed that both Romanian and Serbian respondents demonstrated similar patterns in their attitudes toward anglicisms, with slight variations. Generational differences were evident in both countries, as younger participants were more open to English-language influences, whereas older respondents favoured native terminology.

Namely, among younger participants, 89% of Romanians and 83% of Serbians stated that language plays a crucial role in selecting a travel destination. Additionally, 65% of younger Romanians and 59% of younger Serbians believed that English terminology enhances the modern and international appeal of destinations, while only 14% of older Romanians and 29% of older Serbians shared this perspective. This suggests that language plays a vital role in shaping perceptions of a destination, especially among younger generations who are more likely to be influenced by globalized trends and digital media. Therefore, younger respondents view anglicisms as making a destination seem more modern and international, highlighting the appeal of globalized branding.

Regarding language preferences, 61% of younger Romanians and 57% of younger Serbians favoured a mix of English and their native language in marketing materials, whereas 79% of older Romanians and 87% of older Serbians preferred exclusively native terminology. These results further reinforce the younger generation's openness to English-language marketing, reflecting broader global trends in communication, while the older generation remains more rooted in national identity and cultural authenticity.

The influence of anglicisms on willingness to visit a destination also revealed similarities. While 58% of younger Romanians and 52% of younger Serbians stated that English expressions increased their interest in visiting a location. Conversely, 19% of older Romanians and 21% of older Serbians stated that anglicisms made them less interested in a destination. This difference may indicate that older generations value authenticity more and may feel distanced from destinations that rely too heavily on globalized language.

When asked whether tourism marketing in their country is culturally representative, responses varied across generations. 55% of older Romanians and 58% of older Serbians felt that tourism marketing effectively represents their cultural heritage. However, younger respondents were more likely to perceive an excessive focus on globalized trends, with 23% of Romanians and 24% of Serbians stating that marketing lacks cultural authenticity. These findings indicate a generational gap in perceptions of cultural representation, highlighting the challenge of balancing global appeal with local identity in tourism branding.

The comparative analysis highlights parallel trends in generational attitudes toward anglicisms in tourism marketing. While younger generations in both countries embrace the use of English to enhance international appeal, older generations prioritize the preservation of cultural and linguistic identity. These findings underline the influence of global media and digital platforms on younger generations, making them more receptive to anglicisms in tourism marketing, while older generations value authenticity and cultural identity. Similarly, perspectives on cultural representation in tourism marketing reflect a divide, with younger respondents seeking more emphasis on authenticity and older respondents generally satisfied with current approaches.

These insights underscore the need for tourism marketers to strike a balance between global branding strategies and local cultural representation to appeal to diverse demographic segments.

3.6 Managerial implications: Leveraging corpus and survey analysis for effective tourism marketing strategies

The integration of both corpus analysis and survey analysis enhances the managerial implications of this research by providing a comprehensive understanding of how language use, specifically anglicisms, influences consumer perceptions and decision-making in tourism and hospitality marketing. The corpus analysis examines real-world marketing materials, providing insights into the frequency and context of anglicisms used in tourism advertisements. By analysing these materials, the research uncovers patterns in language use that can help tourism and hospitality managers assess whether their marketing strategies are aligned with consumer expectations and cultural trends. The survey analysis complements this by offering direct feedback from consumers, divided into generational groups, about their attitudes toward anglicisms in tourism marketing. The data reveals that younger generations tend to embrace anglicisms, viewing them as markers of modernity and international appeal, while older generations often associate these terms with a loss of cultural authenticity. This generational divide provides critical insights for managers when designing targeted marketing campaigns.

For younger audiences, incorporating English terms can enhance the global appeal of a destination or service, appealing to their preference for modern, innovative branding. In contrast, older consumers may prefer native language terminology that reflects tradition and cultural authenticity.

By combining the results of both the corpus and survey analyses, tourism and hospitality managers can develop marketing strategies that strike the right balance between international appeal and cultural authenticity. The corpus analysis guides the selection of language that aligns with actual usage in the industry, while the survey analysis provides insights into consumer preferences, enabling managers to craft messages that resonate with diverse demographic groups. This dual approach allows for more informed and targeted marketing, ensuring that language choices are not only linguistically appropriate but also strategically aligned with the evolving needs and expectations of consumers. Ultimately, the findings empower managers to create more engaging, culturally sensitive, and effective marketing materials that drive consumer engagement and enhance brand loyalty.

CONCLUSION

The use of language, particularly anglicisms, in tourism and hospitality plays a crucial role in shaping the tourist experience and the global competitiveness of tourism destinations. Both Serbia and Romania reflect broader linguistic trends where the integration of English terminology is seen as a tool for modernity and international appeal. The use of anglicisms in this context reinforced the globalized nature of hotel, restaurant and tourism operations.

The compiled corpus provides a representative dataset of anglicisms used in Serbian and Romanian tourism and hospitality discourse. The analysis of the corpus has shown that these anglicisms have become an integral part of the promotional language, reflecting the globalized nature of tourism and hospitality marketing and the influence of international trends on local advertising strategies. The inclusion of such linguistic elements in tourism discourse is significant because it reveals how modern, internationalized language has shaped consumer perceptions and marketing in the industry.

This analysis of anglicism usage in Serbian and Romanian tourism discourse reveals key differences in how the two languages incorporate English terms. The corpus research has shown that both languages use anglicisms extensively, reflecting the globalized nature of tourism marketing, but with distinct approaches. Romanian relies more on direct borrowing of raw anglicisms, often preferring them over native equivalents. In contrast, Serbian adapts English terms phonetically and morphologically, somewhat preserving linguistic identity while incorporating global terminology. The research conducted for the purpose of this paper has proven that both languages embrace English forms even when native words exist. However, Serbian is more prone to translation equivalents. Furthermore, the analysis of five-level anglicism justification scale has shown that Romanian tends to favour a broader use of anglicisms, often falling within the un**justified** or **conditionally justified** levels, even when native alternatives exist. In contrast, Serbian is more selective, adopting anglicisms primarily at the **justified** or **fully justified** levels, ensuring that they are necessary or contribute significantly to clarity or global appeal.

The survey results clearly indicate a **generational divide** in perceptions of anglicisms in tourism marketing in both countries. **Younger generations** are more inclined to embrace the use of English in marketing materials, associating them with modernity, global appeal, and innovation. They are more likely to engage with tourism advertisements that incorporate anglicisms and are more influenced by globalized branding. In contrast, the **older generation** of Romanians and Serbians remains more sceptical of anglicisms, favouring the use of native language for authenticity and a stronger cultural connection. These findings suggest that marketers targeting younger consumers in the tourism and hospitality sectors should consider integrating more English terms in their branding and promotional efforts, while also being mindful of the older generation's preference for cultural authenticity.

By combining consumer response data with the analysis of marketing materials, the study offers valuable insights for tourism and hospitality marketers. It helps professionals understand consumer language preferences and design more effective, culturally sensitive strategies, making the research more relevant to the industry. Recommendations include selective adoption of anglicisms, standardization of terminology, and improved translation strategies to preserve linguistic identity while maintaining global competitiveness.

This study provides valuable insights into the evolving language of tourism marketing and the role of anglicisms in shaping consumer perceptions. Future research could explore the long-term effects of anglicisms on cultural identity, language evolution, and marketing effectiveness in the tourism and hospitality industries.

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Cultural Adaptability of Students at the Faculty of International Relations of the Prague University of Economics and Business

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https://doi.org/10.53465/CEECBE.2025.9788022552257.214-223

Abstract: One of the goals of preparing university students at the Faculty of International Relations of the Prague University of Economics is to develop intercultural communication competencies and the ability to adapt to dynamically changing economic and political environments, with a special focus on cultural adaptation. To achieve these goals, elements of intercultural training are incorporated into the compulsory and elective courses, and students also have the opportunity to develop these competencies during their foreign mobilities, international internships, or field internships. This paper discusses the factors of cultural adaptability and their relationship to satisfaction with the stay abroad and the length of this stay. The related phenomena addressed in this paper include the acculturation curve, the role of autonomy, and individualism in young adulthood. The text includes preliminary research on the cultural adaptability test presented in the literature and discusses its possible use as a training tool during lectures or internship supervision.

Keywords: Cultural Adaptability, Young Adulthood, Expatriates

JEL Classification codes: F22, M12, M53

INTRODUCTION

The turbulent changes in the international system currently condition international human resource management. On the one hand, transnational corporations (TNCs) gain a competitive advantage from the effective allocation of resources in a globalized world, utilizing a diverse workforce and having the potential to create their own organizational culture characterized by culturally diverse values, which may differ from the values of the national states in which these TNCs are economically active. On the other hand, international business is influenced by the fourth industrial revolution, with managerial processes increasingly transformed by digitization, artificial intelligence, and virtual and augmented reality. Long-term physical relocations between countries no longer condition entry into foreign cultural environments. It is enough to pass through the reception of an international corporation or join a virtual project team with one click, and a person crosses cultural boundaries without necessarily realizing it.

Society is also changing; considering the generation of young adults, these changes are evident in emphasizing well-being, work-life balance, and the importance of existential topics such as meaningful life. The characteristics of Generation Z intersect with the developmental characteristics of the ontological phase of young adulthood, often resulting in paradoxes such as conspicuous sustainability or succumbing to deceptive tactics of brand-washing, which can be seen in both consumer and organizational behavior.

At the Faculty of International Relations at the Prague University of Economics and Business (FIR VŠE), a wide range of managerial courses, both mandatory and elective, are taught. They aim to prepare students for international human resource management, which includes managing foreign careers, developing intercultural competence, and selecting and managing expatriation. The subject of this article is the factors of successful acculturation, which refers to the process of adapting to a foreign cultural environment. We will focus on both innate personality traits such as temperament and personality characteristics and competencies that can be developed and cultivated through study and training.

1 LITERATURE REVIEW

The aim of the literature review is to map the issues of cultural adaptability and the factors of successful expatriation in textbooks and classical theories of international human resource management. Perlmutter (1969) laid the basis of the theory of international human resource management in his article "Torturous Evolution of the Multinational Corporation," in which he defined the EPG model – namely, ethnocentric, polycentric, and geocentric strategies. The ethnocentric approach in HR management is characterized by the following statement: "the men of home nationality are recruited and trained for key positions everywhere in the world. (Perlmutter, 1969, p. 12)" According to Štrach (2009), such companies are characterized by a high number of expatriates. According to Zadražilová (2017), companies with a polycentric strategy adapt to local conditions, giving the impression of a local company. This complies with Perlmutter's text: "Local people know what is best for them, and the part of the firm which is located in the host country should be as local in identity as possible" (Perlmutter, 1969, p. 12). From an HR perspective, there is an absence of non-nationals in subsidiaries and, conversely, no local managers in senior positions at headquarters (Perlmutter, 1969). According to Štrach (2009), these companies exhibit a lower number of expatriates than ethnocentric firms. In geocentric companies, global solutions to local problems are sought - serving and saturating local consumers and finding markets for local products (Perlmutter, 1969). Managers are encouraged to build a worldwide career (Zadražilová, 2017). Expatriation is characterized by a high number of home and third-country expatriates (Štrach, 2009).

Perlmutter's article concludes with pragmatic implications of the geocentric ideal: "The geocentric enterprise offers an institutional and supranational framework which could conceivably make war less likely, on the assumption that bombing customers, suppliers and employees is in nobody's interest. (Perlmutter, 1969, p. 18)" This pacifist reflection seems very appealing in the context of contemporary war conflicts (in Ukraine and the Middle East). Visionarily, the author also anticipates that tokenism and window dressing are not phenomena of geocentrism but rather a facade for an ethnocentric approach. To achieve the geocentric ideal, it is essential to develop geocentrically oriented managers. Perlmutter (1969) explicitly mentions the need to address the stress that expatriation brings, care for the adaptation of family members, development of language competencies, and overcoming the complex of cultural superiority and discomfort in relation to foreigners.

Perlmutter implies in his text that there are three categories of traits and competencies: stress and change management of expatriate and family members, language skills, and attitudes and prejudices toward foreign cultures. The question remains how professional managerial literature views these assumptions, which of them are considered innate personality traits, practically unaffected by intercultural training, and which personality traits and competencies can be developed within the framework of intercultural preparation. Zadražilová (2017) distinguishes between specific and general criteria for selecting expatriates, with general criteria primarily including skills (such as communication skills, teamwork and self-development skills, and education) and relational-attitudinal personality traits related to moral development and motivation. Among the specific criteria, the author mentions cultural empathy, independence, language competence, adaptability of family members, the predominance of personal motivation over financial incentives, and career growth. In contrast, Štrach (2009, p. 89) states that 25% of expatriates leave the company after repatriation. The author explains that such workers might be perceived as having returned from a relaxing vacation from which they financially profited, and repatriates may then be frustrated by the stagnation of their career development compared to colleagues who had been promoted.

Štrach (2009, p. 86) states that an expatriate should be an extrovert, a person open to new experiences and adventures. Nguyen et al. (2010) conducted a validation study of the CCAI (Cross-Cultural Adaptability Inventory) questionnaire and, to verify construct validity, compared the measurements with the latent variables of the Big Five personality traits. (Big Five traits include extraversion, neuroticism / emotional stability, agreeableness, openness, and conscientiousness.) They failed to confirm the hypothesis that the latent construct Perceptual Acuity was significantly related to extraversion (Nguyen et al., 2010, p. 122). Additionally, they found: "... none of the Big Five personality dimensions were significantly related to the number of international job assignments ...," (Nguyen et al., 2010, p. 126), which they consider as evidence of the discriminant validity of the CCAI questionnaire (Nguyen et al., 2010). The study indicates "that the two CCAI factors of Emotional Resilience and Personal Autonomy became significant correlates with the self-reported number of international job assignments ..." (Nguyen et al., 2010, p. 112). In this section, we can say that the factors mentioned in Czech literature on international management (Štrach, 2009; Zadražilová, 2017) are defined relatively generally and can be misleading (e.g., extraversion as a predictor of successful expatriation). Additionally, as Nguyen et al. (2010) state, few studies thoroughly examine the validity and reliability of the instruments used in intercultural training.

In this section, we can say that the factors mentioned in Czech literature on international management (Štrach, 2009; Zadražilová, 2017) are defined relatively generally and can be misleading (e.g., extraversion as a predictor of successful expatriation). Additionally, as Nguyen et al. state, few studies thoroughly examine the validity and reliability of the instruments used in intercultural training. In the case that extraversion is a predictor of successful expatriation, this claim needs to be supported by research evidence. Since extraversion is an innate temperamental trait, the assertion that an expatriate should be an extrovert (Štrach, 2009) can be demotivating for introverts. First, we need to determine how extraversion (if at all) contributes to successful expatriation and then address potential compensation. We should also keep in mind that extroverted behavior is related to the ontological phase and defense mechanisms. Moreover, not every culture values extraversion.

Additionally, it is important to define what we mean by successful expatriation and how to measure it. Nguyen et al. (2010) tested the correlation between the Big Five factors and the self-reported number of international job assignments. They concluded that this variable may not be a perfect outcome in global assignment training. In the conclusion of this article, the authors proposed that further research should examine other outcomes, such as expatriate performance or adjustment (Nguyen et al., 2010). In the research section of this paper, we examine the relationship between explicit items of the selected Cultural Adaptability Test and satisfaction with the foreign assignment and the length of stay abroad.

In their research, Nguyen et al. (2010) found that Personal Autonomy (CCAI factor) significantly correlates with self-reported numbers on international job assignments. Lester and Dench (2011) demonstrated a positive correlation between autonomy and homonomy ($r=0.51$, $p<0.001$), and thus they confirmed Angyal's holistic concept of these personality traits (1941). Autonomy and interdependence (homonomy) are positively related to coping with stressful situations; Volfová et al. (2023, p. 13) demonstrated that both autonomy and homonomy are positively related to work-life balance. Matysová (2024) points out in her research that students in leadership positions within project teams exhibit greater autonomy. The phenomena of autonomy and interdependence are related in young adulthood to the ontological developmental crisis of intimacy versus isolation and in middle adulthood to the crisis of generativity versus stagnation, which involves the issues of forming relationships and being beneficial to one's offspring or society as a whole (Erikson, 1999; Matysová, 2024).

Štrach (2009) designates early return and unsuccessful repatriation as manifestations of unsuccessful expatriation. Failed repatriation may be related to the underappreciation and underutilization of repatriates' potential. Current research points to another unexploited potential, which is self-initiated expatriation (SIE). Andersen et al. (2019) pointed out that initiative depends on the contexts of expatriation, and these contexts are not reflected in contemporary research, while personal initiative has different effects on working styles. The authors recommend measuring personal initiative in three dimensions: self-starting, proactivity, and persistence. Persistence refers to the ability to overcome obstacles, manage setbacks and failure, and endure in expatriation, even when it is not immediately successful (Andersen et al., 2019). By definition, we can relate this dimension of personal initiative to emotional resilience. Nguyen et al. (2010, p.122) confirmed a positive correlation between the Big Five personality trait of emotional stability and the CCAI latent construct of Emotional Resilience ($r=0.35$, $p < 0.05$). It can, therefore, be assumed that part of emotional resilience is related to innate temperament traits. Managerial literature is again generalizing in this context; for example, Luthans and Doh (2012, p. 505) generalize emotional resilience as physical and emotional health.

Considering three components of personal initiative (Andersen et al., 2019), proactivity means anticipating future problems and hurdles, creating action plans, actively seeking opportunities and information, and eliciting feedback. In a managerial view, these are managerial functions of strategic planning and control. As such, they are a subject of managerial education and development. These assumptions comply with international management textbooks. Luthans and Doh elaborate on the motivational prerequisites for expatriation as follows: "International management experts contend that the candidate also must believe in the importance of the job and even have something of an element of idealism or a sense of mission. (Luthans & Doh, 2012, p. 506)" Štrach (2009) mentions work with feedback – eliciting feedback and its usage.

Managerial literature claims that expatriates who are unhappy at home and who take their expatriation as a strategy of escape are not successful (Luthans & Doh, 2012). Przytula and Strzelec (2017) list diverse motives for expatriation such as enjoying an adventure, excitement, developing an international career, escaping from the current lifestyle, financial motivation, and economic factors. The question is to what extent motives for expatriation can be equated with coping mechanisms, which are part of resilience. An expatriate may want to leave a country where they are unhappy, which does not necessarily mean an inability to adapt. Nevertheless, Selmer and Lauring examined the typological model of self-initiated expatriates, including mercenary, explorer, architect, and refugee reasons types among expatriate academics, in relation to work performance, work effectiveness, and job satisfaction with the following findings: "There were negative associations between Refugee reasons and work performance …, work effectiveness … and job satisfaction... Explorer reasons had a significant positive association with job satisfaction ... Architect reasons had significant positive relationships with work performance … and work effectiveness ... Mercenary reasons did not have a significant association with any of the criterion variables (Selmer & Lauring, 2012, p. 676)" Refugee reasons include unemployment, personal difficulties, escape from a situation, relationships, or experiences in the previous life, discriminatory managerial practices, etc. These findings support statements in managerial literature (Luthans & Doh, 2012; Zadražilová, 2017).

The motivation of refugees and explorers is affective and emotional. Whereas explorers seek excitement and new experiences and want to explore the world, refugees want to escape from the current situation, want something new and are bored with their home country (Selmer & Lauring, 2012). Enthusiasm and excitement are related to the first stage of the acculturation curve, followed by cultural shock. Hofstede et al. (2010) designates the euphoria stage as a honeymoon, the excitement of traveling and seeing new land; it is usually short. Zadražilová (2017) claims cultural shock comes after four months abroad. Przytula and Strzelec (2017) state that SIEs cost the organization less than traditional expatriates. However, they also highlight that SIEs remain an under-researched area in international human resource management.

2 METHODOLOGY

The data were gathered during the summer semester of the 2024/2025 academic year in a compulsory course that includes a topic on international human resource management. The specific timespan of data collection was from the 27th of November to the 28th of November 2024. Students were asked to complete questionnaires, including the Cultural Adaptability Test (Morgensternová et al., 2007), two open-ended questions (about satisfaction with and duration of their stays abroad), and two demographic questions (gender and age). 105 questionnaires were collected from 5 seminars, comprising 37 men and 68 women. The age of the respondents ranged from 21 to 25 years. The average age of the student was 22.72 (SD=0.92). These frequencies align with the typical distribution in the study programs at the faculty (Matysová, 2017). Considering nationalities, the majority was Czech.

The research aims to examine the Cultural Adaptability Test with the exploratory factor analysis (EFA) method. The test comprises 21 items consisting of contrasting statements; respondents select their answers using a five-point Likert scale. One question explicitly addressing mental health was removed from the test. (The test item reads verbatim: I consider myself a mentally unstable person); the rationale for removing such an item was based on the internal rules of the academic team teaching the compulsory course, and this item was evaluated as politically incorrect. Altogether, 20 questions from the following five areas were used: A) long-term experiences with foreign cultures (questions A1, A2, A3); B) emotional pleasure associated with foreign cultures (questions B1, B2, B3); C) past experiences similar to culture shock (questions C1, C2, C3); D) personality traits such as agreeableness, conscientiousness, and perceived meaningful life (questions D1, D2, D3, D4, D5, D6); E) mental health (questions E1, E2, E3, E4, E5).

In addition to the cultural adaptability test, students were asked to evaluate their satisfaction with their stay abroad and the duration of their stay in the form of two open-ended questions. The format of open-ended questions was chosen to evoke a spontaneous feeling associated with exchange mobility or international internship. Most of these mobilities and internships do not last more than five months, which coincides with the first stage of acculturation, the honeymoon phase. Therefore, it was assumed that the responses would predominantly reflect positive emotions, which was eventually proved. Prevailing responses were positive, denoting degrees of satisfaction or mixed emotions. However, negative feelings were indicated with a simple word, such as negative or dissatisfied. Responses about satisfaction were therefore coded on a scale of 0 (dissatisfied or other negative comments), 1 (mixed or neutral comments), 2 (satisfied, fairly satisfied, somewhat satisfied), and 3 (very satisfied, enthusiastic). The students were also asked about the duration of their stays abroad during their studies, with responses coded and converted to an ordinal scale: 0 (did not go abroad), 1 (up to 3 months), 2 (4-5 months), 3 (6 months to 2 years), 4 (more than 2 years). These asymmetric intervals coincide with stages of the acculturation curve – honeymoon (euphoria), cultural shock, acculturation, and stable state (Hofstede et al., 2010; Zadražilová, 2017). The questions were intentionally open-ended to explore students' international experience. Longer stays relate to foreign students enrolled in Czech study programs. Since this is preliminary research, these questions are exploratory and are not the primary focus of this research.

3 RESULTS AND DISCUSSION

Exploratory Factor Analysis (EFA) was used for the Cultural Adaptability Test. Initially, the Kaiser-Meyer-Olkin (KMO) criterion was applied to assess the adequacy of the sample, resulting in the exclusion of the manifest variable D3, which had an MSA (Measure of Sampling Adequacy) of 0.463. In question D3, the majority of students either strongly agreed (1) or agreed (2) with the statement: Every human culture creates its own rules and behaviors, with an average answer of 1.94 (SD=0.84). The low variability of the responses to item D3 implies its low contribution to the diagnostic purpose of the instrument concerning the tested population. The high D3 rating might be interpreted as corresponding with the field of study and aligning with one of the main goals of the Faculty of International Relations, which is internationalization. Recognizing cultural differences is an essential prerequisite for this goal. In the case of different populations (such as students studying at another faculty, the general population of TNCs' employees, etc.), the high awareness of cultural specifics is not to be automatically assumed.

Tab. 1 EFA Adequacy after the removal of D3 (n=105)

KMO	**MSA**
Overall MSA	0.712
A1	0.706
A2	0.553
A3	0.744
B1	0.594
B2	0.743
B3	0.800
C1	0.674
C2	0.827
C3	0.733

KMO	**MSA**
D1	0.805
D2	0.660
D4	0.661
D5	0.683
D6	0.703
E1	0.563
E2	0.783
E3	0.683
E4	0.692
E5	0.715

Bartlett´s test

X^2	**Df**	**p**
434.095	171.000	< .001

Source: own research

After excluding item D3, the overall MSA increased from 0.703 to 0.712, as seen in Table 1. Additionally, Bartlett's test was significant, which supports the use of exploratory factor analysis. Horn's parallel analysis was applied for factor estimation, and after interpreting the corresponding scree plot, two factors were identified. This contradicts the fundamental concept of the analysed cultural adaptability test, where the authors hypothesized five constructs (respectively factors), which can be seen from the items' non-alphabetical order. The following Table 2 displays the corresponding factor loadings and their uniqueness. For clarity, the order of items is chosen based on the magnitude of the factor loadings as they relate to the two factors (in bold).

Tab. 2 Factor Loadings (n=105)

	Factor 1	Factor 2	Uniqueness
B2	0.707	-0.010	0.507
A1	0.705	-0.398	0.620
D1	0.553	0.107	0.625
A2	0.473	-0.184	0.827
C2	0.473	0.146	0.687
C3	0.449	0.034	0.782
D2	-0.012	0.505	0.751
D5	-0.102	0.489	0.800
E3	-0.130	0.455	0.834
E4	-0.024	0.442	0.814
D4	0.105	0.400	0.788
A3	0.304	0.364	0.667
B1	0.199	0.163	0.901
B3	0.062	0.399	0.812
C1	0.248	0.107	0.901
D6	0.268	0.257	0.794
E1	0.008	0.384	0.849
E2	0.341	0.390	0.601
E5	-0.062	0.376	0.878

Source: own research

The applied rotation method is Promax; both factors are correlated (r=0.49). Table 2 shows factor loadings higher than 0.40 in bold, which can be considered sufficiently strong factor loadings. The EFA revealed two latent variables (two factors); the first one including the following manifested variables B2, A1, D1, A2, C2, and C3; the second one including D2, D5, E3, E4, and D4. The uniqueness of these selected 11 manifested variables does not exceed 0.9, which can be considered satisfactory. As the remaining eight items (manifested variables) have weak factor loadings, they are not considered in further analysis.

Six items of the first factor (B2, A1, D1, A2, C2, C3) encompass positive experiences with foreign cultures, change, and openness towards foreign cultures and toward people in general. Cronbach's alpha for this latent variable is 0,70 (McDonald's ω 0,70). Five items of the second factor (D2, D5, E3, E4, D4) suggest that the individual has well-developed abilities in personal growth, conscientiousness, practical thinking, social adaptability, and respect for the autonomy of others. Cronbach's alpha for this latent variable is only 0,52 (McDonald's ω 0,52). To discuss the possible usage of the Cultural Adaptability Test, we must conclude that the originally proclaimed five latent constructs (latent variables A, B, C, D, E) were not identified with EFA. However, the first factor indicating openness to people and change with acceptable reliability (α=0,70) can be used to develop a new cultural adaptability test.

The data were further analysed with Pearson's correlations. Table 3 shows those items from the Cultural Adaptability that significantly correlated with the length of stay and satisfaction with the international experience.

Tab. 3 Pearson's Correlations (n=105)

Variable		Satisfaction		Length		B2		B3		C2		E2	E3
1. Satisfaction	N	—											
	Pearson's r	—											
	p-value	—											
2. Length	N			—									
	Pearson's r	-0.163		—									
	p-value	0.295		—									
3. B2	n	55				—							
	Pearson's r	-0.451	***	-0.231	*	—							
	p-value	< .001		0.026		—							
4. B3	n	55				105		—					
	Pearson's r	-0.382	**	-0.278	**	0.118		—					
	p-value	0.004		0.007		0.232		—					
5. C2	n	55				105		105		—			
	Pearson's r	-0.159		-0.230	*	0.391	***	0.214	*	—			
	p-value	0.247		0.027		< .001		0.028		—			
6. E2	n	55				105		105		105		—	
	Pearson's r	-0.208		-0.240	*	0.281	**	0.190		0.282	**	—	
	p-value	0.128		0.020		0.004		0.052		0.004		—	
7. E3	n	55				105		105		105		105	—
	Pearson's r	-0.276	*	0.071		0.142		0.093		0.168		0.077	—
	p-value	0.041		0.497		0.147		0.347		0.087		0.436	—
* p < .05, ** p < .01, *** p < .001													

Source: own research

The table shows that 55 respondents participated in a stay abroad and reported satisfaction with the stay. Items B2 and B3 are the most interesting, in this regard; both relate to positive associations with a foreign cultural environment. B2 item of the Cultural Adaptability test reads verbatim: When I think of a long-term stay abroad, I imagine it more as an interesting challenge rather than an unacceptable problem. B3 item of the Cultural Adaptability Test reads verbatim: I perceive the words Mokele mbembe as pleasantly exotic rather than quite unpleasant. The correlation between B2, B3 and satisfaction can be interpreted in compliance with the strategy of expatriation. In the theoretical section, we have mentioned the typological model of self-initiated expatriates, including mercenary, explorer, architect, and refugee types. Selmer and Lauring (2012) found a significant association between explorer reasons (challenge, adventure, new experiences, etc.) for academic expatriation and job satisfaction. Similarly, in our research, satisfaction with the exchange mobility or international internship is correlated with challenge and exotic associations. Our research thus indicates that explorer reasons are predictors of satisfaction with international mobility or internship in the FIR VŠE students' population.

CONCLUSION

The theoretical and research part of this paper could serve as a good starting point for developing a cultural adaptability test aimed at students of the Faculty of International Relations. The research part demonstrated the unsuitability of the test from the intercultural psychology textbook; however, two factors were identified that, along with conclusions from scientific articles, can guide the creation of test items. The Cultural Adaptability Test's originally proposed five latent constructs, which were not identified in our research using exploratory factor analysis. The first revealed factor, which indicates openness to people and change and has acceptable reliability (α=0.70), can be used as a unique construct in a new cultural adaptability instrument. Our research shows that satisfaction with exchange mobility or international internships correlates with challenges and exotic word associations, which coincides with explorer reasons that predict satisfaction with expatriation.

International student stays are a specific type of foreign stay that, on the one hand, simulate expatriation but, on the other hand, differ significantly from expatriation in many ways. Students' international mobilities and internships often last one semester, which means they overlap with the first stage of acculturation. The honeymoon phase might lead to misinterpretation of the stay abroad and can strengthen self-efficacy. On the one hand, the effects of self-fulfilling prophecies in emotional experiences related to future careers abroad can be positive. On the other hand, it is still necessary to prepare students for culture shock as a normal phase of acculturation abroad. Additionally, the commonly cited acculturation curve may not accurately reflect the experiences of self-initiated, especially explorers, who might experience prolonged euphoria. SIE is a relatively new phenomenon with unexploited potential, whereas the acculturation curve, considering its origin, is to be rather assumed as the development of assigned expatriates' acculturation. The differentiation between the acculturation of SIEs and assigned expatriates might be the subject of further research.

The factors discussed in Czech literature on international management, such as extraversion and mental health, are often defined too generally and can be misleading. Very few studies thoroughly examine the validity and reliability of instruments used in intercultural training, particularly their predictive validity. The literature review highlights studies assessing successful expatriation through variables such as job satisfaction, work performance, work effectiveness, and international job assignments. Managerial literature identifies early return and unsuccessful repatriation as signs of failed expatriation. Further research could also examine the analogies of these variables in the academic and study context.

ACKNOWLEDGEMENT

Many thanks belong to all students for their active participation in the courses.

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Emotional Intelligence in Sustainable Entrepreneurship: Bridging Generations and Cultures

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https://doi.org/10.53465/CEECBE.2025.9788022552257.224-234

Abstract: Emotional Intelligence (EI) is a critical skill that bridges the diversity of cultures and generations of entrepreneurs to achieve common goals. Project teams built on diversity have tremendous synergistic potential. The study aims to clarify the understanding of the main components of entrepreneurial EI and to identify the most important components for enhancing collaboration in entrepreneurship at the stage of team formation. The systematic literature review allows the combination of the latest knowledge in the field of psychology and management. It reveals the need to create a systematic approach for developing entrepreneurial EI in the new conditions of digitalisation and globalisation. The study characterises the main components of entrepreneurial EI, which is the basis for developing further EI tools for entrepreneurs.

Keywords: Emotional Intelligence, Entrepreneurs, Competencies, Model

JEL Classification codes: M12, M14, M54

INTRODUCTION

In the context of globalisation, distances are shrinking, and communication barriers are rapidly decreasing. Digital technologies offer new opportunities for effective collaboration. Artificial intelligence significantly simplifies many routine and technical processes. In the light of new opportunities, a more subtle aspect of mutual understanding between people, members of teams and associations is becoming relevant. Mutual understanding, building trusting relationships, loyalty, and empathy are becoming bottlenecks in the rapid development of entrepreneurship. Building and maintaining effective communications gives entrepreneurs a competitive advantage through easy access to information and technologies. Effective cross-generational and cross-cultural collaborations are gaining relevance (Altınay et al., 2020). Combining different team members' skills, knowledge, and experience has great potential (Farelo & Gómez, 2021) and can create positive synergies. Collaboration of representatives of different generations with different beliefs, experiences, knowledge, values, and approaches to professional activities is a promising direction for sustainable entrepreneurship development. Factors from one generation can block negative factors for another generation and lead to positive synergy (Perez-Encinas et al., 2021). EI plays a key role in understanding and combining differences and potentials. EI cannot be replaced by artificial intelligence and is an inseparable and key asset (property) of entrepreneurs.

The most popular understanding of EI is the capacity to recognise our feelings and those of others, motivate ourselves, and manage emotions effectively in ourselves and others (Goleman, 1995). EI facilitates the open exchange of knowledge, experience, ideas, and mutual support. EI helps unite different generations (Farelo & Gómez, 2021) and nationalities to achieve a common goal. EI facilitates the implementation of agreements, which is a key factor in developing any society, organisation, or team. EI enables the creation of reliable business relationships, facilitates the realisation of projects and innovative ideas and contributes to effective team building and leadership. Meta-analysis of the factors of successful entrepreneurship has led to the conclusion that it is not so much mental ability but the EI of entrepreneurs that is crucial (Allen et al., 2021). EI allows them to be successful in business activities and leads to increased sales and customer loyalty (Bayighomog & Arasli, 2022; Zhang & Adegbola, 2022). The entrepreneurial EI also contributes to other social and economic effects.

The development of cross-generational and cross-cultural entrepreneurial EI is an additional resource in the era of globalisation and digitalisation, as it contributes to sustainable entrepreneurship in general and reaching the Sustainable Development Goals (United Nations, 2015).

We found a lack of methodological basis for entrepreneurial EI. Current studies emphasise the role of self-awareness for entrepreneurial success (Crespí et al., 2022), the role of self-awareness, self-regulation, social-awareness and social skill in entrepreneurship (Chien-Chi C, 2020), but we did not find a clear understanding of these EI definitions in entrepreneurship.

Combining the latest research in psychology and management can help clarify the approaches to developing entrepreneurial EI, considering the specifics of one's professional activity.

This article aims to characterise the components of the 4-component instrumental model of entrepreneurial EI development (4EIE Model) and identify priority components for strengthening collaboration at its initial stage in entrepreneurship.

Tasks:

- Characterise the components of the 4EIE Model, considering the key entrepreneurial competencies.
- Identify the key competencies of the entrepreneurial EI at the forming stage of teams.
- Identify tools for developing key competencies of entrepreneurial EI at the forming stage of teams.

The study focuses on the forming stage of cross-generational and cross-cultural teams, as the entrepreneurial environment is becoming increasingly dynamic and flexible. Successful collaboration is becoming a major competitive advantage. More and more often in entrepreneurship, project teams are created to solve a specific problem quickly. This increases the demands on the adaptability of entrepreneurs at the initial stage of collaboration.

1 LITERATURE REVIEW

Psychologists' and biologists' increased interest in EI is due to personal fulfilment, success, leadership, and positive relationships. Psychologists Mayer and Salovey in 1990 described four 'branches' of EI: (1) identifying emotions on a nonverbal level, (2) using emotions to guide cognitive thinking, (3) understanding the information emotions convey and the actions emotions generate, and (4) regulating one's emotions for personal benefit and the common good.

EI was popularised by the publication of journalist Goleman, who claimed that IQ explains only 20%of success in life, and 80% of success is explained by EI (Goleman, 1995). Between 1990 and 2006, the study of EI became a coherent and integrative approach to the relationship between emotions and reasoning (Fernández-Berrocal & Extremera, 2006).

To date, three fundamental models of EI are generally recognised in the field of science: the EI ability model by Mayer and Salovey (Mayer & Salovey, 1997; Brackett & Salovey, 2006), Bar-On's emotional-social intelligence model (Bar-On, 2005), and the emotional competencies model focused on the workplace (Cherniss & Goleman, 2001).

The EI ability-based model by Mayer and Salovey

The Mayer and Salovey model of mental abilities is considered the most fundamental, as it is generated from the analysis of the most significant number of theoretical studies and is supported by empirical data from basic and applied areas (Matthews et al., 2002). In 1997, scientists formulated a more precise definition of EI: "EI involves the ability to perceive accurately, appraise, and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth" (Mayer & Salovey, 1997, p. 10). The authors developed self-reported measures, such as the MSCEIT (Mayer-Salovey-Caruso Emotional Intelligence Test) (Mayer, Salovey, & Caruso, 2002). This instrument evaluates several key emotional competencies, including the ability to recognise emotions in facial expressions, images, and abstract drawings; the capacity to integrate emotions into cognitive processes and decision-making; the understanding of both simple and complex emotions, their combinations, and shifts; and the skill to manage and regulate one's own emotions as well as those of others.

Bar-On's emotional-social intelligence model

Bar-On expanded on Mayer and Saloway's approach to EI. He stated that emotional-social intelligence is a cross-section of interrelated emotional and social competencies, skills and facilitators that determine how effectively we understand and express ourselves, understand others and relate with them, and cope with daily demands (Bar-On, 2005).

Bar-On has shaped knowledge in which emotional and personality traits are interrelated, namely, emotional and social intelligence. His model looks more complex than Mayer and Saloway's EI Model. It comprises five high-level factors, which are subdivided into 15 subfactors: (1) Intrapersonal Skills refer to the ability to be aware and understand emotions, feelings, and ideas in the self (subfactors: Self Regard, Emotional Self Awareness, Assertiveness, Independence, Self-Actualization); (2) Interpersonal Skills refer to the ability of being aware and understanding emotions, feelings, and ideas in the others (subfactors: Empathy, Social Responsibility, and Interpersonal Relationship; (3) Adaptability refers to the ability of being open to change our feelings depending on the situations, (subfactors: Reality-Testing, Flexibility, and Problem-Solving; (4) Stress Management refers to the ability to cope with stress and control own's emotions (subfactors: Stress Tolerance and Impulse Control; and lastly, (5) General Mood refers to the ability of feeling and expressing positive emotions, and being optimistic, (subfactors: Optimism and Happiness) (Bar-On, 2005).

The author proposed a self-reported measure comprising 133 items of EI (EQ-I) (Bar-On, 1997) and Multi-Health System (MHS), which includes interviews, questionnaires, self-report measures, and others. His questionnaire has been widely used and has contributed to the further study of EI (Bar-On, 2000).

Goleman's model of EI: a model of competencies focused on the workplace

The value of Goleman's research lies in the orientation of EI in the workplace and the subsequent adaptation of the model to the actual conditions of the organisation. In his first book (Goleman, 1995), Goleman proposed a model of five elements. Emotional self-awareness involves recognising one's emotional state at any moment and comprehending the influence of these emotions on others. Self-regulation entails modulating or redirecting one's emotions and anticipating potential consequences before acting impulsively. Motivation leverages emotional factors to drive goal achievement, foster enjoyment in learning, and enhance perseverance in the face of adversity. Empathy involves perceiving and understanding the emotional experiences of others. Social skills encompass managing interpersonal relationships, inspiring others, and eliciting their desired responses.

However, Goleman later proposed an updated model adapted to the work environment based on the results of research on the competencies of successful employees conducted in hundreds of organisations. The model is based on several competencies characteristic of the most successful employees (Cherniss & Goleman, 2001). The updated Goleman model presents four interrelated essential dimensions subdivided into 20 competencies.

The Emotional Competence Inventory 2.0 (ECI 2.0) is a tool designed to assess Goleman's EI model, utilising the 360º feedback methodology. This instrument has demonstrated validity and reliability (Boyatzis et al., 2000; Sala, 2002). Developed based on Boyatzis' earlier measures, the ECI is specifically tailored for application in workplace and organisational contexts. It comprises 110 items, with at least three items allocated to evaluate each competency. The ECI employs two modes of assessment: self-assessment, where individuals rate their competencies, and external assessment, conducted by colleagues or supervisors.

Despite the long-term dynamism of EI research, interest in EI has not disappeared. The emergence of the concepts of other hot intelligences, such as personal and social, and the deep interconnectedness between different types of intelligence sometimes blur the boundaries of EI (Mayer et al., 2016). At the same time, EI research is becoming more subject-oriented and interdisciplinary.

One key issue is research on the cultural specificities of EI (Fernández-Berrocal et al.,2016). It is assumed that there are differences in emotional skills across cultures. Questions arise about the relationship between cultural aspects and an individual's ability to perceive, understand, regulate emotions, and adapt to society.

Today, the founders of EI (Mayer et al., 2016), revising and adding to their research, note the importance of focusing on the specifics of the practical application of EI. Indeed, the EI of the same person can manifest itself differently in professional activity and everyday domestic conditions. Therefore, it should also be measured differently. In entrepreneurship, it should be measured by the ability to solve professional tasks despite the difficulties and constant adaptation to the competitive environment. Before measuring EI in entrepreneurship, it is necessary to understand the key indicators to be assessed. For this purpose, it is important to clearly define the components of the entrepreneurial EI based on the synthesis of modern knowledge of psychology and management.

2 METHODOLOGY

For the literature review, we conducted a systematic search in Scopus and Web of Science databases using the keywords "Entrepreneurial Competencies", "Self-Awareness", "Self-Management", "Social Awareness", and "Relationship Management". Based on quantitative citations, we selected the most significant EI studies in psychology, management, business, entrepreneurship, and leadership. The results were synthesised using systematic analysis to identify the relationship between the competencies of entrepreneurs in European countries and the underlying concepts of EI.

A systematic literature analysis in psychology and management identified a lack of a methodological framework for developing entrepreneurs' EI. With the help of content and thematic analysis, a literature review of elements of popular EI models that could be used to explain the components of entrepreneurial EI was conducted. A model that is as close to the work environment as possible, namely the latest version of the Goleman model (Cherniss & Goleman, 2001) and the Entrepreneurship Competence Framework (known as EntreComp) for the development of entrepreneurial skills (Bacigalupo et al., 2016, p.6) were taken as the basis for the study. EntreComp is the basis for developing entrepreneurship education by the European Commission. EntreComp contains the 15 most important competencies of entrepreneurs in European countries. The 4EI Model for developing EI in business (Mikuš et al., 2022) was also considered one of the closest models to entrepreneurship.

We understand entrepreneurship as 'when you act upon opportunities and ideas and transform them into value for others. The created value can be financial, cultural, or social (FFE-YE, 2012). The primary entrepreneurial skills are entrepreneurial passion, teamwork skills, collaborative attitude, willingness to build trust, open-mindedness, passion, striving for long-term goals, self-determination, conscientiousness, intergenerational reflection, resilience, empathy, responsibility, analytical thinking, willingness to be trained, and cultural awareness (Labanauskaitė et al.,2021; Lojda et al., 2021; Perez-Encinas et al., 2021). However, generally, it can be said that the above-mentioned skills are already reflected in the early formation and active use of EntreComp.

3 RESULTS AND DISCUSSION

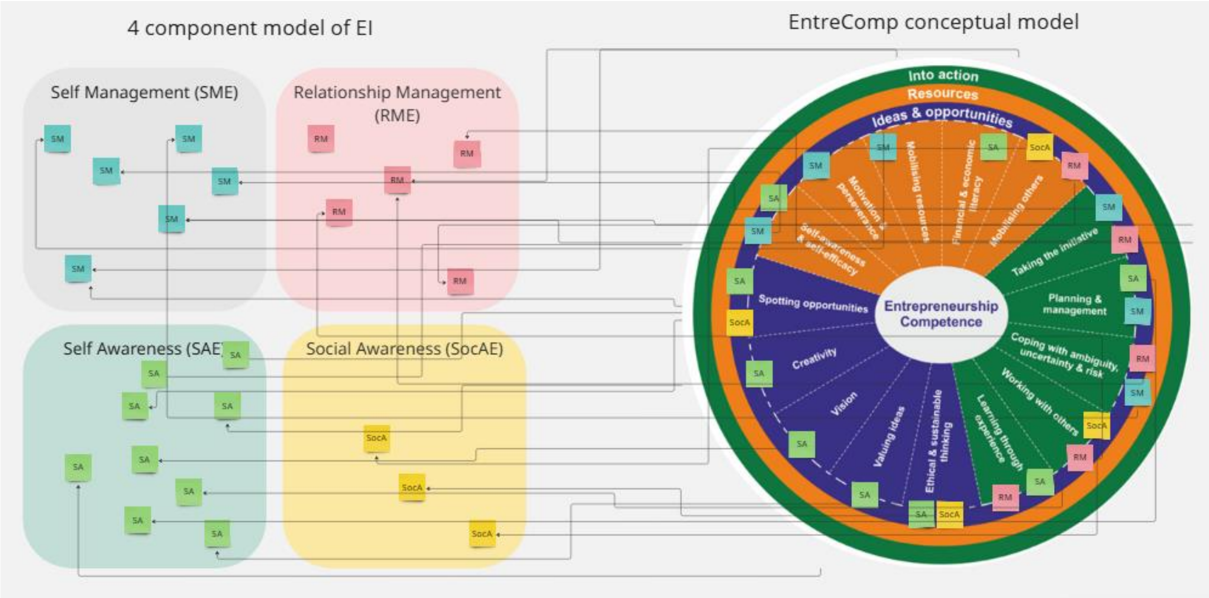
To achieve the goal, several research tasks were realised. First, the components of the entrepreneurial EI were characterised based on the synthesis of knowledge about EI and EntreComp competencies.

3.1 Components of the 4EIE Model

The latest version of D. Goleman's EI Model, which contains four components (Self-Awareness, Self-Management, Social Awareness, and Relationship Management), was chosen as a basis. Figure 1 shows the links identified between the four components of the EI model and EntreComp competencies. EntreComp offers a tool to develop the entrepreneurial capacity of European citizens and organisations. It contains 15 competencies divided into three areas: 'Ideas and opportunities', 'Resources' and 'Into Action'.

Thus, by synthesis, the understanding of the components of the entrepreneurial EI was clarified, and four components were proposed as an instrumental Model of the entrepreneurial EI development (4EIE Model). The 4EIE Model consists of four components: Self-Awareness of entrepreneurs (SAE), Self-Management of entrepreneurs (SME), Social Awareness of entrepreneurs (SocAE), and Relationship Management of entrepreneurs (RME).

Fig. 1 The relationship between the components of EI and the EntreComp conceptual model



Source: own elaboration using EntreComp conceptual model (Bacigalupo et al., 2016, p.6)

We have identified links between all EntreComp conceptual model competencies and EI components (Self-Awareness (SA), Self-Management (SM), Social Awareness (SocA), and Relationship Management (RM). The highest number of entrepreneurs' competencies is in the Self-Awareness domain, and the lowest is in the Social Awareness domain. This suggests that Self-Awareness is an important starting point for building the entrepreneurial EI. SAE is the first component of the 4EIE Model and is therefore formed first. SAE can be more easily formed by theoretical training, which is quite realistic in universities.

Based on the revealed interrelationships, Table 1 further specifies the understanding of four key components of the entrepreneurial EI.

Tab. 1 Characteristics of the entrepreneurial EI components

EI component	**EI component's characteristics**	**Entrepreneurial competencies that EI develops**	**Characteristics of the entrepreneurial EI component**
Self-Awareness	SA reflects the importance of recognising one's feelings and how they affect one's performance. SA includes competencies such as emotional self-awareness, accurate self-assessment, and self-confidence (Cherniss & Goleman, 2001). SA is the ability to perceive, express, and reflect on one's emotional states, which is mediated by neural pathways connecting the prefrontal cortex, verbal cortex, amygdala, and visceral regions (Damasio, 1994). SA is the ability to recognise emotions, prejudices, and motives to be better prepared	Spotting opportunities Creativity Vision Valuing ideas Ethical and sustainable thinking Self-awareness and self-efficacy Financial and economic literacy Learning through experience	SAE is the ability to identify opportunities for creating value, generate new ideas, think strategically, analyse, plan and forecast based on understanding one's motives, behaviours, weaknesses and strengths.

EI component	EI component's characteristics	Entrepreneurial competencies that EI develops	Characteristics of the entrepreneurial EI component
	for the challenges of the market environment, understanding the needs of customers and the motivations of stakeholders (Pruzan, 2001). SA is the ability to understand one's emotions, how they influence one's behaviour, and their effect on others (Bratton et al., 2011).	Planning and management	
Self-Management	SM is the ability to regulate distressing effects like anxiety and anger and to inhibit emotional impulsivity. SM includes competencies such as self-control, trustworthiness, conscientiousness, adaptability, achievement drive, and initiative (Cherniss & Goleman, 2001). SM includes competencies: Effectively managing others' emotions to achieve a desired outcome. Effectively managing one's own emotions to achieve a desired outcome. Evaluating strategies to maintain, reduce, or intensify an emotional response. Monitoring emotional reactions to determine their reasonableness. Engaging with emotions if they are helpful; disengaging if not. Staying open to pleasant and unpleasant feelings, as needed, and to the information they convey (Mayer et al., 2016).	Self-awareness and self-efficacy Mobilising resources Motivation and perseverance Taking the initiative Planning and management Coping with uncertainty, ambiguity, and risk	SME is the ability to control one's behaviour to achieve one's goals, to adapt, to take responsibility, be motivated, use time and resources effectively under conditions of risk and uncertainty.
Social Awareness	SocA allows people to be conscious of their environment and how their actions influence and are influenced by the sentiments and emotions of others (Goleman, 2006). SocA includes competencies such as empathy, service orientation, and organisational awareness (Cherniss & Goleman, 2001). SocA is the ability to identify a client's or customer's often unstated needs and concerns and then match them to products or services; this empathic strategy distinguishes star sales performers from average ones (Spencer & Spencer, 1993).	Spotting opportunities Ethical and sustainable thinking Working with others Mobilising others	SocAE is the ability to understand and empathise with the emotions of colleagues, team members, investors, consumers, and stakeholders, accept differences of other cultures and generations, uphold corporate culture, and foster teamwork.

EI component	EI component's characteristics	Entrepreneurial competencies that EI develops	Characteristics of the entrepreneurial EI component
Relationship Management	RM is an ability crucial for those managing front-line work. It has also emerged as a vital skill for high-level effective leadership (Goleman, 2000). RM includes competencies such as developing others, influence, communication, conflict management, leadership, change catalyst, building bonds, teamwork, and collaboration (Cherniss & Goleman, 2001).	Coping with uncertainty, ambiguity and risk Taking the initiative Mobilising others Working with others Learning through experience	RME means building effective communications and cooperation, healthily resolving conflicts, leadership, and the ability to inspire and manage a team and realise the potential of team members.

The components of the 4EIE Model have a specific sequence, similar to the Goleman Model (Cherniss & Goleman, 2001). SAE is the essential and most important component for entrepreneurs. It contains the highest number of competencies necessary for successful entrepreneurs. SAE determines the foundation, direction and strategy of all subsequent actions. The second component is SME, and the third component is SocAE. Relationship management is the final component of EI. This component can only be developed by working on the previous three components. RME is a key indicator of the level of entrepreneurial EI. 4EIE Model is an essential step for the systematisation and development of further tools (questionnaires and training programmes) to develop the EI of entrepreneurs.

3.2 Key components of the entrepreneurial EI at the forming stage of teams

In the context of globalisation and digitalisation, collaboration presents an opportunity to create a competitive advantage. EI helps to utilise the diversity of generations and different cultures effectively. The synergetic effect is achieved by realising the potential of team members in the case of their effective interaction. An important stage is the establishment of trusting relationships. SocAE plays a key role at this stage, as does SAE, representing a consciously formed knowledge and willingness to collaborate with representatives of other cultures.

SocAE is the basis for creating trusting relationships, a healthy climate, and success in communication and negotiations. SocAE has vast potential in the context of digitalisation, but it should take into account the peculiarities of communication in the online environment.

3.3 Tools for developing key competencies of the entrepreneurial EI at the forming stage of teams

Tools for developing SAE and SocAE at cross-generational and cross-cultural team-building stages should consider the complexity of interaction between different generations and cultures. One of the key areas is analysing problem areas and using indicators of emotional stress, which allows for identifying factors that hinder effective team building. It is important that entrepreneurs not only recognise their emotional reactions but also adapt their emotion management strategies to the situational context. This requires a combination of self-reflection techniques, such as keeping emotional diaries and working with cognitive distortions, and active listening and empathic communication techniques to build trusting relationships within the team.

Also, developing entrepreneurial EI at the initial stages of team building requires the creation of training programmes based on the practical application of EI in real business cases. A promising direction is the possibility of transferring knowledge and building skills through negotiation simulations, role-playing games, and situations involving the analysis of emotional patterns within the team. Effective programmes should include EI diagnostic tools to identify entrepreneurs' strengths and weaknesses in emotion management, social perception and communication.

CONCLUSION

Synthesis of knowledge in the field of EI and the competencies of successful entrepreneurs made it possible to clarify the understanding of the components of the pre-initiator's EI. Four key components were identified: SAE, SME, SocAE, and RME. Clarifying the components of the entrepreneurial EI made it possible to define the composition of the entrepreneurial EI Model (4EIE Model). It was also revealed that the key competencies of entrepreneurial EI at the forming stage of cross-generational and cross-cultural teams are SAE and SocAE. Therefore, special attention should be paid to developing these two components when designing training programmes for entrepreneurs. It is also necessary to consider the features and potential of SocAE when communicating online.

This study requires further practical testing. Based on the developed model, it is necessary to establish the criteria of 'low', 'medium', and 'high' levels of each component of the entrepreneurial EI. This study contributes to the formation of further tools for developing entrepreneurs' practical skills, primarily training programmes. It also serves as a basis for developing an EI questionnaire for entrepreneurs to track each component's development dynamics.

This study enriches the research on EI in the workplace (Cherniss & Goleman, 2001) and presents recommendations for building cross-generational and cross-cultural project teams. This approach to developing the entrepreneurial EI contributes to sustainable entrepreneurship from a global perspective.

ACKNOWLEDGEMENT

This work was funded by the EU NextGenerationEU through the Recovery and Resilience Plan for Slovakia under project No. 09I03-03-V01-00055; and the Slovak Research and Development Agency under Grant APVV-19-0581.

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International Marketing Strategies of Agri-Food Business (Case of Slovak Companies)

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https://doi.org/10.53465/CEECBE.2025.9788022552257.235-249

Abstract: The research studies the international marketing strategies of agri-food companies engaged in export. The aim of the study is to form a methodological basis for the selection of an international marketing strategy for the export of an agri-industrial company. The main research method of study is content analysis. The paper provides an example of Slovak agri-food companies engaged in the export of their own brands. The results of the study show that for agri-food companies, the most productive type of strategy is the strategy of growth and support of their own trademark. The developed model for substantiating the selection of an international marketing strategy of an agri-food company can serve as a tool for market penetration or adaptation, as it allows for step-by-step adjustments to the developed sales strategy of behavior in foreign markets in accordance with changes in the market situation.

Keywords: Consumer Marketing, International Marketing Strategy, Brand, Agribusiness, Agricultural Exports

JEL Classification codes: M31, Q13, Q17

INTRODUCTION

Agricultural businesses have distinct characteristics and are highly dependent on various external environmental factors. Many challenges in the agricultural sector are linked to regulatory restrictions in specific markets, seasonality, low technological development, natural and climatic conditions, limited storage options, and an inefficient structure of produced goods. Diversifying sales activities and entering new markets offer agricultural enterprises opportunities for additional profits, access to promising technologies, and increased sales volumes of agricultural products. While activities in new markets share some similarities with those in established markets, they also present unique challenges (Tanasiichuk et al., 2023). Therefore, marketing strategies for agribusiness in new markets must be adapted to these conditions, as the enterprise faces new competitors, legislative constraints, and market restrictions.

Taking into account the points mentioned above, it should be emphasized that the mechanisms of strategic marketing management for agribusiness activities in international markets are currently of significant interest from both theoretical and practical perspectives (Parkhomenko et al., 2024). It is also important to note that the number of scholars focusing on strategic marketing management in the agribusiness sector is limited, and there is a lack of applied research in this area. Therefore, the purpose of this study is to establish a methodological basis for selecting an international marketing strategy for the export activities of agro-industrial enterprises. As a result of this research, a model for justifying the choice of an international marketing strategy for an agro-food company was developed. This model can serve as a tool for market penetration or adaptation, as it allows for a gradual adjustment of the developed sales strategy in foreign markets in response to changes in the market environment.

1 LITERATURE REVIEW

The theoretical foundation for the development of marketing strategies in an enterprise is strategic management. The works of renowned scholars such as Porter (1980) and Ansoff (1957) have laid the methodological groundwork for this research. Porter (1980) made a significant contribution to understanding enterprise strategy, the development of strategic management through practical analytical recommendations, and the formation of competitive business strategies. Ansoff (1957) focused on the applied aspects of strategic planning and provided methods for organizing strategic management within an enterprise.

Scientists approach the marketing strategies of enterprises from various perspectives. For example, Kanellos et al. (2024) explore the relationship between digitalization marketing strategies and the profitability of agribusiness, highlighting the importance of marketing innovations in agricultural enterprises. Puma-Flores & Rosa-Diaz (2024) examine the marketing aspects of sustainable development in agricultural enterprises. Their research suggests that when selecting a strategy, agricultural companies tend to focus on actions related to production certification, product quality, material and technical potential, and environmental certification, among other factors. Bonisoli et al. (2019) assess the sustainable development of food products and examine the impact of certification and quality control on brand development in new foreign markets. Lukason & Vissak (2018) modeled the failure strategies of exporters entering new markets, determining the probability of bankruptcy resulting from exporting certain products to specific sales markets. Parkhomenko et al. (2024) propose a methodological framework for evaluating business system development and the use of management tools in strategy implementation. Ryo (2021) analyzes the impact of trade fair participation on exports, foreign direct investment, and service outsourcing. His findings indicate that attending exhibitions has a positive effect on the economic health of exporters.

The issue of selecting international marketing strategies in agricultural markets is even more specialized. Aghazadeh et al. (2022) investigate export performance indicators and branding advantages as key competitive factors in foreign agricultural markets. They highlight that branding advantages for agricultural products in foreign markets are supported by communication, distribution, and product improvement. Additionally, they confirm a positive relationship between branding advantages and the dynamics of agribusiness exports. Mareeh et al. (2021) examine the role of agricultural product marketing in the growth of international exports, concluding that the pace of international trade in agricultural products outstrips the rate of production. Parkhomenko (2022) proposes a procedure for developing and implementing marketing strategies for business systems in a global context. Tanasiichuk et al. (2023) suggest a mechanism for formulating and implementing an international marketing strategy for agricultural enterprises to ensure their sustainable development, emphasizing adaptation to new conditions in international markets. Caiazza & Bigliardi (2020) argue that agri-food companies have actively begun adapting their strategic and operational marketing activities to integrate digital systems and leverage their potential.

In recent years, the scope of marketing research has broadened and become more detailed. Grashuis (2018) highlights that an international marketing strategy not only helps increase the value of agricultural exports but also serves as an approach to branding. Keller (2016) emphasizes that the interaction between product associations and the company’s brand not only supports the product but also impacts pre- and post-sales service processes. Girard et al.

(2017) underline the significant role a strong brand plays in influencing consumer purchasing decisions. Shen et al. (2017) focus on the aspect of entering international markets, particularly the development of marketing strategies during the initial stage of a company's internationalization. Katsikeas et al. (2019) examine the factors influencing the formation of international marketing strategies and evaluate how companies choose marketing strategies for foreign markets.

Taking into account existing concepts and approaches to strategic management, international marketing, and the trends in agribusiness development, this study aims to explore the methodology for selecting an international marketing strategy for the export of agricultural enterprises. This article is based on a case study that examines the activities of companies exporting agricultural products under their own brand.

2 METHODOLOGY

The methodology was chosen to facilitate an in-depth collection of information on the marketing activities of several companies operating in similar sectors within the same country. Companies were selected from a general list of fruit and vegetable canning businesses, as well as producers of specialty products in Slovakia. From a total of 1,098 companies, three firms were chosen that were active in agribusiness and had relatively high revenues from their activities (Table 1).

Tab. 1 Case characteristics

Agri-food company	Wellberry, ltd	BIOPLANT, s.r.o.	NOVOFRUCT SK, s.r.o.
Year of foundation	2007	1995	1975
Location	Tuchyňa	Ostratice	Nové Zámky
Industry	Fruit and Vegetable Food Manufacturing	Fruit and Vegetable Preserving and Specialty Food Manufacturing	Fruit and Vegetable Preserving and Specialty Food Manufacturing
Sales revenue ($M)	$0.59M	$1.45M	$17.87M
Export countries	Czech Republic	Czech Republic	Czech Republic, Hungary, Poland, Germany, United Kingdom, Belgium, Netherlands, Bulgaria, Ukraine, Latvia, Lithuania, Mongolia, Jordan, Iran, Israel, Turkmenistan, Qatar, China, Saudi Arabia

Source: Fruit and Vegetable Preserving and Specialty Food Manufacturing Companies in Slovakia, 2025

In accordance with the purpose of the study, a hypothesis was formulated that a strategy of growth and maintenance of one's own brand is the most effective for agri-food companies operating in international markets. Another hypothesis is that adapting strategies to the specifics of local markets is the key to success in export marketing for such companies.

Content analysis is a systematic approach to studying text and media sources to identify trends that can inform the selection of a marketing strategy. The goal of this content analysis is to evaluate the strategies of BIOPLANT, Wellberry, and NOVOFRUCT SK by analyzing existing content, such as strategy documents, marketing materials, and media publications. This will help highlight the key aspects of their strategies, identify their strengths and weaknesses, and uncover the main opportunities and threats they face.

Data were collected from secondary sources, including publications on marketing strategies, industry reports, and other materials containing information about the activities of agri-food companies. Each company was analyzed through its website to examine the specifics of its operations. Additionally, advertising materials, consumer behavior in purchasing these companies' products, pricing policies, product assortments, and other relevant factors were analyzed. The methodology used for data analysis was content analysis, which helped systematize the large volume of data.

During data analysis, coding methods were used to identify key themes and strategies that were consistently repeated in the context of international marketing. In line with the study’s objectives, data coding for all agribusiness companies was carried out across the following categories: growth strategies, supply chain control, innovation and sustainability, competitive advantages, pricing, marketing opportunities, threats, and risks. When studying growth strategies, the key coding categories focused on identifying mentions of expansion, new markets, product diversification, brand development, and international expansion. For the supply chain control coding criterion, information was aggregated on mentions of control over production processes, cost management, and maintaining high quality. The pricing category summarized information about the company’s pricing policy in relation to production capacities. The marketing opportunities category systematized data on the development of new market segments, demand for organic products, and strategies to strengthen positions in international markets. The threats and risks category compiled information on issues such as crop instability, weather conditions, competition, and external factors like climate change and political risks. The competitive advantages category explored topics such as product innovation, customer support, cost optimization, and adherence to environmental and organic standards. Using content analysis and generalizing the results obtained, the dominant strategic direction of the companies was identified.

After collecting and coding the data, the results were analyzed in relation to international strategies and successful practices. Based on this analysis, specific steps were developed for selecting an international marketing strategy that will assist agri-food companies in adapting their operations to international markets.

3 RESULTS AND DISCUSSION

In the research process, content analysis was conducted using the most up-to-date information from online sources for three Slovak agricultural companies: Wellberry Ltd., BIOPLANT s.r.o., and NOVOFRUCT SK s.r.o. One of the key segments for all these companies is the field of fruit and berry processing. The companies Wellberry Ltd., BIOPLANT s.r.o., and NOVOFRUCT SK s.r.o. have established well-organized mechanisms for product production and supply. Sustainable development is an integral part of their corporate philosophy and international marketing strategies. The fruit segment is actively involved in regional development programs aimed at ensuring the sustainability of agriculture. Some of these companies grow their own raw materials, while others purchase them. All of the enterprises create value through the process of transforming agricultural raw materials into various intermediate products. The synergistic development model adopted by these agricultural companies enables the study of international marketing strategies across different product segments, as there is a strong corporate connection between them. Table 2 presents a content analysis of the three companies' websites.

Tab. 2 Content analysis of the websites of the companies under study

Criteria for comparing the content of company websites	Wellberry https://www.wellberry.sk/	Bioplant https://www.bioplant.sk/	Novofruct https://www.novofruct.sk/
Subject	Healthy food products, including berries, juices and other natural products	Growing and selling fruits and garden plants	Fresh fruit products, including juice and other fruit-based products
Amount of content	The site contains text information about products, quality certificates, as well as elements for communicating with buyers	A large amount of text about products, growing processes, and other company services	Focused on product descriptions, brand values, and production information
Features	Simple navigation menus. Blog and news section. Clear focus on healthy eating and natural ingredients.	Emphasis on organic farming and local production. A large selection of vegetables and fruits is offered. Possibility of ordering products through an online store and visiting a physical point of sale.	Simple but effective website design. Information about shipping and quality. May be useful for those looking for fresh natural products.

Source: own research

Overall, all the websites emphasize natural products, but each has its own unique focus: Wellberry highlights health, Novofruct emphasizes fresh fruit, and Bioplant focuses on the cultivation and sale of fruit. The results of the coding and content analysis for the studied agricultural companies reveal key strategic marketing trends of agribusinesses operating in foreign markets.

Data coding for BIOPLANT was carried out as follows. The "growth strategy" criterion identified the categories "expansion into new markets", "new products", and "international expansion". That is, the key phrases in the process of researching the content of this company are "expansion into international markets", "new market segments", "product differentiation", and "expansion into new territories", since BIOPLANT increases the export of organic products to the markets of Asia and Europe. The next criterion is "supply chain control", which formed the categories "control of production processes", "supply efficiency", and "cost management". The key phrases of the content under this subcategory were "full control over the supply chain", "effective cost management", "supply of raw materials", and "own production facilities". The categories "use of innovations", "organic products", and "sustainable development" were formed under the innovation and sustainable development criterion. The key phrases of the company's content according to this criterion are "use of organic products", "sustainable technologies", "green initiatives", and "sustainable development". The categories "product differentiation", "unique products", "competitive advantages" were evaluated according to the criterion "competitive advantages". The key phrases of the BIOPLANT company's content according to this subcategory are "product uniqueness", "high quality", "brand development", "customer loyalty". The two categories "price flexibility" and "price policy adaptation" were highlighted according to the criterion "pricing". The key phrases according to this subcategory were "flexible pricing policy", "price adaptation to the market", "maintaining competitive prices". The rejecting categories according to the criterion "threats and risks" are "external factors", "yield instability", "competition". The key phrases of the content under this parameter are "yield instability", "external economic and political factors", "worsening weather conditions", "competition". The criteria "marketing opportunities" evaluated the categories "development in new markets", "demand for organic products", "marketing strategies". The key phrases under this subcategory are "expansion into new markets", "growing demand for organic products", "brand improvement", "new advertising strategies".

The analysis of the coded data allows drawing the following conclusions based on the established criteria. According to the subcategory "growth strategy", BIOPLANT applies a strategic approach to expanding into new international markets, in particular into the markets of Europe and Asia. This indicates the company's orientation towards international expansion and increasing the volume of export activities. Analysis of the subcategory "supply chain control" allows concluding that BIOPLANT provides effective management of production processes, which includes both the supply of raw materials and the quality control of finished products. This approach allows you to reduce costs, improve efficiency and ensure stability in production. Full control over the supply chain gives BIOPLANT a competitive advantage in terms of cost management and ensuring high product quality. This is an important component of its strategy to maintain business efficiency and stability. Analysis of the subcategory "innovation and sustainable development" indicates that the company is actively implementing innovative and sustainable approaches to production, in particular using organic products and environmentally friendly technologies. This corresponds to global trends in the organic market, where the demand for environmentally friendly and sustainable production methods is constantly growing. The strategy of using organic products and environmentally friendly technologies meets the requirements of sustainable development and allows BIOPLANT to stand out among competitors. Such an approach can attract the attention of consumers who are oriented towards environmentally friendly products. Analysis of the subcategory "innovation and sustainable development" indicates that the company is actively implementing innovative and sustainable approaches to production, in particular using organic products and environmentally friendly technologies. This corresponds to global trends in the organic market, where the demand for environmentally friendly and sustainable production methods is constantly growing. The strategy of using organic products and environmentally friendly technologies meets the requirements of sustainable development and allows BIOPLANT to stand out among competitors. Such an approach can attract the attention of consumers who are oriented towards environmentally friendly products. Monitoring the subcategory "competitive advantages" gives reason to believe that BIOPLANT is favorably distinguished by the high quality of its products and a special approach to brand development. This allows the company to occupy leading positions in the market, which is an important factor in a competitive environment where consumers often pay attention to the quality and reputation of the brand. Product quality and branding strategy are the main competitive advantages of the company. They allow it to maintain a leading position in the market and attract loyal consumers. Monitoring the subcategory "competitive advantages" gives reason to believe that BIOPLANT is favorably distinguished by the high quality of its products and a special approach to brand development. This allows the company to occupy leading positions in the market, which is an important factor in a competitive environment where consumers often pay attention to the quality and reputation of the brand. Product quality and branding strategy are the main competitive advantages of the company. The subcategory "threats and risks" characterizes the peculiarities of the agricultural business, since agriculture is vulnerable to changing weather conditions, which can affect yields and production stability. In addition, the company faces a high level of competition, which can threaten its market position. Yield instability and a high level of competition are the main threats to the company. BIOPLANT needs to develop strategies to reduce these risks, for example, through investments in risk management technologies or supplier diversification. Analysis of the subcategory "marketing opportunities" allows us to note that the demand for organic products is an important factor for expanding marketing opportunities. BIOPLANT has the potential for further growth in new markets, where there is a growing interest in eco-products. The organic market in Asia and North America offers significant marketing opportunities. This allows the company to increase its sales and strengthen the brand internationally.

Thus, summarizing the results of the content analysis of the key criteria, it is appropriate to conclude that BIOPLANT demonstrates a strategic approach to growth, which includes expansion into new international markets, control of the supply chain to ensure production efficiency, and the introduction of innovation and sustainable technologies. This allows the company to maintain competitive advantages, as well as to actively respond to threats such as crop instability and market competition. The company's main growth opportunities are related to expansion into new markets where the demand for organic products is growing. On the other hand, the company must be prepared for external risks, such as weather conditions that may affect its production processes. Growth strategies, supply chain control, and innovation are strong aspects of BIOPLANT's activities that allow it to compete successfully in the organic market. The advantages of BIOPLANT are control of the supply chain, flexible pricing policy and innovation. The key advantage of the company is the ability to control the entire chain from raw materials to the finished product, which allows it to maintain high quality and effectively manage costs. The company has the ability to change prices depending on production capacities, which gives it flexibility in a competitive market. The active use of organic products and sustainable production processes allows it to stand out among competitors and meet modern market requirements. The threats and risks of BIOPLANT are the instability of crops and competition. Like all agricultural companies, BIOPLANT may be vulnerable to changes in climate and weather conditions, which can affect the stability of production. The emergence of new players in the organic products market creates additional competition, which may affect the company's fate in the market. In conclusion, it is necessary to focus on marketing opportunities, which are international expansion and brand development. Development in new international markets, especially in the context of demand for organic products, can become an important aspect of the company's strategy. Strong brand recognition and growing demand for eco-friendly products create opportunities for further growth.

Content analysis of BIOPLANT shows that the company is actively working to strengthen its market position through innovation, quality control and growth strategies in new markets. Key strategies include diversification of products and services, focus on environmentally friendly products and development of international markets. However, the company faces threats such as crop instability and high level of competition, which may affect its further development.

The next case is a content analysis of the company NOVOFRUCT SK. For the company NOVOFRUCT SK, the units of analysis can be marketing strategies, company products and services, identification of competitive advantages, assessment of risks and threats, application of innovations and technologies. Within the category of "marketing strategy", it is appropriate to highlight the subcategory "expansion into foreign markets" because the company's strategy is aimed at entering international markets, in particular, using export channels to sell its products; "branding and positioning" through the ways in which the company creates and promotes its brand, especially in the context of organic products; "target audience" through the definition and orientation of specific consumer segments. NOVOFRUCT SK is actively developing its export potential by entering international markets. The company uses strategies aimed at expanding its markets outside the country, including European and other international destinations. The growth of international presence is supported by the high quality of its products and their organic nature, which favorably distinguishes the company from competitors. The company has a clear orientation towards globalization and actively uses strategies for entering new markets. In its marketing strategy, NOVOFRUCT SK focuses on developing a brand that is associated with high-quality organic products. The company's branding is aimed at increasing consumer trust and creating an image of a company that cares about the health of its customers. The company uses quality certificates, which increases trust in its products. It successfully develops a brand that is associated with environmental friendliness and naturalness, and this contributes to the formation of consumer loyalty. NOVOFRUCT SK focuses on consumers looking for healthy, organic products, particularly in European markets. The main customers are people who pay attention to the quality of food and the environmental aspect of products.

As a criterion "products and services", the subcategories characterizing the marketing strategy are "organic products" due to the presence of organic products in the company's assortment and their positioning on the market; "product innovation" due to the application of new technologies and innovations in production; "product quality" as a main element of the marketing strategy. NOVOFRUCT SK specializes in the production of organic products certified according to international standards. The company's products include natural ingredients, which ensures its competitiveness in the organic products market. New technologies also allow it to increase production volumes and reduce costs. Continuous improvement of technological processes allows NOVOFRUCT SK to remain competitive in the market. High product quality is the main advantage of NOVOFRUCT SK. The company adheres to international standards of organic production and certifies its products. High product quality strengthens the company's position in the organic products market and ensures consumer trust. According to the criterion of "competitive advantages", the subcategories "high quality" were determined, taking into account that the company's products are distinguished by high quality standards, which allows it to gain competitive advantages; "product differentiation", a reference point for natural substances and environmental friendliness, which distinguishes the company from competitors in the industry; the subcategory "innovative technologies" indicates the introduction of the latest technologies to ensure high product quality. High quality is the company's main competitive advantage. It guarantees organic production and maintains stability and trust among its customers. Thanks to the high quality of its products, the company has the opportunity to retain loyal customers and conquer new markets. NOVOFRUCT SK products differ from competitors in their organicity and environmental friendliness, which is an important factor for consumers looking for healthy and safe products. Clear differentiation through organic products allows the company to stand out among competitors. Innovation helps increase NOVOFRUCT SK's competitiveness and support sustainable growth. Regarding the criterion "threats and risks", the following subcategories can be distinguished: "yield instability" due to the uncertainty of agricultural production, dependence on weather conditions; "competition in the organic market", because competition among organic producers can lead to a decrease in market share; "changes in foreign policy and economy" due to political or economic changes in the markets where it operates. One of the main threats to the company is yield instability, because agricultural products are highly dependent on weather conditions. The company needs to adapt its strategy to possible changes in weather conditions and risks related to yields. The growing number of organic producers creates a high level of competition in the market. This may limit the capabilities of NOVOFRUCT SK in the event of a strong increase in the number of competitors. The risk of increased competition requires the company to constantly improve its strategy and maintain competitive advantages. The impact of political and economic changes on the markets in which a company operates can be significant. Tariff restrictions, regulatory changes, and economic fluctuations can affect a company's strategy. The criterion of "innovation and technology" should be considered in the context of the following subcategories, such as "improvement of production processes", taking into account the use of modern technologies to improve the production process; "development of new products", taking into account the release of new lines of organic products that meet the needs of different consumer groups. The company uses modern technologies to improve its production processes. This allows to improve product quality and increase production efficiency. Improving technologies is an important factor in maintaining the company's competitiveness. NOVOFRUCT SK actively develops new products, focusing on changes in consumer demand and interests. The constant development of new products allows the company to attract new customers and maintain interest in the brand. The criterion "customer support" deserves attention, according to such subcategories as "loyalty programs and customer feedback" due to active cooperation with customers, the presence of loyalty programs, bonus offers; "educational programs and consultations" taking into account the constant informing of customers about the benefits of organic products and providing consultations on the choice.

Thus, the content analysis shows that NOVOFRUCT SK demonstrates a strong position due to high product quality, innovative technologies and effective marketing strategies. However, it also faces risks such as weather conditions and high competition in the organic market. Improving technologies and developing new products are key factors to maintain its competitiveness in the future. NOVOFRUCT SK shows that it is focused on creating a brand associated with organic, environmentally friendly products, actively adapting new technologies and expanding into international markets.

The content analysis of Wellberry is focused on approximately homogeneous categories and subcategories for monitoring the companies under study. An important category is "marketing strategy", which is traced through the subcategories "expansion to foreign markets", taking into account the development of the company's export capabilities; "branding and positioning", focusing on the development of its own brand in the context of innovative or healthy products; "target audience", taking into account the orientation towards certain consumer segments. Wellberry is focused on expanding its markets through marketing campaigns aimed at healthy eating and natural products. It actively works with international markets and develops the brand, targeting it at modern consumers who are looking for organic and safe products. The next category for analysis, "products and services," includes the subcategories "organic products" due to the product's focus on naturalness and organicity without the addition of chemicals or preservatives, with organic certification; "innovative products," new products are constantly appearing on the market, taking into account new trends in nutrition; "product quality" due to a high level of quality control. Wellberry focuses on organic and natural products that are gaining popularity among consumers who care about their health. High product quality is the company's main competitive advantage, and this allows it to maintain stable demand for its products. The category "competitive advantages" is an indicator of the subcategories "high quality" due to the presence of international quality certificates; "product differentiation" due to the use of special technologies that distinguish products from competitors; "brand stability" corresponds to the characteristics of consumer trust, positive customer feedback, reputation. The company has competitive advantages due to its products, which are distinguished by their ecological purity and naturalness. It actively develops product differentiation through innovative ingredients and technologies, which allows it to retain loyal consumers and stand out from competitors.

The category of "threats and risks" is characterized by the subcategories "raw material supply risks" due to deterioration of harvests and restrictions on the supply of environmentally friendly raw materials; "competition in the market" taking into account the emergence of new competitors with similar products; "economic fluctuations" predicting changes in the macroeconomic situation on demand and prices. The main risks for Wellberry are changes in the supply of raw materials, which may affect the stability of production, as well as high competition in the field of organic products. Economic fluctuations and changes in the market can also affect prices and demand. The category "customer support" is defined by the subcategories "customer interaction" providing loyalty program activities, customer feedback, support through social networks and online services; "educational programs" through conducting educational campaigns on the importance of healthy eating and natural products. The category of "innovation and technology" is represented by the subcategories "production technology" through the implementation of new technologies in production and packaging; "new product development" through the constant updating of the company's assortment. Wellberry actively uses the latest technologies to increase production efficiency, reduce costs and improve the quality of its products. The company is also engaged in the development of new products to meet the changing needs of consumers.

Thus, Wellberry has a clearly defined strategy for expansion into international markets, with a special emphasis on the health and naturalness of its products. The company is focused on catering to the growing demand for healthy eating, which is becoming a significant factor in its increasing popularity among consumers. However, for sustainable development, the company must consider potential risks associated with raw material supply and competition, while also continuing to refine its strategy to maintain customer loyalty and address evolving market demands. The systematization of the results of content analysis for the companies BIOPLANT, Wellberry and NOVOFRUCT SK is presented in the table 3.

Tab. 3 Systematization of the results of content analysis for companies BIOPLANT, Wellberry and NOVOFRUCT SK

Category	Subcategory	**BIOPLANT**	**Wellberry**	**NOVOFRUCT SK**
Marketing strategy	1.1. Expansion into foreign markets	The company is focused on developing local markets, with the possibility of expanding to international markets.	Actively operates in international markets, especially in Europe.	The strategy focuses on strengthening positions in already occupied markets, with the potential for expansion.
	1.2. Branding and positioning	Creating a brand focused on environmentally friendly products.	Brand orientation for organic and healthy products, with a focus on environmental friendliness.	Brand development with an emphasis on high quality and organic products.
	1.3. Target audience	Consumers looking for natural and organic products.	Targeting healthy consumers, athletes and those who are health conscious.	Focusing on the healthy food market, especially in Europe.
Products and services	2.1. Organic products	All of the company's products are organic, with special attention to quality and environmental friendliness.	Focus on natural, organic products for healthy eating.	Specializing in organic products certified according to international standards.

Category	Subcategory	**BIOPLANT**	**Wellberry**	**NOVOFRUCT SK**
	2.2. Innovative products	Actively implements new technologies to improve product quality.	Uses innovative production methods to improve product quality.	Innovative technologies for the production of organic products.
	2.3. Product quality	Quality control at all stages of production, product certification.	High level of quality control of organic products.	High quality products, certified according to international standards.
Competitive advantages	3.1. High quality	The products have high quality standards, which gives them competitive advantages.	Quality is the main competitive advantage that allows the company to stand out in the organic products market.	The high quality of organic products is a major advantage in the market.
	3.2. Product differentiation	The products are distinguished by their ecological purity and naturalness.	Unique recipes and technologies that provide competitive advantages.	Differentiation through organic ingredients and environmental friendliness.
	3.3. Brand sustainability	Development of a stable brand focused on natural products.	Continuous improvement and maintenance of the organic brand image.	The brand is associated with quality and environmental friendliness, which helps maintain competitive positions.
Threats and risks	4.1. Raw material supply risks	Dependence on the quality of raw materials, which affects the stability of production.	Risk of instability in the supply of organic raw materials due to natural phenomena.	Instability of raw material supplies and weather conditions can affect production.
	4.2. Market competition	High competition among organic producers requires constant improvement of strategy.	Increased competition in the organic market, including with new entrants.	Intense competition due to high demand for organic products.
	4.3. Economic fluctuations	The impact of economic changes and fluctuations in raw material prices on the company's strategy.	Rising commodity prices and economic fluctuations can affect demand.	The impact of economic crises on demand and prices, the need to adapt to changes.

Category	Subcategory	**BIOPLANT**	**Wellberry**	**NOVOFRUCT SK**
Innovation and technology	5.1. Production technologies	Improving technologies to improve production processes and reduce costs.	Uses modern technologies for the production of organic products.	Innovations in production processes to ensure high quality organic products.
	5.2. New product development	Expanding the product range to meet new market requirements.	Development of new organic products based on current healthy eating trends.	Constantly updating the range and developing new products to maintain competitive advantages.
Customer support	6.1. Customer interaction	Developing feedback through online channels, customer loyalty through service.	Customer loyalty is maintained through active interaction on social media and offline.	Interacting with customers through various feedback channels and maintaining customer relationships.
	6.2. Educational initiatives	Conducting campaigns on ecology and healthy eating to raise awareness.	Active educational campaigns through advertising and online resources to promote healthy eating.	Conducting educational programs to increase awareness of organic products among consumers.

Source: own research

Thus, BIOPLANT is focused on developing local markets with potential for international expansion. It has a strong market position thanks to its organic products but faces challenges related to competition and raw material instability. Wellberry is actively operating in international markets, emphasizing organic products for healthy nutrition and maintaining high-quality standards. However, it also faces risks due to competitive pressure and market changes. NOVOFRUCT SK uses a strategy of strengthening its positions in already established markets, with a strong focus on organic products and innovation, while dealing with risks related to crop instability and high competition. All three companies are committed to developing their brands through the promotion of organic products, which are increasingly popular among health-conscious consumers. In particular, BIOPLANT and Wellberry are actively pursuing strategies for international market entry, while NOVOFRUCT SK is focused on strengthening its presence in already established markets with an emphasis on high-quality organic products. Wellberry's primary strategy is to expand into international markets, particularly in Europe, with a focus on healthy nutrition and natural products. BIOPLANT and NOVOFRUCT SK are also seeking to expand internationally, but their strategies remain more focused on local markets. All three companies share a competitive advantage in the quality of their organic and natural products, which is a key factor in their competitiveness. Wellberry and NOVOFRUCT SK are focused on branding to establish a stable and recognizable reputation among consumers, while BIOPLANT also aims to build a brand centered around environmental friendliness and naturalness. Wellberry has an additional advantage due to its innovative approaches to the production of organic products.

All companies face risks related to the instability of raw material supplies, which are directly influenced by weather conditions and natural disasters. Competition represents a significant threat, as the demand for organic products continues to grow, leading to the emergence of new competitors. Economic and currency fluctuations can impact raw material costs and the pricing strategies of companies, posing risks to their growth plans. Wellberry and NOVOFRUCT SK are actively leveraging the latest technologies to enhance the quality of their products and production processes. While BIOPLANT also innovates, it places somewhat less emphasis on technology compared to its competitors. All three companies engage actively with consumers, gathering feedback through various channels, including online platforms and social media. Additionally, they focus on customer support and building loyalty through high-quality products and effective communication with end consumers.

Companies can enhance their competitiveness by continuously developing their brand through innovation. A brand becomes not just a product identifier, but also a carrier of values that resonate with consumers. This is evidenced by Wellberry's success in differentiating itself through innovative approaches to healthy eating. One of the key factors for a company’s stability is the integration and optimization of its supply chain, which helps mitigate risks from unstable raw material supplies and reduces costs. In theory, stable competitive advantages, such as high product quality and brand reliability, can form the foundation for sustainable growth. In this regard, companies must maintain high-quality standards and protect their reputation in the market. BIOPLANT and NOVOFRUCT SK should focus on developing strategies to enter new international markets where the demand for organic products is growing. It is recommended that they develop marketing and brand strategies tailored to the localization of products for each specific market. Companies should also more actively incorporate the latest technologies in production and management processes to enhance efficiency, reduce costs, and ensure consistent product quality. This will help maintain competitive advantages and meet the increasing demand for organic products. Given the growing demand for organic products and a healthy lifestyle, companies should invest in educational programs for consumers. This will help build brand trust and maintain customer loyalty. Companies must also be able to adapt their strategies flexibly to shifts in the economic landscape, which requires a quick response to currency fluctuations and market changes. It is recommended that companies use a flexible pricing policy and diversify raw material supplies to minimize risks. Additionally, companies should diversify their product portfolio to reduce dependence on a specific market segment and ensure stable profits. They should actively introduce new products that align with changing consumer preferences.

CONCLUSION

This study makes a significant contribution to the development of international marketing strategies, especially in the context of agribusiness. It provides a model that helps agri-food companies adapt their marketing strategies to changing market conditions and consumer expectations. The study deepens the understanding of how branding, brand support, and growth strategies can play a key role in ensuring stability in international markets. Furthermore, from a theoretical standpoint, the findings emphasize the importance of product localization as a necessary condition for successful market penetration abroad. This research also contributes new insights into how agri-food companies can effectively manage their international marketing efforts based on multi-stage, adaptive approaches that evolve in response to external factors. Thus, theoretically, the study helps expand scientific knowledge on strategic management in agribusiness, providing a foundation for further research on adapting marketing strategies to changing external conditions.

From a practical standpoint, the findings of the study offer several key recommendations for managers of agri-food companies seeking to successfully enter international markets. It is essential for companies to focus on strategies aimed at developing their own brand and growth in foreign markets, as this strengthens their competitive position and ensures stable exports. To achieve these goals, companies should actively adapt their products to local needs and preferences, taking into account the cultural and economic characteristics of target regions. Managers should also focus on building flexible, multi-stage strategies that allow quick adaptation to market changes. The ability to adjust marketing strategies based on these factors is critical for success in international markets. Additionally, managers should invest in developing their companies in areas such as strengthening brand image, training and developing highly qualified staff, and establishing reliable supply and sales channels. Having a strong brand that can compete on the international stage is an important factor for further market expansion. It is crucial not only to understand the needs of the end consumer but also to have a strategy for managing relationships with clients and partners at every stage of interaction. For companies aiming to enter European and Asian markets, managers should consider regional characteristics and develop tailored marketing and product strategies specific to each country's needs.

The limitation of this study is that it analyzes agribusiness in a single country operating within one sector. A potential direction for future research is to expand the scope of the study by including a broader range of agricultural companies, which would help clarify and expand the conclusions drawn.

ACKNOWLEDGEMENT

This paper was funded by the EU NextGenerationEU through the Recovery and Resilience Plan for Slovakia under the project No. 09I03-03-V01-000145, and the Cultural and Educational Grant Agency of the Ministry of Education, Research, Development and Youth of the Slovak Republic under Grant KEGA 044UK-4/2024.

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Tourism in Selected Countries of Central Europe: An Evaluation of Policies and Economic Impacts

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https://doi.org/10.53465/CEECBE.2025.9788022552257.250-263

Abstract: This paper aims to compare tourism policies and economic impact in selected countries of Central Europe (Austria, the Czech Republic, Germany, Hungary, Poland, and Slovakia), contributing to a discussion on tourism development and its role in economic potential as an important issue of national economies. This study identifies similarities in national tourism policies. Exploring the economic impacts of tourism employing data from Tourism Satellite Accounts (TSA) and international and national statistics. Furthermore, correlations are calculated between tourism indicators such as arrivals and overnight stays and the economic impacts, specifically GDP and employment. Tourism intensity is assessed as well to illustrate tourism activity in analyzed countries. By analyzing selected key indicators, the paper provides a comparative evaluation of these countries' economic performance and their respective strategic tourism documents.

Keywords: Tourism, Evaluation, Policy, Economic Impacts

JEL Classification codes: Z30, Z32, Z38

INTRODUCTION

Central Europe is a safe and attractive tourist destination for both domestic and international inbound tourism. Tourism represents a significant element of economic development, with its role in the economy varying across countries depending on various indicators and metrics. However, it can also serve as the basic starting point for conceptual and successful development when strategies and policy measures are adopted.

This paper aims to compare tourism policies and economic impacts in six selected Central European countries: Austria (AT), the Czech Republic (CZE), Germany (DE), Hungary (HU), Poland (PL), and Slovakia (SK). By analyzing key economic indicators derived from Tourism Satellite Accounts (TSA) and national and international statistics, this study provides a comparative evaluation of each country's economic performance in the tourism sector. Furthermore, based on the comparative analysis of national strategic documents, the study identifies common policy approaches with potential for cooperation, as well as distinct national strategies that differentiate analyzed countries. The objective is to identify similarities in national tourism policies, common goals, and initiatives and compare these countries' economic performance and strategic priorities in tourism policy documents.

The discussion on tourism and evaluation in Central European countries can provide valuable insights into its role in national economies.

1 LITERATURE REVIEW

Tourism plays a crucial role in economic development, with Tourism Satellite Accounts (TSA) serving as a standardized tool for measuring its direct contributions to GDP, employment, and regional growth. Figini & Patuelli (2021) highlight the heterogeneity of tourism's economic impact across EU member states. Furthermore, it identifies gaps in data availability and inconsistencies in TSA methodologies across countries, despite the existence of an international methodology. Their study emphasizes the need for standardized and regularly updated TSA data to enhance cross-country comparability. Liu et al. (2022) reinforce TSA's role as the most important method for assessing tourism's direct economic impact while supporting the need for standardized TSAs. Pratt (2015) applied TSA to assess the economic value of cruise tourism in Fiji, illustrating its capacity to capture the complex interrelations between tourism activities and other economic sectors. The latest Tourism Satellite Accounts in Europe (2023) report by EUROSTAT confirms the importance of measuring gross value added (GVATI), tourism direct GDP (TDGDP), fand direct employment for policy planning. UNWTO (2025) presents an optimistic outlook for the sector, although economic and geopolitical uncertainties pose risks. United Nations (2010) emphasized in The International Recommendations for Tourism Statistics 2008 that a comprehensive methodological framework is essential for global tourism data collection. Wahyuni et al. (2022) underscore tourism's reciprocal relationship with economic growth, benefiting both industry stakeholders and community welfare. Studies conducted by other authors further demonstrate tourism's role in employment generation and regional economic development, reducing regional disparities by providing economic benefits and opportunities, highlighting the importance of strategic investment in tourism, stimulating regional economies, and fostering balanced development (Bădulescu et al., 2018; Tohmo, 2018; Xu, Jones & Munday, 2019; Tafel & Szolnoki, 2020).

Strategic tourism documents are crucial in shaping the industry's resilience, innovation, and sustainability. Salahodjaev et al. (2022) compare tourism policies in Austria, Hungary, and Poland, demonstrating the impact of different policy approaches on economic outcomes, identifying Austria's focus on cultural tourism and environmental sustainability contrasts with Hungary and Poland's emphasis on infrastructure development and foreign tourist attraction. Adedoyin et al. (2022) argue that strong institutional frameworks are essential for sustainable tourism-led growth, warning that weak governance can hinder effective policy implementation. Hamaguchi (2020) further underscores the need for well-structured environmental and tourism policies to balance economic benefits with sustainability. Novacká et al. (2020) identified key tourism factors in the current socio-economic period, and development perspectives are presented by the following partial topics: innovation environment in tourism, risks and crises in tourism, and collaborative economy. Other authors, such as Ferreira et al. (2023) and Wut et al. (2021), stress the importance of tourism policies and documents to enhance destinations' resilience and competitiveness, leveraging big data and smart technologies, especially during crises. Novacká et al. (2022) analyze economic responses to the COVID-19 pandemic across European hotel industries, identifying key financial support measures and initiatives. Zhou et al. (2024) highlight the need for smart destination strategies to attract different segments of visitors, such as digital nomads, and recognize their needs.

The metaverse is becoming a key component of strategic tourism documents as it expands opportunities for tourist experiences and interactions between destinations and visitors. As Kılıçarslan et al. (2024) noted, the metaverse not only stimulates interest in physical travel but can also serve as a substitute when travel is impossible. Buhalis et al. (2023) emphasize its transformative impact on customer experience and value co-creation. Hassan and Saleh (2024) highlight the role of attribution theory in understanding tourists' decision-making in the metaverse, while Zhang et al. (2024) confirm that motivation and perceived behavioral control play a crucial role in its adoption, particularly among Generation Z and Y. Zhong et al. (2024) introduce the MIEB model to capture customer journey systematically. Rainoldi et al. (2025) analyze the integration of work and leisure among digital nomads in the metaverse. These findings underscore the growing importance of the metaverse in tourism and its potential for innovation and the personalization of tourist experiences. The Tourism in the 2030 Agenda further advocates for sustainable policies, digitalization, and resilience strategies to ensure long-term economic viability (UNWTO, n.d.).

2 METHODOLOGY

This study aims to conduct a comparative analysis of tourism policies and economic impacts in six Central European countries: Austria, Czech Republic, Germany, Hungary, Poland, and Slovakia. First, secondary data analysis was conducted by obtaining data from the satellite tourism accounts (TSA) of individual countries from 2018 to 2022 to give a particular view of pre-pandemic and post-pandemic numbers. This analysis provided information on the contribution of tourism to gross domestic product (GDP), gross value added (GVA), and employment. The harmonized data were then systematically synthesized into tables to facilitate comparative analysis across analyzed countries. Two research questions were established:

Q1: To what extent do national tourism policies focus on cooperation and define opportunities for collaborative engagement among analyzed countries?

Q2: What are the main differences in the economic impacts of tourism among the analyzed Central European countries?

The national statistics published by national statistical offices were also utilized for secondary data analysis to obtain data on tourist arrivals, the number of overnight stays, and the population in each country. Based on this data, the tourism intensity indicator was calculated to analyze further the significance of the tourism sector within each analyzed country. The results were again systematically synthesized into tables to allow for comparative analysis. Tourism intensity was calculated by using the following formula:

$$Tourism\ intensity\ = \frac{Number\ of\ residents}{Number\ of\ overnight\ stays} \tag{1}$$

A correlation analysis was conducted using the Statistica software to examine the relationships between selected tourism-related variables. Pearson’s correlation coefficient was used to assess the strength and direction of these relationships using the following equation:

$$r = \frac{\sum (x_i - \overline{x})(y_i - \overline{y})}{\sqrt{\sum (x_i - \overline{x})^2 \sum (y_i - \overline{y})^2}} \tag{2}$$

The analysis focused on the correlations between tourist arrivals and tourism's contribution to GDP, the number of overnight stays and tourism's contribution to GDP, tourist arrivals and employment in the tourism sector, and the number of overnight stays and employment in tourism. This analysis aimed to determine the strength of the relationships between these important indicators and identify differences among analyzed countries variables, providing a deeper insight into the interconnections between economic and visitor-related indicators of tourism. The analysis results were processed into a table to allow for comparison.

Comparative analysis is applied to assess the relative significance of tourism in each national economy and identify common principles and divergences in policy frameworks, highlighting the potential for future partnership and cooperation among the analyzed countries. This paper contributes to the academic discourse on tourism's role in national economic development and offers empirical evidence for policymakers to refine and enhance tourism strategies for sustainable growth. The study's findings aim to provide insights into the economic impacts of tourism and tourism policies, thereby supporting informed decision-making and fostering resilience in the tourism sector across Central Europe.

3 RESULTS AND DISCUSSION

3.1 Economic Impacts of Tourism in CEC

Tourism is a significant component of the economy in many Central European countries (CEC). Table 1 shows the economic impacts based on three indicators: Contribution of Tourism to the GDP, to the GVA and to the total employment.

Tab. 1 Economic Impacts of Tourism in Analyzed Countries

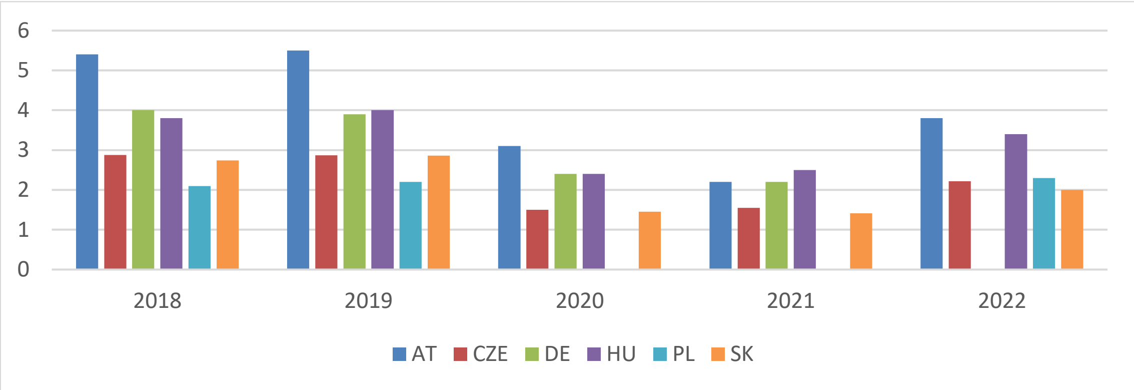
Direct Contribution of Tourism to Gross Domestic Product (GDP)					
	2018	2019	2020	2021	2022
AT	5.4	5.5	3.1	2.2	3.8
CZE	2.88	2.87	1.5	1.55	2.22
DE	4	3.9	2.4	2.2	x
HU	3.80	4.00	2.40	2.50	3.40
PL	2.1	2.2	x	x	2,3
SK	2.74	2.86	1.45	1.41	2
Direct Contribution of Tourism to the Gross Value Added (GVA)					
	2018	2019	2020	2021	2022
AT	5.4	5.5	3.1	2.2	3.8
CZE	2.77	2.76	1.47	1.53	2.18
DE	4	3.9	2.4	2.2	x
HU	3.00	3.40	1.50	1.60	2.20
PL	x	x	x	x	1,6
SK	2.51	2.6	1.36	1.23	1.82
Direct Contribution of Tourism to the Total Employment					
	2018	2019	2020	2021	2022
AT	6	6.2	4.3	3.4	4.7
CZE	4.4	4.41	4.13	4.02	4.15
DE	6.2	6.1	4.8	4.4	x
HU	9.4	9.5	9.1	8.8	8.9
PL	x	x	x	x	3.4
SK	6	6.6	6.3	6.1	6.2

Source: elaborated by authors based on national TSAs named in references

In 2019, the contribution of tourism to GDP remained stable, with AT having the highest contribution of 5.5%, followed by HU with 4%. However, the year 2020 saw dramatic shifts due to the COVID-19 pandemic. The most significant decline was observed in AT (from 5.5%

to 3.1%) and HU (from 4% to 2.4%); in other countries, the contribution has decreased by 1.3 to 1.5%. The years 2021 and 2022 indicate a gradual recovery of the sector, with some economies, such as HU, nearly returning to pre-pandemic levels and PL even having a higher contribution than in 2019. This data is visualized in Figure 1, showing the difference between countries.

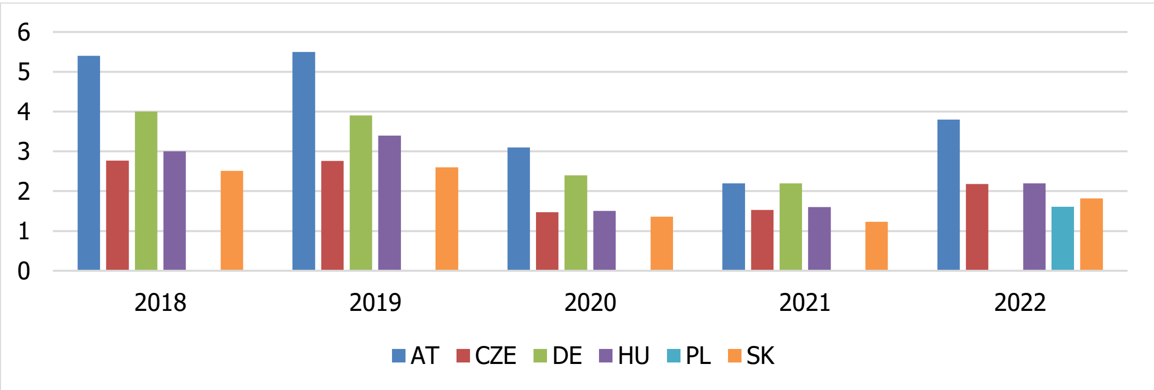
Fig. 1 Contribution of tourism to the GDP in %



Source: elaborated by authors based on national TSAs named in references

The trends in the gross value added of the tourism sector closely mirror those in GDP, as GVA reflects the added economic value generated by tourism, with AT and DE even listing the same values as the contribution to the GDP, as shown in Table 1. AT had the highest GVA of 5.5% in 2019 out of the analyzed countries, followed by DE with 3.9% and HU with 3.4%. The pandemic caused a significant decline in GVA, where AT dropped to 2.2% in 2021, the most profound drop (3.4%) out of all the countries. The tourism sector slightly recovered in 2022, not reaching pre-pandemic levels.

Fig. 2 Contribution of Tourism to the GVA in %

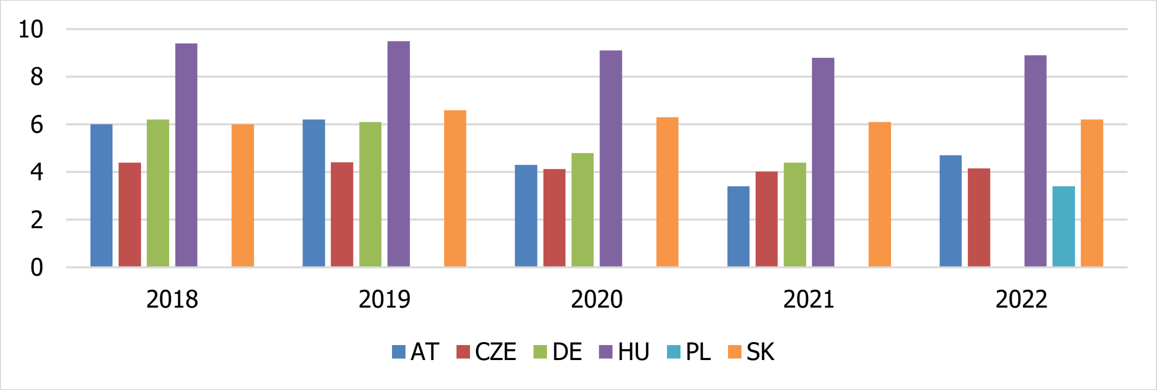


Source: elaborated by authors based on national TSAs named in references

Tourism also plays an important role in total employment in analyzed countries, with HU having the highest contribution of tourism to total employment of almost 10%. SK is in second place, with a contribution ranging from 6% to 6.6%, and CZE has the lowest ranging from 4% to 4.4%, with other countries having around 6% in pre-pandemic levels. In 2019, HU had a share of 9.5%, while CZE recorded 4.41%. The pandemic led to a decline in these figures, most notably in AT, where the share fell from 6.2% to 4.3% in 2020 and 3.4% in 2021. By 2022, there was partial recovery, yet AT remained below its 2019 level. The least significant decline was in HU, where employment dropped from 9.5% in 2019 to 9.1% in 2020 and 8.8% in 2021. This was followed by SK with a decline of 0.3% from 6.6% in 2019 to 6.3% in 2020 and 6,1%

in 2021. The data from Table 1 are visualized in Figure 3, showcasing the differences between analyzed countries, especially those between HU and other countries. This indicator shows a shift among countries, with AT being first in the contribution of tourism to the GDP and GVA being third in analyzed years and even last behind CZE in 2021.

Fig. 3 Contribution of Tourism to the total employment in %



Source: elaborated by authors based on national TSAs named in references

Tourism intensity is a crucial indicator of the importance and role of the tourism sector in the national economy, which measures the number of overnight stays per inhabitant of a given country. Based on data in Table 2, AT leads in this regard, with a ratio of 17.24 overnight stays per capita in 2019, almost three times the amount of DE, with a tourism intensity of 5,96 in 2019. PL had the lowest intensity in the pre-pandemic levels of 2.31 in 2018 and 2.43 in 2019. However, it surpassed SK at post-pandemic levels, indicating a slower recovery of the tourism sector in SK. The most significant drop was recorded in AT, where the intensity fell from 17.24 in 2019 to 11 in 2020 and 8.91 in 2021, which is a drop of 8.33 in comparison to pre-pandemic levels showcasing the decline of the tourism sector during the pandemic.

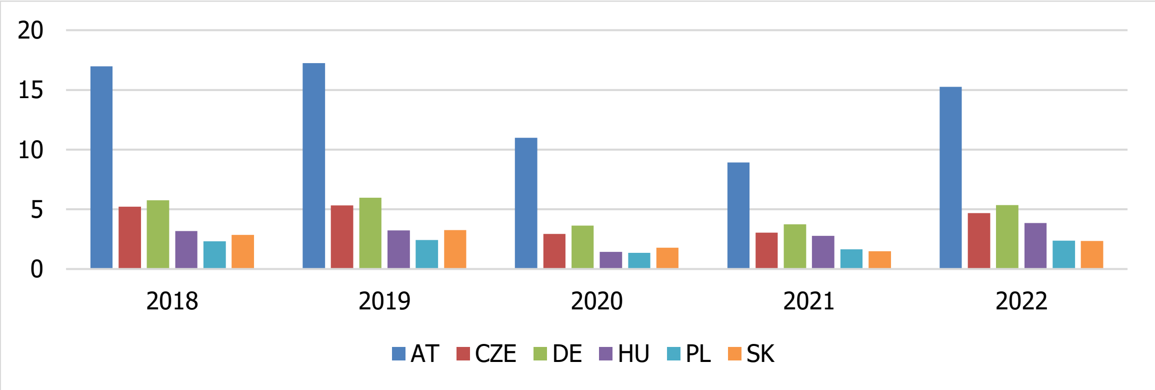
Tab. 2 Intensity of Tourism

	2018	**2019**	**2020**	**2021**	**2022**
AT	1698	17.24	11.00	8.91	15.25
CZE	5.21	5.33	2.93	3.04	4.67
DE	5.76	5.96	3.64	3.73	5.34
HU	3.18	3.22	1.43	2.79	3.84
PL	2.31	2.43	1.35	1.66	2.38
SK	2.85	3.25	1.79	1.50	2.34

Source: elaborated by authors based on data available from the national statistical offices named in references

The difference in tourism intensity can be seen in Figure 4, displaying the vast difference between AT and other European countries. Further, it highlights the importance and performance of the Austrian tourism sector. However, it also poses various risks. High tourism intensity can have significant economic, environmental, and social impacts. Economically, it can boost local businesses, create jobs, and generate tax revenue, but excessive tourism may also lead to rising living costs and economic dependence on the sector. Environmentally, high tourism intensity can strain natural resources, contribute to pollution, and increase carbon emissions, particularly in fragile ecosystems. Socially, it can enhance cultural exchange and community development but may also lead to overcrowding, housing shortages, and conflicts between residents and tourists. Balancing these factors is crucial for sustainable tourism development, ensuring long-term benefits while minimizing negative consequences.

Fig. 4 Intensity of tourism



Source: elaborated by authors based on data available from the national statistical offices named in references

Table 3 presents the calculated Pearson correlation coefficient between the number of visitors, the number of overnight stays, and the contribution of tourism to GDP in million EUR, revealing a strong relationship, almost perfect positive correlation (r=1) between number of visitors and overnight stays and economic performance. The highest correlation values are observed in DE, indicating that tourism contribution to the GDP changes almost proportionately to the number of visitors and overnight stays. CZE, SK, and AT show similarly high correlations, CZE showing r=0.98847 for visitors and 0.98410 for overnight stays, AT with r=0.98619 for visitors and r=0.98678 for overnight stays, and SK showcasing a correlation of r=98300 for visitors and r=0.96207 for overnight stays. Meanwhile, HU has a lower correlation than its Central European counterparts, implying that the change in the number of visitors and overnight stays has a lower effect on the contribution of tourism to the GDP than in previous countries. This could be caused by a higher share of short-term visitors and strong domestic tourism. PL exhibits the lowest correlation, r=0.67839 for visitors and r=0.67837 for overnight stays. This result should not be considered as valid as the others due to the missing data regarding tourism's contribution to GDP in PL.

Tab. 3 Pearson Correlation Coefficient – Contribution of tourism to GDP in mil. EUR

	AT	**CZE**	**DE**	**HU**	**PL**	**SK**
Number of visitors	0.98619	0.98847	0.99471	0.80958	0.67839	0.98300
Overnight stays	0.98678	0.98410	0.99810	0.74033	0.67837	0.96207

Source: elaborated by authors based on data available from the national statistical offices named in references

Next, the correlation between the number of visitors, the number of overnight stays, and the number of people employed in the tourism sector was calculated. Table 4 shows the results in the Pearson correlation coefficient, revealing a relation between the number of visitors and overnight stays and the number of people employed in tourism. The strongest correlation was calculated in DE and AT, indicating a strong relation and dependency of these variables. CZE exhibits strong correlations, particularly for visitors r=0.90794, but a relatively weaker relation with the number of overnight stays of r= 0.46757, showing that the change in overnight stays does not affect employment as much as the number of visitors. SK shows a slightly weaker but still strong correlation in both variables, suggesting a meaningful link between tourism and employment. In contrast, HU displays one of the lowest correlations out of the analyzed countries, r= 0.38487 for visitors and r=0.25358 for overnight stays. Based on previous research conducted by one of the authors, this difference in comparison to other countries can be attributed to the fact that HU kept relatively high and stable employment in tourism even during the pandemic crisis, with minimal decline due to the high financial aid from the Hungarian government primarily for the hospitality sector (Novacká et al., 2022). PL exhibited lower correlations as well. However, it is important to note that this result is not as valid as the others due to the missing data.

Tab. 4 Pearson Correlation Coefficient – Number of people employed in tourism

	AT	**CZE**	**DE**	**HU**	**PL**	**SK**
Number of visitors	0.95017	0.90794	0.95229	0.38487	0.37526	0.82991
Overnight stays	0.95211	0.46757	0.98401	0.25358	0.39942	0.88643

Source: elaborated by authors based on data available from the national statistical offices named in references

3.1 Tourism policies in the CEC

Analyzed CEC countries' destinations proclaim sustainability, but there are differences in their content and effects. Economically successful DE and AT refine individual aspects of sustainability and support new progressive solutions. Less developed destinations are discovering and implementing sustainability elements into tourism practice. Environmental sustainability, regarding environmental quality and new technologies, has significant backing in DE and AT.

All CEC countries apply the TSA methodology for recording tourism performance data. However, the processing of input data at the national level is not entirely uniform, leading to certain discrepancies in the expression of specific data. All countries focus on creating added value in tourism at the national level. AT also emphasizes added value at regional and local levels—for regions, businesses, visitors, and local residents.

Tourism financing has its specifics in different countries. DE (with its environmental fund) and SK (with its tourism fund) have established special financial sources for tourism needs. AT ensures funding opportunities through the specialized **Austrian Bank for Tourism Development (ÖHT).** Indirect financial support for tourism through EU funds is utilized by all observed countries, mainly in INTERREG projects and other interdisciplinary projects related to tourism. Direct financial support within the EU **European Capital of Culture** program was used by cities from AT, DE, and HU during the observed period.

All countries present their tourism products in relation to nature, cultural heritage, and traditions. PL and HU showcase international-level festivals. MICE (Meetings, Incentives, Conferences, and Exhibitions) is a key tourism product in AT, DE, CZE, and PL. Business travel is significant in Germany's inbound tourism. The quality of tourism products is a continuous effort from previous periods in all analyzed countries. DE and AT promote quality in terms of unique offerings, care for local resources, their sustainable use, and the provision of accurate information for visitors. A local destination as a sustainable product emphasizing the environment as a part of the marketing support for sustainable tourism within the **EDEN program** in all CEC countries except SK. Different themes and principles included in national tourism policies are synthesized in Table 5. Themes addressed by all analyzed CEC countries with potential for cooperation are marked in the first rows of designated sections.

Tab. 5 Themes and principles in Tourism Policies in CEC

Tourism Policy	**AT**	**CZ**	**DE**	**HU**	**PL**	**SK**
Management						
Sustainable tourism destination	✓	✓	✓	✓	✓	✓
TSA National statistics evidence	✓	✓	✓	✓	✓	✓
Value added national level	✓	✓	✓	✓	✓	✓
Digitalization generally	✓	✓	✓	✓	✓	✓
Digitalization for guest needs in destination	✓	✓	✓	✓	✓	✓
Green destination	✓					
Environmental Quality of products	✓		✓			
Environmentally responsible source in accommodation and restaurants	✓		✓			
Direct financial support to cities by EU program ECC	✓	✓past	✓	✓		✓past
Value added to everybody (visitors, local people, region, regions	✓					
Quality of life	✓					
New co-operation models for exchange of life	✓					
Attractive business friendly environment	✓					
Permanent Data Analysis	✓	✓	✓			
High developed digitalization in tourism, public and private sector	✓		✓			
Business						
Safeguarding opportunities for the next generation	✓					
Minimize administration for SME in tourism	✓					
Regulation of VAT to support tourism services	✓					✓

Tourism Policy	**AT**	**CZ**	**DE**	**HU**	**PL**	**SK**
Product						
Satisfaction of the guests	✓	✓	✓	✓	✓	✓
Nature, Culture, traditions	✓	✓	✓	✓	✓	✓
Human wellbeing and satisfaction of guests and local people	✓					
Special request for tourist product Q	✓					
Tourism for all (especially silver, youth, handicapped, etc.)	✓	✓				
MICE convention bureau, worldwide important international events	✓	✓	✓		✓	
MICE business travel and worldwide important fairs	✓					
International festivals				✓	✓	
Destination Marketing						
Long Haul Source Markets	✓	✓	✓	✓	✓	✓
Destination well known as a brand in the world market	✓		✓			
Destination known as a brand in the European market	✓	✓	✓	✓	✓	
Green destination in EU program EDEN	✓	✓	✓	✓	✓	

Source: elaborated by authors based on national policies named in references

CONCLUSION

In Conclusion, the authors present the findings of this study; it is evident that tourism plays a significant role in the economies of Central European countries, with its contribution to GDP, gross value added, employment, and tourism intensity showcasing both the resilience and vulnerabilities of the sector.

The analysis of tourism policies in CEC countries reveals a shared commitment to sustainability, financial support, and quality assurance, though with varying approaches and levels of advancement. While DE and AT lead in refining sustainability practices and innovative solutions, less developed destinations are still integrating these principles. Financial support structures differ, with DE and SK establishing dedicated tourism funds, AT providing specialized financing through ÖHT, and all countries benefiting from EU funding, mainly through INTERREG. Product offerings reflect cultural and natural heritage, with PL and HU excelling in international festivals, while AT, DE, and the CZE dominate MICE tourism. Despite these differences, cooperation within the region presents opportunities for joint product development, knowledge exchange, and enhanced competitiveness, underscoring the potential for more aligned and strategic collaboration in the future, even though the fact that the national policies do not primarily focus on cooperation between analyzed countries giving the answer to Q1.

The impact of the COVID-19 pandemic led to a sharp decline in tourism-related economic indicators across all analyzed countries, with AT experiencing the most profound drop. However, the data indicates a gradual recovery. The study also highlights structural differences in the tourism sector among the analyzed economies, answering Q2, with AT leading in terms of tourism intensity and economic contribution even with a relatively low share of tourism in total employment; on the other hand, HU leading in the share of tourism on total employment. Regarding economic impacts expressed by contribution to GDP, GVA, and employment, CZE consistently ranks in the middle among the analyzed countries, achieving average results across all indicators and indicating tourism's balanced but non-dominant role in its economy. SK stands out with one of the highest employment shares in tourism yet records some of the lowest values in other indicators. One of the most important indicators is the economic impact of added value. The leaders are AT and DE, which have reached the highest numbers. The minimal value added was identified in SK, reaching the lowest shares except for 2022, where PL had the lowest GVA out of the analyzed countries. Moreover, correlation analyses confirm a strong relationship between the number of visitors, overnight stays, and economic performance. However, variations exist, particularly in HU and PL, where government interventions and data limitations may have influenced the results.

These findings underscore the importance of reliable and comparable data for cross-country analyses, as discrepancies in national TSA methodologies and data availability can affect the accuracy and comparability of economic assessments in the tourism sector. Despite internationally recognized recommendations and methodologies for compiling tourism satellite accounts, their implementation varies across countries, limiting the comparability of results. These differences pertain not only to the processing of input data but also to their presentation and the frequency of publication. The most significant discrepancy was observed in PL, where the TSA is published as a textual document with limited availability of historical data.

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Exploring the Impact of Socioeconomic Factors on the Consumption of Spa Services in Slovakia

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https://doi.org/10.53465/CEECBE.2025.9788022552257.264-272

Abstract: Spa tourism in Slovakia represents a significant component of the country´s tourism industry, attracting both domestic and international visitors thanks to its unique natural healing resources. This study aims to analyze the impact of selected socioeconomic factors-specifically the number of treated patients, life expectancy at birth, and average disposable income on the consumption of spa services. A regression analysis revealed a statistically significant positive effect of the number of treated patients and disposable income on spa services consumption, whereas life expectancy at birth exhibited a statistically significant negative effect. The validity and robustness of the model were confirmed through stationarity and heteroskedasticity tests. The findings can serve as a basis for effective planning and development of spa services in line with current trends and market needs.

Keywords: Spa Service Consumption, Socioeconomic Factors, Spa Tourism

JEL Classification codes: L83, I15

INTRODUCTION

Spa tourism represents a unique intersection of healthcare and tourism, offering both therapeutic and preventive services that contribute to public health and economic development. Traditionally, spa destinations have provided therapeutic treatments aimed at improving physical well-being, but their role has evolved over time to encompass preventive healthcare and wellness tourism, attracting a diverse range of visitors. The economic relevance of spa tourism extends beyond direct revenues, contributing to regional development, employment, and public health infrastructure (Smith & Puczkó, 2014). However, despite its growing importance, the factors influencing spa service consumption remain insufficiently explored in empirical research. Understanding the socioeconomic drivers of spa tourism demand is essential for both tourism and public health policies. Economic prosperity, demographic trends, and healthcare accessibility all shape consumer behavior in this sector. Although spa tourism has played a historical role in Slovak´s healthcare systems, the research focuses mostly on market trends and consumer behavior.

Given the increasing importance of data-driven decision making for tourism and healthcare policy, this study aims to examine the relationship between selected socioeconomic indicators and spa service consumption in Slovakia. Using time-series regression analysis, the research investigates how the number of cured patients, life expectancy at birth, and gross disposable income influence the consumption of spa services. The findings of this study are expected to provide empirical insights for tourism strategists, healthcare policymakers, and economic planners, contributing to the sustainable development of the spa tourism sector.

1 LITERATURE REVIEW

Medical tourism involves traveling for medical care, including surgeries and health services, while wellness tourism focuses on health promotion and preventive care (Lopes & Rodíguez-López, 2022). Spa tourism is defined within health tourism and represents a unique blend of health, wellness, and recreational services, closely tied to natural healing resources, favorable environmental conditions, and cultural heritage. Its primary function is to promote health improvement, regeneration, and relaxation (Novacká et al., 2014). Beyond its health benefits, spa tourism is widely acknowledged as a significant contributor to the economy, stimulating employment, infrastructure development, and revenue generation (Smith & Puczkó, 2014). Understanding the consumption of spa services is essential for evaluating their economic impact. In tourism and health economics, consumption is viewed as a process that extends beyond the mere purchase of a service, encompassing pre-purchase decisions, service experience, and post-consumption evaluation (Ekinci et al., 2011). The Slovak´s Tourism Satellite Account (TSA) defines tourism expenditure as the amount paid by the visitor for the acquisition of consumer goods and services, as well as valuables for his own consumption or for the consumption of others, before or during the stay. Tourism consumption has the same formal definition as visitor spending, but is a broader concept. In fact, in addition to tourism expenditure, it includes, for example, services related to holiday accommodation on own account, social transfers within tourism and other imputed consumption. The concept of visitor consumption is the basis for the compilation of direct tourism gross value added and direct tourism GDP (TSA, 2022). According to TSA, spa service consumption in Slovakia in 2022 accounted for 4.3% of total tourism consumption, amounting to €219,896,000.

Demographic trends play a significant role in shaping the demand for spa services. Research suggests that life expectancy and population aging are among the key factors influencing health-related tourism (Müller & Lanz-Kaufmann, 2001). As the global population ages, the need for preventive and rehabilitative treatments increases, making spa services a critical part of health tourism strategies (Voigt et al., 2011). Studies indicate that in regions with longer life expectancy, individuals are more likely to seek wellness and therapeutic services, although the impact on overall consumption patterns varies (Smith & Diekmann, 2017). Furthermore, the increasing focus on preventive healthcare policies has contributed to a growing preference for spa-based wellness treatments, particularly in Europe and Asia (García-Altés, 2005). However, higher life expectancy is often associated with better overall healthcare systems and preventive medical care, potentially reducing the need for spa treatments later in life (Wang & Wang, 2021). In the context of Slovak spa tourism, available demographic data support this trend; while the average life expectancy in Slovakia in 2022 is 78.18 years, the largest group of spa patients falls within the 55-64 age category (ŠÚ SR, 2022; NCZI, 2022). This suggests that spa services are primarily utilized by individuals in pre-retirement and early retirement, rather than by the oldest segments of the population.

Disposable income and financial accessibility are widely regarded as crucial factors affecting tourism consumption (Dolnicar & Leisch, 2004). Research by Hall and Williams (2019) demonstrates that higher gross disposable income correlates with increased participation in wellness-related activities. However, studies also highlight that spa service consumption exhibits varying degrees of price elasticity, depending on whether services are financed through private spending or health insurance systems (Koncul, 2012). Additionally, evidence from the Global Wellness Institute (2018) suggests that economic fluctuations can significantly influence consumer spending on non-essential health services, including spa tourism, particularly during periods of economic downturns.

The number of cured patients in spa facilities has been used in previous research as an indicator of medical tourism demand. Studies suggest that state-funded spa treatments and insurance-based reimbursements play a critical role in determining patient volume and revenue generation (Dimitrovski & Todorović, 2015). The relationship between health status and spa service consumption has been explored in various studies, emphasizing that government-supported treatments significantly impact the economic sustainability of the spa industry (Song et al., 2012). Furthermore, empirical research indicates that the structure of health insurance policies influences consumer behavior, with countries that provide partial or full reimbursements for spa treatments experiencing higher demand (Johnston et al., 2010).

2 METHODOLOGY

This study aims to analyze the impact of selected socioeconomic factors on the consumption of spa services in Slovakia. Firstly, the relationships between the number of cured patients, life expectancy at birth, and gross disposable income as independent variables and the consumption of spa services as the dependent variable are identified. The analysis is based on annual data for the period 2012 – 2022, sourced from publicly available statistical records from the Statistical Office of the Slovak Republic (ŠÚ SR) and Slovak National Health Information Centre (NCZI):

- consumption of spa services (monetary value in EUR);
- number of cured patients (domestic visitors);
- life expectancy at birth (years);
- gross disposable income (EUR per capita).

Consumption of spa services is derived from the Tourism Satellite Account, compiled by ŠÚ SR. TSA categorizes internal tourism consumption by product, with spa service consumption classified as a characteristic tourism service specific to Slovakia. Data on the number of treated patients are collected by NCZI, which gathers records directly from spa enterprises. The dataset distinguishes between domestic and international patients, as well as between those whose treatments are covered by health insurance and self-paying patients. For the purpose of this analysis, we consider only domestic patients, regardless of whether their stay was insurance-funded or self-paid. Life expectancy at birth and gross disposable income per capita are sourced from ŠÚ SR, specifically from DataCube database.

The study follows a hypothesis-driven approach, where the following hypotheses, grounded in the theoretical framework, are tested:

- H0: Socioeconomic factors do not have an impact on the consumption of spa services.
- H1: Socioeconomic factors have an impact on the consumption of spa services.

The empirical model is constructed using the Ordinary Least Squares (OLS) regression, with the general equation specified as:

$$Y = \beta_0 + \sum_{i=1}^{n} \beta_i X_{it} + \varepsilon_t \qquad (1)$$

where:

Y_t - dependent variable;

X_{it} - independent variables;

β_0 – intercept;

β_i – regression coefficients measuring the impact of each independent variable;

ε_t – error term.

Before estimating the regression model, a unit root test (Augmented Dickey-Fuller Test – ADF) was conducted to assess the stationarity of the time series data. The results indicated that the variables were non-stationary in their level form, which could potentially lead to spurious regression results. To address this issue, first differencing was applied, after which the stationarity of all variables was confirmed through a second ADF test. This step ensured that the model was built on reliable and econometrically robust data.

For further validation, the Breusch-Pagan test for heteroskedasticity was applied to check for non-constant variance in residuals. The results showed no presence of heteroskedasticity, allowing for standard error interpretations without adjustments. Additionally, the Durbin-Watson test was used to assess the autocorrelation, confirming that first-order autocorrelation was not significantly affecting the model. The F-test for overall model significance indicated that the regression equation is statistically meaningful.

The entire econometric analysis was conducted using Gretl software, which facilitated efficient handling of time series data and statistical testing. The findings from this study provide valuable insights into the relationship between socioeconomic determinants and spa service consumption in Slovakia.

3 RESULTS AND DISCUSSION

Spa tourism plays a crucial role in the economic landscape of the Slovak Republic, contributing to its development through employment creation, infrastructure improvements, and increased revenue generation. Due to its year-round appeal, spa tourism also helps stabilize visitor numbers during non-peak seasons, making it a sustainable component of the national economy. Understanding key economic and social indicators related to spa tourism allows policymakers and stakeholders to develop strategies that support its long-term sustainability and economic viability.

To evaluate the influence of socioeconomic factors on spa service consumption, econometric modeling using OLS method was applied. The model investigates whether selected socioeconomic factors significantly impact the consumption of spa services. The regression model was formulated as follows:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \varepsilon \tag{2}$$

where:

y = consumption of spa services,

x_1 = number of cured patients in Slovak spas,

x_2 = life expectancy at birth,

x_3 = gross disposable income,

β = intercept,

β_1, β_2, β_3 = regression coefficients estimated using the least squares method,

ε = error term.

The correlation analysis (Tab. 1) examines the relationships between selected socioeconomic indicators and spa service consumption. The results show a weak positive correlation (0.2082) between the number of cured patients and spa service consumption, suggesting a slight connection. A moderate negative correlation (-0.4221) between life expectancy at birth and spa service consumption implies that higher life expectancy is associated with lower demand for spa services. The correlation between gross disposable income and spa service consumption (0.1146) is minimal, indicating that income has little impact. Similarly, the number of cured patients and gross disposable income (-0.1614) show a weak negative relationship. The strongest correlation is between the number of cured patients and life expectancy at birth (0.707), highlighting a link between healthcare treatments and longevity. Overall, the correlation analysis confirms that while some socioeconomic factors influence spa service consumption, their impact is not substantial. The relatively weak correlations suggest that these factors alone do not fully explain the variability in spa service consumption. To gain a deeper understanding of these relationships, a regression analysis is conducted to examine the combined effects of multiple variables and their statistical significance in predicting spa service demand.

Tab. 1 Correlation analysis of socioeconomic factors on spa service consumption in Slovakia

	Consumption of spa services	Number of cured patients	Life expectancy at birth	Gross disposable income
Consumption of spa services	1.0000	0.2082	-0.4221	0.1146
Number of cured patients		1.0000	0.7070	-0.1614
Life expectancy at birth			1.0000	0.1038
Gross disposable income				1.0000

Source: own processing

The R-squared value (0.854) suggests that approximately 85.4% of the variability in spa service consumption is explained by the independent variables included in the model. More relevant for research is the adjusted R-squared value (0.781), which accounts for the number of predictors in the model; this means that 78.1% of the variation in spa service consumption can be attributed to the examined independent variables while adjusting for the complexity of the model. The standard error of the regression (15,088.35) provides insight into the accuracy of predictions, indicating the average deviation of observed values from the regression line. Additionally, the Durbin-Watson statistic (1.972268) suggests that autocorrelation in the residuals is not a concern, supporting the validity of the regression assumptions. The log-likelihood value, along with information criteria such as Akaike (223.7041) and Schwarz (224.7041), helps assess the model´s fit compared to alternative specifications. These results indicate that the selected socioeconomic factors have significant explanatory power in determining spa service consumption, providing a strong foundation for further predictive analysis and policy recommendations.

Tab. 2 Regression Statistics

R Squared	0.854103
Adjusted R Squared	0.781154
Standard Error	15,088.35
Log-likelihood	-107.852
Durbin-Watson	1.972268
Akaike criterion	223.7041
Schwarz criterion	224.9144

Source: own processing

To further assess the validity of the regression model, an analysis of variance (ANOVA) test was conducted. The ANOVA test decomposes the total variability in spa service consumption into explained and unexplained components. The F-statistic (11.70828) and its significance level (p-value = 0.0064) indicate that the model as a whole is statistically significant, confirming that the independent variables jointly contribute to explaining the variance in spa service consumption. The results provide strong evidence that the regression model is appropriate for analyzing the impact of socioeconomic factors on spa service consumption.

Tab. 3 ANOVA test results

	df	SS	MS	F	Significance F
Regression	3	8020186227.26992	2673395409.0899734	11.70828	0.00641
Residual	6	1370000000.0	228333333.33333334		
Total	9	9390186227.26992			

Source: own processing

The regression analysis examines the impact of selected socioeconomic factors on the consumption of spa services. The estimated regression equation is expressed as follows:

$$y = 3.25e + 06 + 1.5755x_1 - 46{,}580.9x_2 + 82.7947x_3 \tag{3}$$

To test the statistical validity of the model, a hypothesis testing approach was applied. The p-values of the independent variables were examined to determine statistical significance.

The coefficient for the number of cured patients has a standard error of 0.30321, a t-ratio of 5.196, and a p-value of 0.002. Given that p <0.05, the null hypothesis is rejected, indicating that the number of cured patients has a statistically significant and positive impact on spa service consumption. The magnitude of the t-ratio suggests a strong effect within the model.

The coefficient for life expectancy at birth has a standard error of 8,187.03, a t-ratio of -5.69, and a p-value of 0.0013. The negative sign of the coefficient indicates an inverse relationship, meaning that higher life expectancy is associated with lower spa service consumption. As p <0.05, the null hypothesis is rejected, confirming that this variable plays a significant role in the model.

The coefficient for gross disposable income has a standard error of 33.6403, a t-ratio of 2.461 and a p-value of 0.049. While this p-value is slightly above the conventional 5% threshold, it remains statistically significant at the 10% level (p < 0.10), indicating that disposable income has a moderate influence on spa service consumption. The positive coefficient suggests that higher income levels contribute to increased demand for spa services, albeit with a weaker effect compared to other variables.

Table 4 presents the regression output, highlighting the coefficients, standard errors, t-ratios, and p-values of the model variables.

Tab. 4 Regression analysis results

	Coefficients	Standard Error	t-ratio	p-value
Constant	3,25e+06	587,553	5.528	0.0015
Number of cured patients	1.5755	0.30321	5.196	0.002
Life expectancy at birth	-46,580.9	8,187.03	-5.69	0.0013
Gross disposable income	82.7947	33.6403	2.461	0.049

Source: own processing

The regression findings confirm that among the tested socioeconomic factors, the number of cured patients and life expectancy at birth exhibit the strongest statistical influence on spa service consumption. The role of disposable income, while statistically relevant, is less pronounced in comparison.

CONCLUSION

The study explored the impact of selected socioeconomic factors on the consumption of spa services in Slovakia. Contributing to a deeper understanding of the economic and demographic determinants shaping consumption in this sector. By applying the time-series regression analysis, the research identified key relationships between the number of cured patients, life expectancy at birth, and gross disposable income, offering empirical insights relevant to both tourism economics and healthcare planning.

The results indicate that the number of cured patients has a statistically significant positive impact on spa service consumption, confirming that the volume of visitors undergoing treatment remains a key driver of consumption. This finding aligns with expectations, as higher patient numbers reflect both medical necessity and growing consumer interest in spa-based treatments. In contrast, life expectancy at birth negatively influences consumption, suggesting that populations with longer lifespans may rely less on traditional spa services, possibly due to increased access to alternative healthcare options or shifting preferences toward other forms of wellness tourism. Gross disposable income also emerged as a significant determinant, reinforcing the idea that economic stability enhances the affordability and accessibility of spa services. These findings emphasize the interconnectedness of economic conditions and consumer behavior in spa tourism.

From a policy perspective, the results highlight the need for strategic investment in spa tourism infrastructure and targeted marketing efforts that consider the evolving demographic and economic landscape. Expanding accessibility to spa services through insurance incentives or public health initiatives could further enhance consumption, particularly among aging populations. Additionally, supporting innovation in spa tourism and modernizing spa facilities to cater to a broader audience may strengthen the sector´s resilience to economic fluctuations.

While the study provides valuable insights, certain limitations should be acknowledged. The analysis is based on national-level data, which may not fully capture regional disparities or individual consumer preferences. Future research could benefit from a microeconomic approach, integrating survey-based data or qualitative insights to complement the econometric findings. Additionally, examining external factors such as healthcare policies, cross-border medical tourism, or seasonal variations in spa service demand could provide a more comprehensive understanding of the sector´s dynamics. Future research could explore whether the method of financing a spa stay influences the relationship between socioeconomic factors and spa service consumption. Incorporating this distinction into future models could provide a more nuanced understanding of the determinants of spa tourism.

Overall, this research contributes to the quantitative assessment of spa tourism consumption, reinforcing the role of economic and demographic factors in shaping consumer behavior. The findings have practical implications for tourism policymakers, healthcare strategists, and business stakeholders, supporting the sustainable development of the spa tourism sector. By integrating data-driven approaches into decision making, the sector can adapt to changing economic conditions and demographic trends, ensuring its continued growth and long-term viability.

ACKNOWLEDGEMENT

The paper is a part of the research project VEGA No. 1/0271/23 Sustainable renewal of spa tourism in the Slovak Republic in the context of the impacts of civilization crises.

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Bridging Technology and Talent: Gen Z's Take on AI in Recruiting and Hiring

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https://doi.org/10.53465/CEECBE.2025.9788022552257.273-288

Abstract: This study explores the perceptions, experiences and preferences of Generation Z in relation to the use of artificial intelligence (AI) in recruitment and selection processes. The analysis is based on a nationwide survey conducted among a sample of 644 young adults aged 18 to 28 with different educational and professional backgrounds from Romania and used structural equation modeling to analyze the results. Findings show that ethical and human-centric priorities, like transparency and fairness, strongly enhance perceived AI benefits, which in turn increase familiarity and perceived accuracy. Anxiety over AI tools heightens human-centric priorities, revealing a tension between efficiency and emotional comfort. As digital natives, Generation Z appreciates AI's efficiency but seeks clarity and human oversight. This work fills a gap in understanding job seekers' perspectives and offers employers insights to craft fair, transparent AI hiring systems suited to Romania's emerging workforce.

Keywords: Artificial Intelligence (AI), Generation Z, Human Resources (HR) Technology, Recruitment, Selection

JEL Classification codes: O33, J11, O15

INTRODUCTION

In the continuous struggle to maintain their competitiveness in the global market organizations have started to undertake essential changes starting by adopting new strategies and stopping at complex tools such as artificial intelligence (AI) (Pan et al., 2021). Despite all these changes, human resource remains at the heart of an organization where effective human resource management (HRM) has become more significant, particularly in ensuring recruitment and selection of employees whose competencies are in line with organizational objectives (Ore & Sposato, 2022). As AI is increasingly integrated into HRM practices, it is therefore essential to critically examine its impact, especially in the area of recruitment and selection, in order to assess factors such as effectiveness (Tanantong & Wongras, 2024; Sposato et al., 2025), ethical considerations (Sposato et al., 2025) or risks (Sposato et al., 2025) from the perspective of all stakeholders. From the perspective of the organization or management, on which many studies have focused, AI has enabled a smarter and more efficient approach to recruitment and selection processes (Ore & Sposato, 2022). Nevertheless, little is known about the job seekers' perspective on the AI recruitment tool.

Generation Z, which is entering the world of work as digital natives (Șchiopu et al. 2023), is directly affected by these technological changes when it comes to recruitment (Pichler et al., 2021; Diaconescu, 2024). While this generation is very familiar with AI-driven technologies, their perception of the ethical implications, benefits and accuracy of AI plays a crucial role in their acceptance of AI in recruitment. In addition, the emotional response (Pichler et al., 2021) to AI hiring tools, especially AI-based video interviews, can influence skepticism towards the fairness and transparency of AI. Understanding how these factors interact is crucial for recruiters, AI developers and policy makers who want to use AI responsibly in recruitment.

Though AI is becoming more common in recruitment, research exploring how Generation Z in Romania views and embraces these tech-driven processes remains scarce. Most articles so far analyze what HR experts think or how companies roll out AI, sidelining the applicants' view, which is extremely important for keeping recruitment fair and ethically sound. While traditional models of technology adoption explain usability or efficiency, they often do not consider the ethical and human-centric aspects that influence AI adoption, or the possible relationship between these factors. The main purpose of this research is to develop a deeper understanding of the Romanian Generation Z of job seekers for the use of AI in the recruitment and selection process. The current study aims to explore the relationship between ethical and human-centric priorities, perceived benefits, familiarity and anxiety as factors influencing Generation Z's perceptions, rather than their acceptance of AI technology in recruitment. Starting from the elements and framework of previous technology acceptance models such as The Technology Acceptance Model (TAM) (Davis, 1989), The Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003) and The Human Centered TAM (HC-TAM) (Akram et al., 2024), the current research proposes a construct that incorporates previously underexplored factors such as ethical priorities and anxiety, specific to the Romanian context. This model aims to test three hypotheses: (1) ethical and human-centric priorities are expected to positively influence the perceived benefits of AI, (2) that these perceived benefits influence familiarity with AI and trust in its accuracy, and (3) that anxiety triggered by AI influences the emphasis on ethical priorities. By exploring the perspectives of Generation Z, the study aims to shed light on the expectations of the future workforce and improve understanding of the role of AI in hiring practices.

Apart from the introduction, the paper is structured into four main categories: the literature review, which provides concise information regarding the topic and the research hypotheses; the methodology, which consists of a description of the data collection and processing; the results and discussion, which is dedicated to presenting the empirical results in the context of the existing literature; and the conclusions, a section that highlights the benefits of the research, its limitations and directions for future research.

1 LITERATURE REVIEW

The incorporation of AI into HRM has profoundly reshaped recruitment and selection processes, signifying a swift transition from conventional approaches to cutting-edge technological solutions (Tsiskaridze et al., 2023; Almeida et al., 2025). Defined as systems capable of performing tasks that demand human cognitive abilities, such as learning and decision-making, AI enhances recruitment by automating repetitive activities, mitigating human bias, and efficiently handling large data sets (Pan et al., 2021; Clamel et al., 2024). For example, AI-driven tools like chatbots and virtual assistants streamline candidate sourcing and resume screening, enabling organizations to expedite procedures and elevate the candidate experience (Al-Alawi et al., 2021).

Generation Z provides a unique view on AI's application in recruitment, as they are the generation that has grown up solely within a digital age (Clamel et al., 2024; Almeida et al., 2025). Generation Z members value convenience and customization provided through AI-driven chatbots and virtual interviews, but also possess a sense of ethical concerns, including privacy and equity, during recruitment and selection (Tsiskaridze et al., 2023). Current research indicates that Generation Z likes speedy and intuitive interactions but anticipates human touch and transparency for enhancing automation, with a requirement for user-centric AI models customized for their own specifications (Al-Alawi et al., 2021).

While the aforementioned theoretical models provide a generous framework for understanding technology acceptance, they often focus on cognitive factors (e.g. usefulness, ease of use) and lack the integration of ethical and emotional dimensions that are crucial for Gen Z candidates, especially in a country like Romania. This study addresses this gap by proposing an integrative model that extends these frameworks to explore how ethical priorities, perceived benefits, familiarity, and anxiety shape candidate perceptions. The body of existing research lays a strong base for probing these relationships, testing assumptions about how these factors link within Generation Z's perspective, and opening the door to a thorough look at AI's ethical and practical roles in HRM (Akram et al., 2024; Ore & Sposato, 2022). This work will shed light on what the next generation of workers expects and worries about, guiding companies to craft AI hiring systems that emphasize openness, equity, and respect for job seekers' confidence and ease.

1.1 Ethical and human-centric priorities in recruitment and selection

The integration of AI in recruitment and selection processes raises significant ethical and human-centric priorities that shape the perception of candidates, especially among Generation Z. These elements (transparency, fairness, human interaction and mitigation of algorithmic bias) can be analyzed from a holistic perspective that reflects the responsible use of AI in order to better understand how Gen Z candidates perceive the entire recruitment and selection process. Each element fulfils a unique but interconnected function within the frame. Transparency, characterized as the clarity of AI-driven decision-making procedures, allows candidates to understand the evaluation criteria, thereby enhancing trust and increasing perceived benefits, as highlighted by Nilashi et al. (2016), although the opacity of algorithms may undermine acceptance, as noted by Rigotti and Fosch-Villaronga (2024). Fairness and objectivity in AI recruitment mean that the algorithms offer equal opportunities to all applicants and avoid biases that could disadvantage some of them (Rigotti and Fosch-Villaronga, 2024; Akram et al., 2024). Applicants perceive fairness as equitable treatment and expect hiring decisions to reflect their skills and efforts while ensuring that they are treated with respect, dignity and honesty (Shneiderman, 2020). Previous work (Koivunen et al., 2022; Xu et al., 2023) indicates that human involvement remains a cornerstone of recruitment, a role that will grow with the arrival of AI tools on the global scene. While the AI-technology and its applications sharpen efficiency, stakeholders often emphasize the lack of personal engagement, a weakness that affects people's trust and openness to the tools (Akram et al., 2024; Tanantong & Wongras, 2024). Finally, dealing with algorithmic bias has the potential to reinforce societal inequalities and requires strong governance to uphold ethical standards in AI applications (Peng et al., 2022; Fabris et al., 2023).

Although previous research has concentrated on each of these factors separately, little attention has been paid to integrating these factors into an overarching construct, especially in relation to Generation Z. The model presented herein extends the HC-TAM Model (Akram et al., 2024) on the grounds that each of these factors could potentially have a cumulative effect on attitudes towards AI benefits, a correlation further examined in the model presented below.

1.2 Perceived AI benefits in recruitment

AI's adoption into recruitment offers perceived benefits, such as increased efficiency, reduced bias, cost-effectiveness, and increased objectivity, that have a significant influence on candidate acceptability, particularly among Generation Z in Romania. These benefits are aligned with constructs from well-established technology acceptance models, including perceived usefulness in TAM (Davis, 1989) and performance expectancy in UTAUT (Venkatesh et al., 2003). Building on these models, the present study examines how perceived benefits impact familiarity and perceived accuracy, proposing a context-specific directional relationship tailored to Generation Z.

The efficiency and speed offered by AI are widely recognized advantages, as evidenced by their capacity to automate processes such as the screening of curriculum vitae (CV) and the scheduling of interviews (Akram et al., 2024). The substantial data-processing capabilities of AI algorithms contribute to a reduction in recruitment duration and bolster organizational efficiency (Rigotti & Fosch-Villaronga, 2024), a conclusion reinforced by investigations that reveal considerable time savings within large enterprises (Benhmama & Bennani, 2024). Another significant advantage lies in the mitigation of human bias, accomplished through the application of uniform evaluation standards that limit the impact of subjective factors in hiring decisions (Tanantong & Wongras, 2024). According to Rigotti and Fosch-Villaronga (2024), such fairness strengthens the impartiality of the recruitment procedure, while Yam and Skorburg (2021) emphasize that omitting demographic details from CVs promotes selection based on merit. Additionally, cost efficiencies emerge as AI streamlines repetitive tasks, diminishing the dependence on extensive HR teams or external recruitment agencies (Nguyen & Cao, 2024; Benhmama & Bennani, 2024), thereby enabling HR managers to concentrate on strategic responsibilities and further refining the allocation of resources.

Earlier studies have predominantly analyzed these benefits through an organizational lens, associating them with perceived usefulness (Akram et al., 2024) and performance expectancy (Tanantong & Wongras, 2024) within settings that emphasize efficiency and cost savings. Illustrative of this, the studies by Nguyen and Cao (2024) and Stone et al. (2024) emphasize the contribution of AI to expediting recruitment procedures and enhancing diversity, though their attention predominantly addresses employer-related outcomes, often overlooking the perspectives of candidates. Within the extended frameworks of technology acceptance models, perceived benefits are generally shaped by familiarity and ease of use, with the UTAUT model indicating that familiarity contributes to improved performance expectancy (Tanantong & Wongras, 2024). In contrast, the present investigation posits that these benefits may, in turn, affect familiarity and perceived accuracy among Generation Z, a reflection of their active engagement with technology as digital natives, an interrelationship that is further examined in the model outlined below.

1.3 AI familiarity and perceived accuracy in evaluating candidates

Understanding how AI functions, trust in its evaluative capabilities, and perceived accuracy significantly shape how Generation Z navigates AI-driven recruitment. This research fits these components into the aforementioned frameworks of the TAM Model (Davis, 1989) and the UTAUT Model (Venkatesh et al., 2003), which indirectly emphasize the role of familiarity and accuracy through constructs such as perceived ease of use and effort expectancy, and perceived usefulness and performance expectancy, respectively. This integrated approach extends the models by exploring a potential connection where the perceived benefits of different technologies can cultivate deeper familiarity and greater precision, particularly in line with Gen Z's digital-native inclinations.

The differing degrees of familiarity with these technologies among applicants and recruiters significantly influence their confidence and readiness to utilize such tools (Rigotti and Fosch-Villaronga, 2024). UTAUT posits that a greater insight into these systems will make them easier to use and perceived as useful, and therefore will promote acceptance (Tanantong & Wongras, 2024). However, a large percentage of Generation Z applicants have limited knowledge as to how these technologies work, which creates suspicion about their transparency, something particularly pertinent for a generation accustomed to digital interactions but wary of opaque processes (Benhmama & Bennani, 2024).The reliability of assessments, particularly in video-based interviews, is determined by automated analyses of behavioral cues, facial expressions, and speech patterns to evaluate interpersonal skills (George & Thomas, 2019). Large companies such as Unilever and Hilton have recorded up to a 90% reduction in recruitment time with the adoption of these innovations, enhancing efficiency and diversity (Stone et al., 2024; Benabou & Touhami, 2025), as well as tools such as HireVue improving consistency and enhancing access to talent pools (van Esch & Black, 2019). These innovations save on administrative loads and enable HR teams to focus on strategic talent management (Benabou & Touhami, 2025).

However, the validity of AI-driven candidate assessments is an area of scholarly debate, largely due to inherent biases in training data that can compromise the validity of results (Suen & Hung, 2024). Unilever's effective implementation of this technology demonstrates its commitment to promoting diversity and ensuring consistency (van Esch and Black, 2019). Nevertheless, platforms such as Knockri, which prioritize competencies while disregarding demographic factors, require greater transparency to address shortcomings in their data foundations (Tanantong & Wongras, 2024; Benhmama & Bennani, 2024). Ambiguities in decision frameworks and the limitations of technology to recognise emotions pose a major challenge, affecting candidate autonomy and confidence in the fairness of the assessment process (Rigotti & Fosch-Villaronga, 2024). The assessment of soft skills, including communication, leadership and emotional intelligence, places further demand on these systems. Studies suggest that while speech patterns and facial expressions can be analysed, a nuanced understanding of context is an exclusively human skill (George & Thomas, 2019; Benabou & Touhami, 2025). Companies such as IBM and eBay combine technology-enabled methods with human oversight to drive insights and maintain fair standards (Benhmama and Bennani, 2024). This study hypothesizes that the relationship between familiarity and perceived accuracy may be influenced by the perceived benefits of AI technologies—an interaction further examined within the framework outlined below.

1.4 AI-induced anxiety in recruitment

The utilization of AI in recruiting, especially via video interviews, may induce anxiety in candidates, therefore influencing their perceptions and attitudes towards these technologies. This anxiety often arises from the stress and uncertainty associated with computerized assessments, which applicants may perceive as impersonal and opaque. Within the context of established technology acceptance models (e.g., Davis, 1989; Venkatesh et al., 2003), anxiety can act as a barrier to adoption by negatively impacting perceived ease of use and effort expectancy. This study builds upon the HC-TAM model (Akram et al., 2024) to examine the intersection of AI-induced anxiety with ethical and human-centric priorities, including transparency and fairness, issues that are especially pertinent to Generation Z, a demographic recognized for its focus on digital responsibility.

Anxiety connected to AI frequently arises from applicants' perceptions of diminished control and clarity during evaluations conducted via video interviews that assess their behavior, voice, and facial expressions (Majumder & Mondal, 2021). The anxiety is exacerbated by concerns of misunderstanding, particularly about cultural disparities, and by the lack of direct human engagement, which Generation Z candidates prioritize for establishing trust and rapport (Suen & Hung, 2024; van Esch & Black, 2019). These concerns are especially noticeable among Gen Z, who, despite their comfort with digital technologies, remain particularly sensitive to unclear processes that might compromise fairness. Their upbringing as digital natives fosters high expectations for transparency and procedural justice (Rigotti & Fosch-Villaronga, 2024; Benhmama & Bennani, 2024). Several companies, like Unilever, have implemented human oversight into their recruitment processes in order to address these concerns. This has resulted in a significant reduction in the anxiety that is associated with automated evaluations and has helped to boost the confidence of applicants (van Esch & Black, 2019). The opacity surrounding AI-driven recruitment processes can deeply undermine applicants' trust in the fairness of these systems, as highlighted by a recent study (Benhmama & Bennani, 2024). This concern is especially evident among the younger generations, for whom compliance with ethical standards in technological applications is of great importance. The study recommends consideration of AI-induced anxiety as a variable that can influence Gen Z job applicants' ethical priorities. This dynamic is also explored in more depth in the following conceptual framework and offers potential insights for alleviating Gen Z anxiety in tech-enabled recruitment.

1.5 Theoretical framework and hypotheses development

This exploratory framework (Fig. 1) integrates ethical, cognitive, and emotional determinants influencing Generation Z perspectives on AI in recruitment based on theories such as TAM (Davis, 1989), UTAUT (Venkatesh et al., 2003), and the contemporary HC-TAM (Akram et al., 2024). Such theories generally investigate technological acceptability using utility and usability lenses. Their impacts are extended to address the ethical and emotional dimensions of Generation Z perspectives in Romania. This experimental study investigates a less-researched phenomenon—interaction with AI by this generation—illuminating on the complex interplay between ethics and emotion in their worldview.

Existing research indicates that transparency in AI systems enhances perceived usefulness (Akram et al., 2024), fairness enhances perceptions of justice in system processes (Rigotti et al., 2024), and fair treatment by AI systems increases candidate engagement (van Esch & Black, 2019). In addition, bias reduction results in equitable outcomes consistent with governance goals (Peng et al., 2022), collectively shaping notions of objectivity and efficiency. This study integrates these into a composite construct in HC-TAM, as applied to Gen Z job applicants in Romania, on the grounds of ethical human rights considerations for AI recruitment (Hunkenschroer & Kriebitz, 2023). Moreover, while a potential correlation to familiarity is plausible, as an introductory step this study focuses on benefits as a primary outcome.

- **H1**: Ethical and human-centric priorities in AI recruitment and selection positively influence perceived AI benefits.

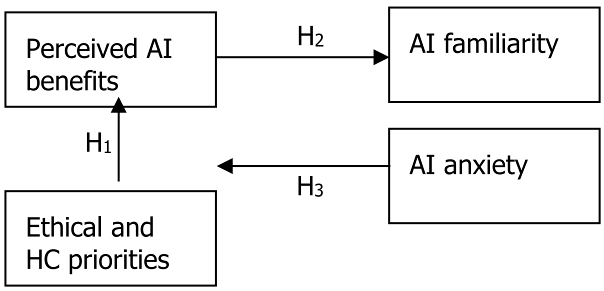
Literature such as UTAUT and TAM adaptations shows that perceived ease of use (based on familiarity) leads to perceived usefulness (Tanantong & Wongras, 2024; Akram et al., 2024). Unlike UTAUT's familiarity-to-usefulness direction, the current study proposes the analysis of perceived benefits over familiarity and accuracy for digital-native Gen Z candidates. As a result, this study proposes an extension in which perceived benefits such as efficiency (Tanantong & Wongras, 2024; Rigotti & Fosch-Villaronga, 2024; Akram et al., 2024; Stone et al., 2024; van Esch & Black, 2019), quality consistency (Tanantong & Wongras, 2024), objectivity (Rigotti & Fosch-Villaronga, 2024), personalization (Akram et al., 2024; Stone et al., 2024), accuracy (Stone et al., 2024; van Esch & Black, 2019), trust (Akram et al., 2024; Stone et al., 2024), and familiarity (van Esch & Black, 2019) promote greater adoption by HR professionals. Such benefits, and possible support by bias reduction (Tanantong & Wongras, 2024), extend existing models by emphasizing perceived benefits in recruitment and general HRM processes, with empirical support by new generation candidates (e.g., Gen Z) showing greater appeal (van Esch & Black, 2019). Bias reduction is argued by Rigotti and Fosch-Villaronga (2024) to be contentious, as AI can reinforce or amplify existing biases through faulty data or algorithms, in contrast to more optimistic assumptions (e.g. Tanantong & Wongras, 2024), and objectivity is contentious through such algorithmic limitations. Transparency (Akram et al., 2024), ethical considerations (Stone et al., 2024), and treatment that is fair (van Esch & Black, 2019) can also influence trust and acceptance.

- **H2**: Higher perceived benefits of AI in recruitment and HRM processes positively influence its adoption among HR professionals.

In AI recruitment, studies show that anxiety is created by opaque and impersonal AI tests (Suen & Hung, 2024; Majumder & Mondal, 2021), and fears of transparency and justice drive mistrust (Akram et al., 2024; Benhmama & Bennani, 2024). Fair treatment can promote engagement (van Esch & Black, 2019), while inducing mixed responses. Contrary to prior studies that correlated anxiety with reduced trust, we propose it drives Gen Z's demands for transparency, justice, and human control and expand HC-TAM with a fresh emotional-moral link. Potential interrelations with perceived usefulness or familiarity remain under researched and are worth investigating (van Esch & Black, 2019).

- **H3**: AI-induced anxiety positively influences ethical and human-centric priorities about AI recruitment and selection.

Fig. 1 Proposed conceptual model



Source: Authors

These hypotheses, put to test by the model depicted in Fig. 1, address an interesting gap in Gen Z's worldview about AI in Romania and provide fresh insights into how ethical and emotional factors play out in tech-enabled recruitment.

2 METHODOLOGY

This study aims to explore the perspective of Generation Z job applicants from Romania towards AI-driven recruitment technologies, focusing on how their ethical priorities, perceived benefits, familiarity and fears shape their attitudes towards the use of AI in recruitment. To achieve this objective, a nationwide survey was carried out, encompassing a cohort of 644 respondents. The target population consisted of young Romanian adults of Generation Z who are of legal age (at least 18 years old) and who have gone through at least one stage of a recruitment process for employment. The sampling frame was created based on key demographic variables. Employment status was not relevant for the present research, but age, gender, education and field of study were considered necessary to portray a potential candidate for a job. The composition of the sample can be found in Table 1. Data was collected between the 4th and 25th of January 2025 using an online survey uploaded on Google Forms.

Prior to completing the survey, respondents were given information about the research purpose along with necessary conceptual clarifications to facilitate their understanding of the research questions.

Tab. 1 Sample structure

Demographic attributes		Number	Proportion
Age	18-22 years	510	79.2%
	23-28 years	134	20.8%
Gender	Male	319	49.5%
	Female	325	50.5%
Education	High school	134	20.8%
	University (currently enrolled)	376	58.4%
	University (graduate)	80	12.4%
	Master's/PhD	50	7.8%
	Other	4	0.6%
Field of studies	IT	62	9.6%
	Economics, business	359	55.7%
	Technical	67	10.4%
	Psychology, sociology, medicine	135	21.0%
	Other	21	3.3%

Source: Authors

The data were processed and analyzed utilizing three software applications Microsoft Excel, IBM SPSS and Warp PLS for structural equation modeling (SEM). The decision to conduct exploratory factor analysis (EFA) was made based on a need to uncover latent constructs in survey responses and was motivated by this study's exploratory nature and by a lack of strong existing modelling of Generation Z opinion on recruitment tools. EFA was conducted with SPSS and used principal component analysis (PCA) with varimax rotation to identify underlying structure of these constructs.The suitability of the dataset for EFA was confirmed by a Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy with a value of 0.862, indicating robust sample quality, and a statistically significant Bartlett's test of sphericity ($\chi^2 = 5708.807$, df = 171, $p < 0.001$) (Hair et al., 2017). Four factors emerged from the analysis, which are based on the criterion eigenvalue greater than 1 and account for 63.228% of the total variance (original eigenvalues: component 1: 28.552%, component 2: 20.149%, component 3: 8.179%, component 4: 6.348%). After rotation, the variance distribution was adjusted to 63.154% (component 1: 18.717%, component 2: 17.930%, component 3: 17.420%, component 4: 9.087%). Items that had loadings greater than 0.6 in the rotated component matrix were retained (Hair et al., 2017), with a single exception in Factor 3—, namely the item "How familiar are you with AI in hiring?" with a loading of 0.530, which was retained due to its conceptual importance. All commonalities were above 0.5 (between 0.586 and 0.806). The resulting structure was then tested with PLS-SEM in WarpPLS to assess the hypothesized relationships. Four variables were developed based on items assessed via a 5-point Likert scale with the main objective of testing the conceptual model proposed in Figure 1. Table 2 outlines the composite variables: ethical and human-related priorities (six items), perceived benefits of artificial intelligence (four items), familiarity with AI and its perceived accuracy in candidate assessment (six items), and AI-induced anxiety (two items). The assessment of the model's appropriateness involved analyzing the reliability and validity of the constructs (Hair et al., 2020).

Tab. 2 Latent variables – internal consistency

Construct	Item	Cronbach's Alpha	CR	AVE
Ethical and human-centric priorities (Factor 1)	QI1. How important do you think transparency is in the hiring process? QI2.How important do you consider fairness and objectivity in the hiring process? QI3. How important do you consider human interaction in the hiring process? DOt1. How significant do you consider the lack of human interaction as a disadvantage of using AI in recruitment? Dot2. How important do you think the risk of algorithmic bias is as a disadvantage of using AI in recruitment? Dot3. How significant do you think the lack of transparency in decision-making is as a disadvantage of using AI in recruitment?	0.861	0.866	0.520
Perceived AI benefits (Factor 2)	AO1. How important do you consider speed and efficiency as advantages of using AI in recruitment? AO2. How important do you think eliminating human bias is as an advantage of using AI in recruitment? AO3. How important do you consider lower costs for employers as an advantage of using AI in recruitment? AO4. How important do you think increased objectivity is as an advantage of using AI in recruitment?	0.820	0.816	0.526
AI familiarity and perceived accuracy in evaluating candidates (Factor 3)	FQ1. How familiar are you with the use of artificial intelligence (AI) in hiring and recruitment? PQ1. How would you assess the effectiveness of AI in recruitment and hiring? PQ2. To what extent do you believe AI improves fairness and objectivity in the hiring process? PQv3. How effective do you think AI is in video interviews, such as assessing behavior and body language? PQv4. How fair do you think AI is when used in video interviews to assess behavior and body language? PQ7. How accurately do you think AI can assess a candidate's soft skills, such as communication and leadership?	0.834	0.863	0.514
AI-induced anxiety (Factor 4)	PQv5. How intimidating do you find the use of AI in video interviews, such as for assessing behaviour and body language?	0.822	0.872	0.773

Construct	Item	Cronbach's Alpha	CR	AVE
	PQv6. How stressful do you find the use of AI in video interviews, such as for assessing behaviour and body language?			

Note: CR = Composite Reliability; AVE = Average Variance Extracted.
Source: Authors

The SEM methodology facilitates the estimation of dependency relationships among a set of constructs within a theoretical model (Malhotra et al., 2017). The study employed the Partial Least Squares (PLS) technique, a form of SEM, wherein latent variables are defined as aggregates of observable indicators, and the structural model highlights the interactions among these constructs (Hair et al., 2017). In the current study, the analysis of construct validity was performed by evaluating both convergent and discriminant validity. Convergent validity reflects the extent to which a scale demonstrates a positive correlation with alternative measures of the same construct (Malhotra, 2010). It is recommended that the factor loadings be above 0.5, preferably 0.7, and be statistically significant (Malhotra, 2010). In addition, the reliability of the constructs was analyzed by calculating composite reliability coefficients and Cronbach's alpha values (Hair et al., 2020). As presented in the second table, the values were above 0.81, indicating a high degree of internal consistency. This conclusion is supported by the Cronbach's alpha coefficients ranging between 0.820 and 0.861, all of which exceed the accepted threshold of 0.7 across all categories (Hair et al., 2017). High Cronbach's Alpha and CR values reflect robust constructs, not model over-definition, as substantiated by the EFA-derived structure.

Tab. 3 Indicator loadings and cross-loadings combined

Variable	**Factor 1**	**Factor 2**	**Factor3**	**Factor 4**	**SE**	**P value**
QI1	(0.804)	0.179	0.032	-0.127	0.036	<0.001
QI2	(0.801)	0.192	-0.035	-0.176	0.036	<0.001
QI3	(0.769)	0.011	-0.055	0.066	0.036	<0.001
DOt1	(0.766)	-0.127	0.033	0.052	0.036	<0.001
DOt2	(0.735)	-0.169	0.046	0.144	0.036	<0.001
DOt3	(0.730)	-0.116	-0.019	0.064	0.036	<0.001
AO1	0.093	(0.808)	0.073	-0.042	0.036	<0.001
AO2	-0.008	(0.799)	-0.064	0.028	0.036	<0.001
AO3	-0.024	(0.765)	-0.053	-0.004	0.036	<0.001
AO4	-0.059	(0.851)	0.038	0.017	0.036	<0.001
FQ1	0.155	-0.335	(0.511)	-0.051	0.037	<0.001
PQ1	-0.091	0.008	(0.815)	0	0.036	<0.001
PQ2	-0.069	0.038	(0.794)	0.002	0.036	<0.001
PQv3	0.142	0.058	(0.768)	-0.026	0.036	<0.001
PQv4	0.073	0.12	(0.779)	0.015	0.036	<0.001
PQ7	-0.153	-0.005	(0.760)	0.043	0.036	<0.001
PQv5	0.024	0.019	-0.02	(0.921)	0.036	<0.001

Variable	Factor 1	Factor 2	Factor3	Factor 4	SE	P value
PQv6	-0.024	-0.019	0.02	(0.921)	0.036	<0.001

Note: SE = Standard Error; P value = probability value.

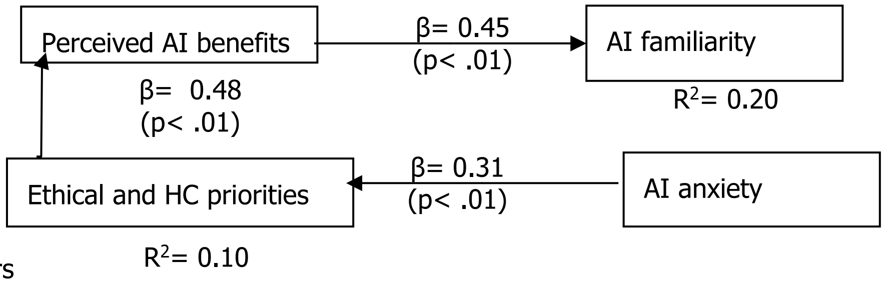
Source: Authors

Table 3 shows the factor loadings for the items found in each latent variable that were found to be statistically significant ($p<0.01$) and above 0.7, with a single exception of 0.511 found in factor 3. To finalize the validity assessment, the average variance extracted (AVE) must also be measured (Hair et al., 2017). According to Table 2, the AVE has a minimum threshold of 0.5 (Hair et al., 2017), which was exceeded by all four latent variables. Discriminant validity was also analyzed to assess the uniqueness of a construct compared to other constructs (Malhotra et.al, 2017). It is imperative for the assessment that the loadings of an item on the latent variable exceed the cross-loadings with other latent variables (Hair et al., 2017). According to the information in Table 3, this criterion is met, so the construct is valid.

3 RESULTS AND DISCUSSION

According to Figure 2, the elements that define the ethical and human-centric priorities of Romanian Gen Z towards the use of AI tools in the recruitment and selection process have a positive impact on the perceived benefits of AI. The path coefficient $\beta=0.48$; $p<0.01$ indicates a strong and significant correlation between the two variables. Therefore, hypothesis H1 is accepted. This result aligns with prior similar research by Akram et al. (2024), Rigotti and Fosch-Villaronga (2024) and Shneiderman (2020), linking transparency and fairness to enhanced perceived usefulness and efficiency. Similar to the first scenario with H1, the second hypothesis is also accepted. According to Gen Z, the perceived benefit of using AI in the recruitment process has a positive and significant influence on the familiarity and perceived accuracy of AI recruitment software. The strong positive relationship has a path coefficient $\beta=0.45$; $p<0.01$, indicating a significant correlation between the variables. This extends findings from van Esch and Black (2019), Stone et al. (2024) and Benhmama and Bennani (2024) where perceived efficiency and fairness influences in a positive way trust and familiarity with AI tools. There is a moderately strong positive relationship between anxiety triggered by the use of AI in recruitment and ethical and human-centric priorities about the whole process, with a path coefficient $\beta=0.31$; $p<0.01$ indicating a significant correlation between the fourth and first factors of the analysis. Thus, hypothesis H3 is supported by the results. Therefore, we can conclude that all three hypotheses as well as the proposed model were accepted. This result supports previous findings of Suen and Hung (2024), Majumder și Mondal (2021), and van Esch and Black (2019), connecting anxiety to heightened demands for transparency and human oversight.

Fig. 2 The tested model



Source: Authors

The robust association confirmed by (H1) demonstrates that transparency, fairness and human engagement — elements emphasized in prior studies (Akram et al., 2024; Rigotti and Fosch-Villaronga, 2024) — not only mitigate reservations concerning artificial intelligence but also enhance confidence in its contributions, such as greater efficiency and objectivity in recruitment. This study emphasizes the perspective of applicants, especially those belonging to a generation often referred to as digital natives (Nistoreanu et al., 2024), which gives the field a new perspective. This is in contrast to studies that focus mainly on the perspective of companies (Ore & Sposato, 2022). This association most probably rises from the ethical code of this generation, who, although familiar with technology, favors methods that uphold ideals such as equal treatment and the mitigation of algorithmic bias. Nonetheless, the essential reliance on algorithmic openness, as emphasized by Benhmama and Bennani (2024), should not be disregarded. Without clarity in decision-making, the benefits perceived by candidates can be undermined by mistrust. This finding suggests that artificial intelligence developers should place more emphasis on clarity to increase candidate acceptance. From a theoretical perspective, this finding enriches the Human-Centric Technology Acceptance Model (HC-TAM) (Akram et al., 2024) by integrating a dimension in which ethical considerations reinforce perceived benefits, thus building a conceptual bridge between ethical integrity and operational effectiveness in recruitment.

The relationship between the perceived benefits of AI in recruitment—such as speed, bias reduction, cost savings, and objectivity—and the familiarity or perceived accuracy reflects dynamics shaped by the respondents' profile. Most participants (79.2% aged 18-22, 58.4% university students) are digital natives, which sheds light on why they acknowledge AI's efficiency yet harbor doubts about its ability to assess soft skills, a concern echoed in prior studies (George and Thomas, 2019). Unlike research examining employer perceptions and acceptance of AI in recruitment, which praises cost efficiencies and swiftness (Nguyen and Cao, 2024; Stone et al., 2024), these candidates—many from economics and business fields (55.7%)—value objectivity but seek greater clarity. This desire might stem from their exposure to opaque recruitment platforms like LinkedIn (Benhmama & Bennani, 2024). It is also reasonable to assume that respondents studying psychology or sociology (21%) show an increased awareness of the limitations of AI in video interviews where human nuances play a major role. Their technological familiarity is only likely to increase acceptance if the benefits are unambiguous. In practice, recruiters could tailor their processes to this educated youth by presenting clear examples of objectivity, while technology developers should refine their algorithms to meet the expectations of this young, discerning generation.

Concerns about AI in recruitment amplify ethical issues, and the demographics of respondents offer insights into the underlying reasons. Younger applicants (79.2% under 22) and women (50.5%), frequently subjected to stereotypes in recruitment, may experience insecurity due to continuous scrutiny, unlike employers who emphasize efficiency and disregard these responses (Benabou and Touhami, 2025). Those from humanities fields (21%) may be sharper in noticing AI's lack of empathy, which deepens the stress from not having control during the hiring process. It seems likely that this unease weighs heavier on students (58.4%), just starting their careers, who worry that automated judgments might twist their real chances of landing a job based on their skills. That reaction could grow from the strain of needing to perform flawlessly under technology's unyielding gaze—a point employers, focused on streamlining (van Esch and Black, 2019), tend to downplay. The lack of direct communication with recruiters can leave candidates feeling isolated, particularly those who want personal recognition for their efforts. Companies could offer pre-interview conversations to explain the process to reduce anxiety, while developers can create technology that allows for interaction or involve a human screener to address the emotional needs of applicants rather than just fulfill the company's requirements.

CONCLUSION

This study examined Generation Z candidates in Romania's perceptions of artificial intelligence in recruitment and selection, investigating the relationships among ethical and human-centered issues, perceived advantages, familiarity and perceived accuracy, and the anxiety elicited by AI tools in hiring procedures. The confirmed relationships reveal an intricate interplay between the moral expectations and emotional reactions of young people toward AI, spotlighting a generation (79.2% under 22, 58.4% students) that values the technology's efficiency yet ties it to demands for transparency and control. In contrast to previous studies, which focused only on the organizational aspect and praised speed and lower costs, this analysis shows a pronounced sensitivity of applicants to fairness and human interaction — factors that are decisive for their acceptance of AI in recruitment. The composition of the sample, comprising 55.7% business students and 21% humanities students, suggests that these views are shaped by education and exposure to the digital world, providing a solid empirical basis for understanding technology adoption in a local environment. As such, the study not only supports an integrated conceptual model, but also changes the focus of AI-driven recruitment by placing candidates at the center of the conversation.

The contributions to the literature stand out, tackling a significant gap in research on AI acceptance in recruitment by focusing on Romania's Generation Z—a group rarely examined in this light. Unlike studies that probe AI from the employers' standpoint (Benabou and Touhami, 2025) or lean on broad technology adoption frameworks (Tanantong and Wongras, 2024), this work shifts the spotlight to candidates, weaving in ethical and emotional threads often overlooked. By showing how ethical priorities increase perceived usefulness, it enriches the HC-TAM model in new ways (Akram et al., 2024) and deepens our understanding of how moral values can increase the value of a technology in people's view. The link between anxiety and ethical priorities — supported by markers such as stress and intimidation in video interviews — builds on the findings of Majumder and Mondal (2021) and Suen and Hung (2024) and exposes the existing conflict between technical efficiency and the human need for empathy. By placing candidates at the center, this study responds to the call for a more comprehensive view of AI recruitment by showing how emotions can suppress operational gains. In the Romanian context, global insights are linked to local idiosyncrasies, suggesting that acceptance of AI is not universal, but is shaped by the cultural and educational roots of a generation entering the world of work.

The practical implications are significant and mutually beneficial, serving both candidates and companies. For young people in Generation Z, the findings point to familiarity with AI and an appreciation of its upsides—like speed and fairness—easing their doubts, but only if the steps involved are laid out plainly, cutting down on the unease tied to constant supervision. Those in disciplines aligned with the human sciences, such as psychology, may find reassurance through educational initiatives that clearly articulate AI's impartiality, countering concerns about impersonal, automated decision-making. For firms, the study highlights the necessity of adjusting hiring practices to align with this generation's ethical expectations, integrating human oversight into AI-driven workflows, as exemplified by Unilever (van Esch and Black, 2019). Organizations could introduce systems that provide instant feedback or allow candidates to engage with human assessors to meet the emotional needs of job seekers who value clarity. These changes not only increase technology adoption, but can also boost talent retention and an organization's reputation, giving it a competitive edge. In an economy characterized by rapid digital progress, integrating recruitment strategies with the values of Generation Z is essential to attract and retain the future workforce.

The current study has a number of limitations that require a thorough assessment of the scope of its findings. The sample, drawn exclusively from Romania, reflects a distinct socio-economic environment where access to technology and education may not meet the standards of

Western Europe or the emerging economies. This local focus is an advantage, even if it limits the global application of the results. Methodologically, the 5-point Likert scale adequately captured perceptions; however, more nuanced variations of fears or perceived correctness could benefit from the richer insights offered by qualitative interviews. Looking ahead, we would suggest extending the study to other Eastern European countries to investigate how culture influences AI adoption. Long-term studies could be useful to analyze how the views of the growing Generation Z are changing. Exploring differences between different fields of study or testing clearer algorithms could sharpen our understanding of the dance between humans and technology and pave the way for a fairer, more inclusive future in hiring.

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Consumer Perception of Wine Labels: A Case Study of Vitis Pezinok

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https://doi.org/10.53465/CEECBE.2025.9788022552257.289-302

Abstract: Wine branding refers to the perception of a wine product and its name in the consumer's mind. The main objective of this paper is to examine how customers perceive different wine labels from chosen winery Vitis Pezinok. The key method used in the paper is the method of enquiry, specifically a questionnaire and based on the survey results, we created a heat map of the label of the selected products. In the previous survey we found that consumers firstly notice the brand on labels. We compare the given results with the results of the current survey. Based on the findings, we formulate branding recommendations for winery. A key issue in the winery's branding was the inconsistency of the Vitis Pezinok logo. Based on this, we recommend that the winery establish a unified and consistent brand identity that is easily recognizable to consumers. This paper will contribute to a better understanding of consumer behaviour in the area of wine consumption.

Keywords: Wine branding, Consumer perception, Wine labels, Heat map

JEL Classification codes: D12, M31, Q13

INTRODUCTION

The wine market offers a wide choice of brands, which is why wine branding plays a key role (Vlachvei et al., 2012). Robinson and Harding (2015) state that wine product branding is "a series of complex marketing propositions intended to sell wine as a 'brand'– a product marketed much more thanks to its individual name and image rather than to its original quality". According to Nowak and Newton (2006), wine branding can be defined as the perception of a wine product and its name in the mind of the consumer. Creating a successful wine product branding strategy is very important because it makes the wine successful by linking all its components (quality, price, promotion and packaging) in a unique and memorable way that appeals to the target customer.

Brands may take the form of a term, name, symbol, sing or design, or a combination of these. The purpose of a brand is to identify a product easily and quickly and to differentiate it from competitors (Vrontis & Paliwoda, 2008). The wine sector is a very challenging market for brand differentiation due to the presence of thousands of brands and labels, and wine branding is much more than just a wine label. Branding in the wine sector mainly focuses on the characteristics or attributes of the wine product such as country of origin, grape variety, producer name or appeal (Johnson & Bruwer, 2007).

Pereira (2016) divides wine brands into two groups: classical and modern. Classical wine brands are linked to their reputation, which has been built up over many centuries and reflects the success of these wines. At the same time, they are associated with the region, specific varieties and production methods. Typical examples of classical wine brands are the wines from the Champagne and Bordeaux regions. On the other hand, modern wine brands are focused mainly on the requirements of the international market, which is also reflected in their taste and price level. These brands are accessible on the market, do not include a specific geographical indication of origin, lack diversity and terroir typicity.

This study aims to explore the relationship between wine label design elements and consumer perceptions, with a particular focus on how visual cues, such as logos and textual information, influence purchasing behavior. By employing correlation analysis, we examine the extent to which these elements impact consumer preferences and brand recognition. Understanding these dynamics is crucial for wineries seeking to optimize their labeling strategies in an increasingly competitive market. The findings contribute to both academic discourse on consumer behavior in the wine industry and practical insights for producers aiming to enhance market positioning through effective label design.

1 LITERATURE REVIEW

The wine label is a strategic communication tool with a dual function: it serves as an information medium that provides consumers with basic product information, while also acting as a persuasive marketing tool to increase consumer engagement and influence their purchasing decisions (Thomas & Pickering, 2003). A well-designed label not only captures consumer attention but also conveys a compelling narrative that enhances perceived value and fosters a trustworthy connection between the winery and its target audience (Boyraz, 2023). Artistic labels, characterized by color and symbolism, play a crucial role in shaping consumer perceptions of wine quality, authenticity, and brand reputation (Anagnostou et al., 2025).

Four design elements define wine product packaging: the brand logo, brand name, front label details, and back label information. Modern wine packaging includes a front and back label along with a bottle design (Henley at al., 2011). The front label captures consumer interest, while the back label serves an informative role, providing details such as origin, grape variety, alcohol content, bottle volume (Hall & Mitchell, 2007; Rocchi & Stefani, 2005). Packaging design serves as a key differentiator that plays an important role both in marketing and in reaching consumers. The overall packaging - including the label, shape, size and colour of the bottle - significantly influences consumer perception and purchasing decisions (Henley at al., 2011). The most important elements of information on the label for consumers are taste, price, and information provided by the retailer (Chaney, 2000).

A significant influence of wine labels is their perception as indicators of quality (Lunardo & Rickard, 2019) and taste (Jaud & Melnyk, 2020). A crucial aspect of design in this context is the choice of colours used on the label. Previous studies has shown that colour is one of the most influential design elements that can shape consumers' perceptions of taste (Spence et al., 2010), aroma (Parr et al., 2003) and texture (Chylinski et al., 2015) of food and beverages, including wine.

The label on a wine bottle plays a crucial role in shaping positive consumer expectations by attracting attention and conveying a sensory experience associated with beauty, taste, and satisfaction (Workman & Caldwell, 2007). Additionally, it reinforces the authenticity and perceived quality of the product (Scholes, 2010). Less knowledgeable and inexperienced wine consumers are more likely to base their purchasing decisions on visible packaging cues, such as front and back labels, promotional elements, as well as the stated price (Leang et al., 2016). More experienced wine consumers are likely to base their purchasing decisions on direct wine knowledge, appellation, country and region of origin as well as expert reviews and wine journalism (Atkin & Johnson, 2010; Famularo et al., 2010). Thus, wine labels also function as advertisements for the product or brand, with winemakers selecting designs that appeal to a broad spectrum of consumers, from novices to connoisseurs. Notably, an effective label design enhances the overall consumption experience (Mumcu & Kimzan, 2015), and consumer preference for a label is a strong predictor of wine selection (Chrea et al., 2010).

2 METHODOLOGY

In the wine industry, research has predominantly focused on the label, which is often closely linked to the brand or even used interchangeably with it, as it serves as the brand’s tangible representation. In addition to the brand name, imagery, or logo, the label provides consumers with essential information about the wine’s style (taste and aroma), a description of the product, recommended food pairings, awards and accolades, the winemaker, the wine region, and the vintage (Miller & Chadee, 2008). The main objective of this paper is to examine how customers perceive different wine labels from chosen winery Vitis Pezinok.

From a previous survey we conducted in 2024, we identified that the wines of Vitis Pezinok winery are among the most consumed on the Slovak market. As the name of the winery implies, it is located in the town of Pezinok in the west of Slovakia, right in the Malocarpathian wine-growing region. The mission of the Vitis Pezinok winery is the production of quality wine with a special character. The emphasis is also on the appearance of the bottles, which they present as works of art. Through the interplay of colour, aroma and taste, they try to find their way to the wine, which is also reflected in their Latin slogan 'via vinum' (Vitis, 2025). For the purpose of this study, we have chosen to evaluate the branding of Vitis Pezinok wines in the bottles shown in Figure 1.

Fig. 1 Selected bottles of wines from Vitis Pezinok winery

Source: Vitis, 2025

In the article, we focused on the differences in branding between the red wine Danube and the white wine Pinot Gris, which at first glance differ not only in the colour of the bottle, but also in the colour of the label, the wine cap and even the winery's logo. We focused our branding analysis exclusively on the front of the bottles and the front labels. Joshi et al. (2024) state that the front labels usually contain information such as brand, grape variety, country, region and vintage, as well as other important information.

2.1 Data collection

In order to write the article, the primary data collection method used was the method of inquiry. The questionnaire was created through Google Forms and distributed through social media between 15.01.2025 and 25.01.2025. The questionnaire consisted of 4 main sections, with the first section consisting of sorting the respondents into those respondents who are aware of the brand Vitis Pezinok and those who are not. The second section was oriented towards more detailed information about the chosen labels of winery (we examined the following attributes: such as consistency of labels, their recognizability, their style, colour scheme and graphic elements) and were enquiring what would respondents change on the labels and how would the change its design. The third section consisted of questions about black and white labels specifically and its attributes (specifically: attractiveness, representativeness, premiumness of the logo and interest), and in the last section they provided demographic data.

Tab. 1 Demographic characteristics of respondents

	Number of respondents (N= 150)	
	N	%
Gender		
Woman	116	77,33%
Man	34	22,67%
Age		
18-25	82	54,66%
26-35	46	30,67%
36-45	11	7,33%
46-55	8	7,33%
56+	3	2%
Average monthly income		
Up to 1000€	77	51,33%
1001-2000€	52	34,37%
2001-3000€	12	8%
3001€+	6	4%
n/a	3	2%
Highest level of education attained		
Primary education	4	2,67%
High school with apprenticeship certificate	7	4,66%
High school with diploma	59	39,34%
Bachelor‘s	28	16,66%
Masters‘	48	32%
PhD.	4	2,67%

Source: own processing

The survey was carried out on a sample of 184 respondents in total. The data were then adjusted for the responses of participants who were familiar with Vitis Pezinok winery, thus only 150 responses were analyzed. Within the sample, there was a clear predominance of women, who represented a total of 77,33% of all respondents (Table 1). The vast majority of all respondents were aged 18-25 years and 26-35 years, which together accounted for approximately 85% of respondents. The average monthly income was mostly up to 1000€ and 1001-2000€, together with about 85% of the respondents. Most of the respondents were high school graduates with a high school diploma, followed by graduates of the second and first cycle of higher education (Bachelor’s and Masters’ degrees). Overall, respondents in the age categories 46-55 and 56+ years, respondents with an average monthly income above 2001€, and those with the highest completion of primary and upper secondary education with an apprenticeship certificate and graduates of PhD. studies were the least represented.

2.2 Heat map

A heat map is a graphical representation of the tested feature's value, based on its concentration level and size, visualized using a selected color palette (Rybak, 2021). We have constructed a heat map in the program Gretl, which can be constructed based on correlation analysis. Correlation analysis is a fundamental method that was used to verify the existence of a relationship between the examined variables. In general, the term "correlation" refers to the degree of association between two variables. If a correlation is identified between variables, it indicates that specific values of one variable tend to occur alongside specific values of the other. The strength of this association can range from no correlation to a absolute correlation (Montgomery et al., 2015). Correlation analysis serves as a tool for measuring the intensity of potential dependencies between two quantitative variables or the tightness of their relationship. The outcome of this analysis is the determination of the degree of dependence, achieved by calculating various types of correlation coefficients. In general, correlation coefficients range in an interval from -1 to +1, inclusive. A negative value signifies an inverse relationship between the variables (Linhartová, 2020).

The relationship between sample pairs of data was tested using Pearson’s correlation coefficient. The Pearson correlation coefficient is calculated directly from the observed pairwise values of the variables X and Y. Like the arithmetic mean and standard deviation, it is very sensitive to outliers. The Pearson correlation coefficient can be determined by the following formula (Hendl, 2012):

$$r(x,y) = \frac{\sum_{i=1}^{n}(x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^{n}(x_i - \bar{x})\sum_{i=1}^{n}(y_i - \bar{y})^2}} \tag{1}$$

where:

n = number of observations

x, y = quantitative characters

Correlation relationships between variables can be interpreted on the basis of Table 2.

Tab. 2 Interpretation of the strength of the correlation relationship

Interval	Strength of the correlation relationship
(0,9 – 1,0>	very strong correlation
(0,7 – 0,9>	strong correlation
(0,4 – 0,7>	mean correlation
(0,1 – 0,4>	weak correlation
<0 – 0,1>	insignificant correlation

Source: own processing according to Hendl (2012)

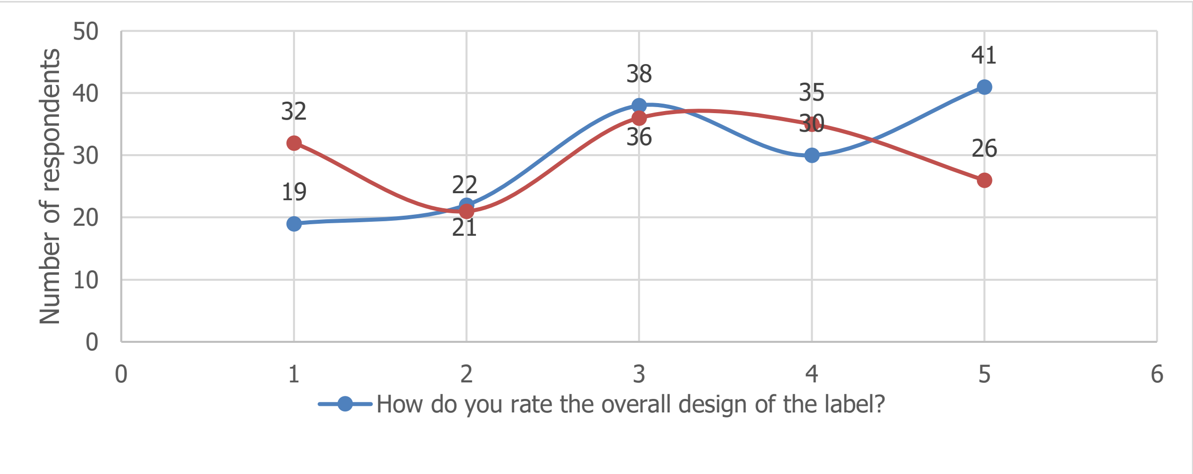
This study examines the strength of the relationships between the following input variables: brand, logo, variety, year (or vintage), origin, slogan and volume. The data was obtained from a questionnaire where respondents rated the different parts of the wine label on a Likert scale from 1 (least) to 7 (most) according to which parts they notice most on wine bottles. On the basis of the data obtained, we investigated the relationship between the variables. This part of the survey dealt with consumers' general perception of wine labels, in which case they did not evaluate individual wines, but independently created a ranking of the parameters they notice most on labels.

3 RESULTS AND DISCUSSION

3.1 Primary research results

The following graph 1 shows the evaluation of the overall design of the Vitis Pezinok label. As mentioned in the methodology of the article, we focus on analyzing and comparing the white and black labels of the selected wines. In this section, we evaluate both labels. Up to 41 respondents fout of 150 ind the label very attractive. The second most frequent choice was the average attractiveness of the label (38 respondents ot of 150). The label itself is generally rated positively and attractively, with respondents rating the label an average of 3.066. The strongest proportion is made up of respondents who find the label very attractive, which is a favourable result for the brand.

Graph 1 The overall design of the label and attractiveness of graphic elements

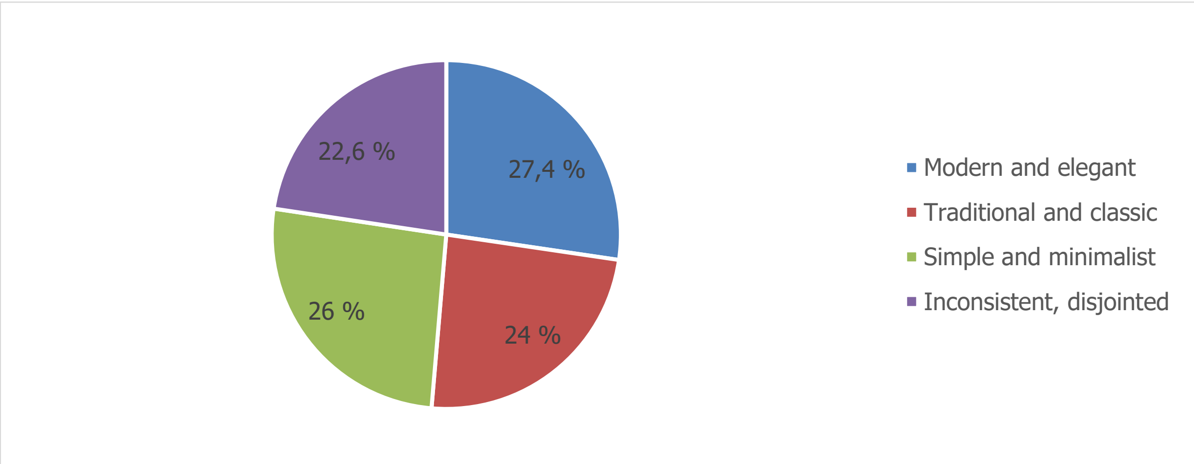


Source: own processing

The graph 1 also indicates that there are mixed views on the attractiveness of graphic elements. Most respondents gave a medium rating (3 - I am indifferent/I cannot rate them properly), i.e. a large proportion of respondents were undecided in their assessment of the graphic elements; and a score of 4 (I rather like them, or I like them more than I dislike them), indicating that the graphic elements are not extremely controversial, but neither are they clearly popular. Ratings of 1 (least attractive/not liked at all by respondents) and 5 (most attractive/liked extremely by respondents) are less well represented, which may indicate that only a minority of people find these elements completely unattractive or, conversely, extremely attractive. Although some respondents find the graphic elements extremely attractive, a large proportion perceive them neutrally or even negatively. It is important to note that perception is subjective and what one respondent likes may not be liked by another respondent.

The following graph 2 interprets how respondents perceive the style of the labels. The majority of respondents rate the labels as modern, elegant (27.4 %), or simple and minimalist (26 %), which is positive in terms of current design trends. However, nearly a quarter of respondents perceive labels as inconsistent (22.6 %), which may indicate a need for better visual brand unification.

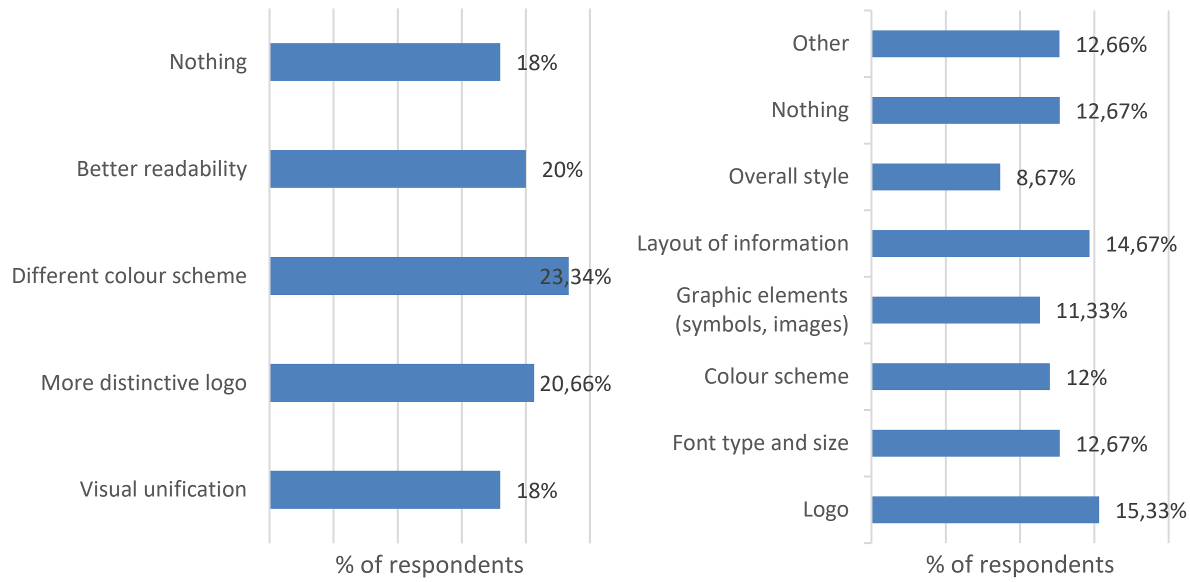
Graph 2 Respondents' perceptions of graphic elements attractiveness



Source: own processing

Following the perception of label style on graph 3, we investigated possible changes to the labels and their design. Respondents would most change the colour combination that the winery currently uses and then modify or completely change the logo to make it more distinctive; and modify the layout of the information on the label and its overall readability. On the other hand, many respondents would not change anything about the label and logo or are not bothered by any particular elements.

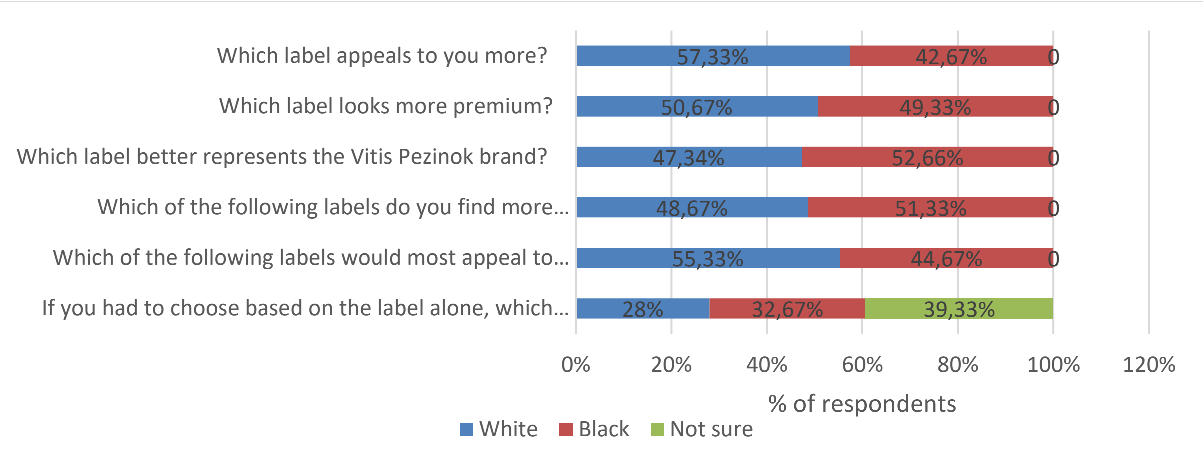
Graph 3 Changes on the wine labels and their design



Source: own processing

The following graph 4 shows the preferences of the respondents when comparing the white and black labels of Vitis Pezinok in different categories. The biggest difference was observed for the visual appeal of the labels and their partiality; up to 57,33 % respondents (86 out of 150 respondents) preferred the white label, 44,67 % of respondents (64 out of 150 respondents) the black one. The second largest split was recorded for the label's influence on purchase; 55,33 % of respondents would be more likely to buy a wine with a white label (83 out of 150 respondents), while 44,67 % of respondents would buy a wine with a black label (67 out of 150). Minimal differences are noted for the representativeness of the label, the premiumness of the label and the attractiveness of the label. The label is not always a deciding factor in the choice of wine; 28 % of respondents would choose a white label (42 out of 150 respondents), 32,67 % would choose a black label (49 out of 150 respondents), but up to 39,33 % could not decide in this case (59 out of 150 respondents). This suggests that other factories such as price, variety, vintage, volume of alcohol or brand reputation also play an important role in the final choice of product.

Graph 4 Respondents' preferences of white and black wine labels

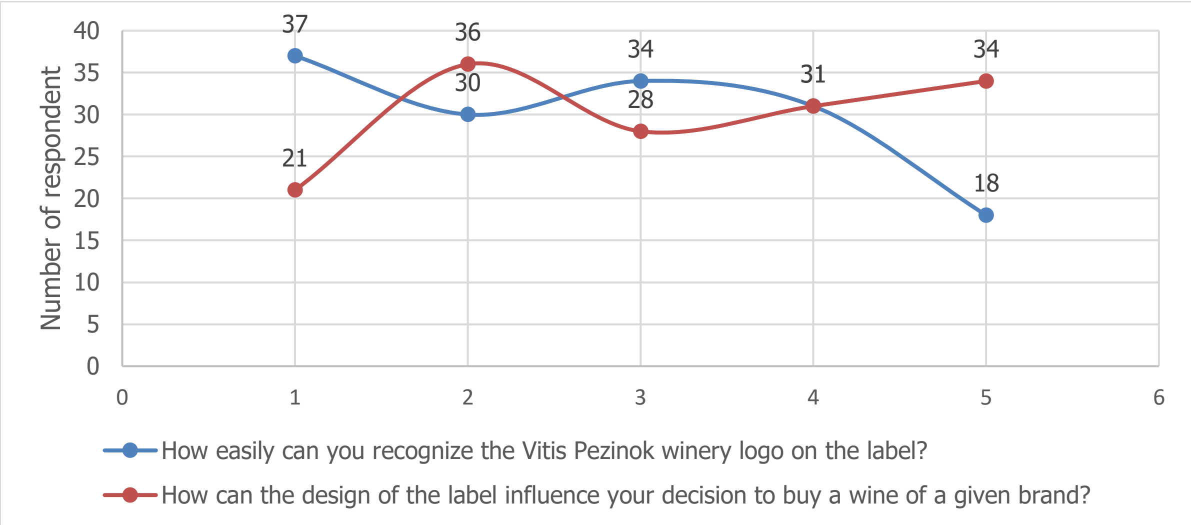


Source: own processing

The following chart interprets how easily respondents can recognize the Vitis Pezinok logo on a wine label and how the design itself can influence a respondent's decision to purchase a product of a given brand. The highest number of respondents (37) indicated that they recognize the Vitis Pezinok logo very easily (value 1 - very easily recognizable). Based on the graph, it can be stated that gradually the recognizability decreases, while the lowest number of respondents (18) indicated that they do not recognize the logo at all (value 5 - not recognizable at all). In general, we can conclude that the logo of Vitis Pezinok winery is clearly and easily recognized and identified for the majority of respondents.

When examining the influence of label design on purchase decision, the majority of respondents (36) indicated that label design has a significant but not decisive influence (value 2 - major) and 34 respondents indicated that label design has no significance or influence on their purchasing decisions (value 5 - no influence), indicating that a certain proportion of customers are guided by other factors such as price, variety or brand. Label design therefore plays an important role in the choice of wine for many but is not always the main and deciding factor.

Graph 5 Recognition and influence of the wine label



Source: own processing

3.2 Heat map results

Based on the results from the questionnaire survey, we identified the strength of the relationships between variables, in this case between the attributes shown on the front label of wine bottles. This study examines the strength of the relationships between the following variables: *brand, logo, variety, year (or vintage), origin, slogan and volume*. Since the front of the wine bottle does not indicate the price of the wine, we did not examine the strength of this variable in relation to the previously mentioned variables. The relationships between variables were examined using correlation analysis in Gretl. The results of this analysis are shown in Figure 2.

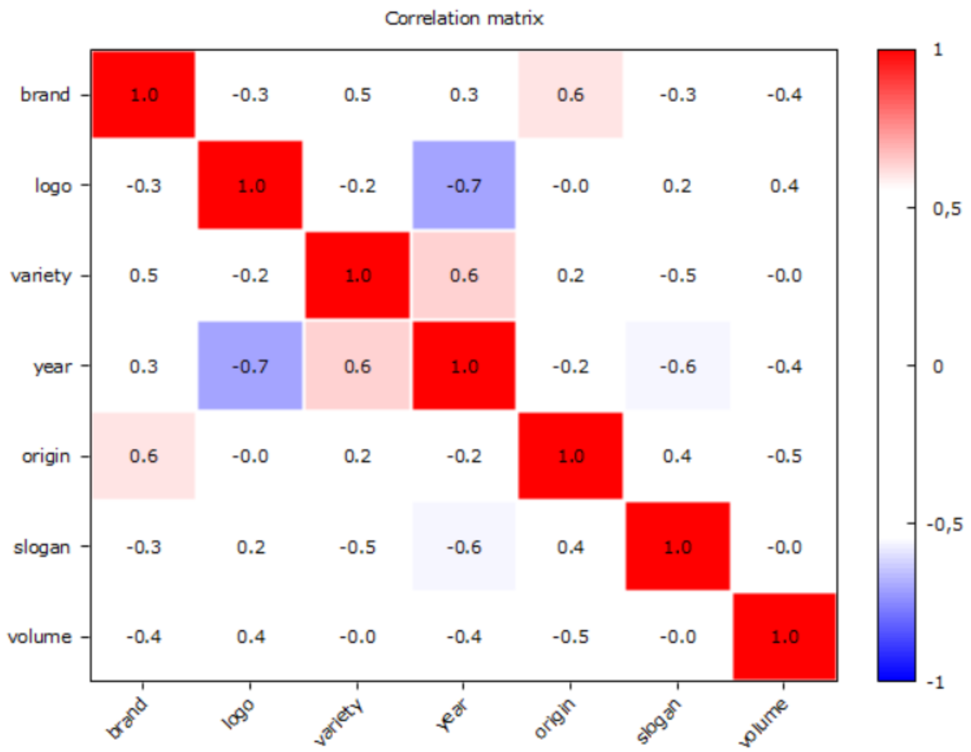
Fig. 2 Correlation analysis of the variables placed on the wine bottle

```
Correlation Coefficients, using the observations 1 - 7
Two-tailed critical values for n = 7: 5% 0,7545, 1% 0,8745

        brand          logo       variety          year        origin
       1,0000       -0,3448        0,4885        0,3022        0,5984  brand
                     1,0000       -0,2267       -0,7113       -0,0252  logo
                                   1,0000        0,6303        0,2037  variety
                                                 1,0000       -0,1506  year
                                                               1,0000  origin

       slogan        volume
      -0,3398       -0,3968  brand
       0,2268        0,3703  logo
      -0,4784       -0,0046  variety
      -0,5666       -0,4294  year
       0,4301       -0,4590  origin
       1,0000       -0,0053  slogan
                     1,0000  volume
```

Source: own processing in Gretl

Since the results from Figure 2 are not clear, we proceeded to create a heat map through a correlation matrix. The heat map allows us to immediately see the strength of the relationships between the variables in the data. The advantage is that both strong and weak correlations can be identified at a glance using different colours. The red color shows a very strong positive correlation, close to the +1 value. The blue colour, on the other hand, indicates a strong negative correlation, close to the -1 value. White colour represents values close to zero, indicating weak or insignificant correlation.

Fig. 3 Heat map of the variables placed on the wine bottle



Source: own processing in Gretl

Based on the heat map, we identified a strong negative correlation between *logo* and *year* (vintage), with a value of -0,7. Older vintages are likely to rely on a classic label design with a dominant logo, which may be due to a desire to preserve tradition and brand credibility. Newer vintages, on the other hand, may follow modern design trends where logos are not as dominant, but rather minimalist or less visible. Creating an eye-catching logo is an important part of branding because according to Fernández-Serrano et al. (2022), consumers prefer the logo on the label more compared to the text part of the label.

Mean positive correlation with value of 0,6 is observed for:

- year (vintage) and variety
- brand and origin

Based on this, we found that newer vintages may contain different wine varieties than older vintages. Wineries may be changing the varieties they grow and process - trying to adapt to demand, changing product composition or experimenting with new varieties. For example, in recent years, organic wines, lesser-known varieties, or natural wines have become more popular. As Dejo-Oricain et al. (2022) state, wine consumers are increasingly becoming interested in sustainability in relation to viticulture and wine processing. Wineries have therefore started to apply more environmentally friendly viticultural techniques based on natural production principles and have reduced the use of synthetic chemical inputs.

Mean positive correlation between brand and origin shows that specific wine brands are closely linked to certain regions (origin of the wine). Wine brands are linked to their geographical origin, which is an important factor in branding and image building in the minds of consumers. Atkin et al. (2017) claim that some wines from different regions (such as Bordeaux, Champagne and Porto) have a reputation based on their strong association with the locality where they are produced. Based on this fact, wine can also be a good attribute to use when evaluating regional branding.

We identified an average negative correlation between slogan and year (vintage) with value – 0.6. This means that newer vintages of wines make less use of the slogan as an element of product branding. Newer wines place less emphasis on slogans and focus more on visual branding.

CONCLUSION

Based on the heat map results, we found that older wines have less distinctive or traditional logos, while newer vintages have undergone redesigns or use minimalist and innovative visuals, as evidenced by a strong negative correlation. The average positive correlation showed that newer vintages contain different varieties than older ones, indicating adaptation to demand, experimentation and change in product composition. We also found that wine brands are closely associated with the geographic origin from which they are grown, and newer wines place less emphasis on slogans and more on visual branding.

In general, the label is generally well-received and attractive, with an average attractiveness of 3,066 points out of 5. This is a favourable result for the brand. Also, the logo is generally well recognized, but the influence of label design on purchasing decisions varies; while many respondents (36) see it as having a significant influence, a significant part of respondents as well (34) believe it has no impact, emphasizing the role of other purchasing factors. Some respondents suggest changing the color combination, enhancing the logo's distinctiveness, and improving the layout and readability of the information on the label, however some respondents are satisfied with the current design and would not change anything. Generally, respondents rate and view logo as modern, elegant or minimalist. Opinions on the logo's graphic elements, specifically square-colored symbols, are mixed and not uniform, with most respondents being neutral. Extreme views (very attractive or unattractive) were less common and not represented enough. Thus, we can conclude that graphic elements are not extremely popular, but neither are they extremely controversial. When it comes to choosing between white and black label, white label is generally preferred but there were minimal differences in terms of representativeness, premiumness, and attractiveness. Many respondents could not choose wine based on the label alone, indicating that other factors such as price, variety, and brand reputation also affect purchase decisions.

Based on the findings, we formulate branding recommendations for winery Vitis Pezinok:

- to create a unified and consistent branding, easily recognizable by the consumer;
- if not changing the logo, we recommend enlarging it, due to almost 1/3 of respondents' perception of logo as low in visibility, possibly unidentifiable;
- to consider making white label as primary and dominant, which is generally preferred in several categories (visual impression, attractiveness, purchase influence);
- to strengthen the link between branding and Malocarpathian wine-growing region.

The limitation of this article is that it does not cover the entire portfolio of products of the Vitis Pezinok winery, but focuses only on selected wines and their branding. Another limitation of the paper is the unrepresentative sample of respondents, as approximately 55% of young people aged 18-25 participated in the survey. The preponderance of younger respondents may not fully capture the perspective of the broader base of wine consumers' perceptions of wine labels. Future research could focus on comparing the branding of multiple Slovak wineries. This paper will contribute to a better understanding of consumer behaviour in the area of wine consumption.

ACKNOWLEDGEMENT

This paper is part of the research project PMVP I-24-112-00 "Branding of wine products in the conditions of the Slovak market and its influence on consumer behavior"

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Trade and Sustainable Development Between the European Union and New Zealand

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https://doi.org/10.53465/CEECBE.2025.9788022552257.303-314

Abstract: The bilateral Free Trade Agreement (FTA) between the European Union (EU) and New Zealand, concluded in May 2024, represents a significant advancement in their trade and economic relations. Both partners prioritize social, economic, and environmental objectives as integral components of their trade policies, reflecting shared values and a commitment to balanced growth. The paper assesses how trade policies can support environmental objectives and strengthen circular economy principles. A particular emphasis is placed on Chapter 19 of the EU-New Zealand FTA, titled "Trade and Sustainable Development" (T&SD), which addresses the interface between trade policy and the goals of environmental protection and labour rights. The article evaluates the alignment of the FTA with the broader global agenda for sustainable trade.

Keywords: European Union, New Zealand, Free Trade Agreement, Trade policy, Sustainable development

JEL Classification codes: Q01; F13; F18

INTRODUCTION

New Zealand is a long-standing and reliable trade partner of the European Union (EU) in the Asia-Pacific region. Despite the geographical distance, their economic relationship has deepened over the years, culminating in the EU-New Zealand Free Trade Agreement (FTA). This agreement reflects the shared commitment of both partners to promoting sustainable and inclusive trade, integrating economic, environmental, and social objectives into their trade policies.

A key feature of this agreement is its Trade and Sustainable Development (TSD) chapter, which reinforces the need to balance economic growth with environmental responsibility and social progress. It aligns with the EU's broader trade strategy, ensuring that trade policies do not lead to weakened labour protections, environmental degradation, or unfair competitive advantages. The agreement introduces legally binding commitments on climate action, labour rights, and gender equality, setting a precedent for future trade deals. Moreover, it strengthens the role of civil society organizations and regulatory bodies in monitoring and enforcing sustainability provisions.

The FTA also reflects the evolving landscape of international trade governance, where sustainability is becoming an essential element of trade agreements rather than an optional consideration. While it offers opportunities for businesses and investors, it also presents challenges, particularly in sectors where environmental regulations and trade liberalization must be carefully balanced.

This article explores the implications of sustainable development in the EU-New Zealand FTA. It examines how this agreement fits within the global push for responsible trade, its alignment with international climate and labour commitments, and the challenges associated with ensuring compliance. By analysing the intersection of trade and sustainability, this study contributes to the broader debate on whether modern trade agreements can truly foster sustainable economic growth while safeguarding environmental and social standards.

1 LITERATURE REVIEW

Authors widely recognize that the European Union and New Zealand share a long-standing trade relationship, which has evolved into a more comprehensive and sustainability-oriented framework. The signing of the EU-New Zealand FTA marks a significant step forward, integrating sustainability principles directly into trade policy. According to recent studies, this agreement not only reflects the EU's broader trade objectives but also has the potential to serve as a model for future FTAs.

Scholars argue that the EU's approach to trade has increasingly incorporated sustainability provisions, emphasizing environmental protection and climate change mitigation. McNeill (2020) highlights that this trend aligns with the EU's broader commitment to sustainable trade policies. In line with this, Pérez de las Heras (2023) points out that the EU-NZ FTA surpasses previous agreements in both enforceability and scope by embedding ambitious sustainability commitments. Unlike earlier FTAs, this agreement introduces a stronger enforcement mechanism, including the possibility of sanctions in cases of non-compliance with climate commitments. Carrillo (2024) further asserts that the EU's strategic emphasis on Trade and Sustainable Development (TSD) chapters is clearly evident in this agreement, positioning it as a new "gold standard" for future trade deals. Similarly, the European Commission (2021) emphasizes that the EU-New Zealand FTA strengthens the integration of climate policies into trade, aligning closely with the European Green Deal's objectives.

On the other hand, the European Commission (2022) highlights that the agreement's TSD chapter goes beyond environmental concerns, addressing labour rights, women's empowerment, and broader sustainability issues. Importantly, for the first time in an EU trade deal, the TSD chapter allows for trade sanctions as a last resort in cases of serious violations of core commitments. This feature aims to protect both parties' right to regulate while simultaneously preventing them from weakening or neglecting domestic laws in order to attract trade or investment. Additionally, the agreement introduces a new dimension of transparency and inclusivity by granting civil society organizations an active role in monitoring its implementation. A critical area of contention lies in the enforceability of sustainability commitments, particularly regarding the inclusion of a sanction-based model. Durán (2020) argues that applying sanctions for breaches of labour or environmental standards may be problematic, given the difficulty in quantifying the actual damage and the risk of politicizing sustainability enforcement. In contrast, Bronckers, and Gruni (2021) contend that sanctions are a necessary complement to dialogue-based mechanisms, strengthening the credibility of sustainability clauses in FTAs. This debate reveals a broader tension between normative commitments and legal enforceability in trade governance.

From the authors' perspective, the inclusion of sanctions when used as a last resort and embedded within a framework of dialogue and cooperation represents a justified evolution in trade policy. Sanctions alone are insufficient, but their presence can serve as a critical deterrent against non-compliance and signal a stronger commitment to sustainability. In this sense, the

EU-New Zealand FTA strikes a more balanced and credible approach than previous agreements.

Despite New Zealand's relatively small market size, which accounts for only 0.2% of the EU's total trade, Kelly and Doidge (2023) argue that the agreement holds significant strategic value. In particular, Lai (2024) notes that the FTA reflects the EU's broader geopolitical agenda, especially its engagement in the Indo-Pacific region. Moreover, Leal-Arcas and Al Saif (2024) stress that the agreement signals the EU's commitment to maintaining an open, rules-based trading system, a stance that becomes even more relevant amid rising global protectionism.

From an economic perspective, the agreement is expected to contribute an additional NZ$1.8 billion annually to New Zealand's economy by 2035. According to Kelly and Doidge (2023), tariff reductions will be especially beneficial for sectors such as kiwifruit, wine, and honey. Mika (2023) further highlights that the agreement presents new opportunities for the Māori economy. However, Lai (2024) cautions that concerns remain regarding the extent of these benefits, particularly given that EU agricultural protections still impose significant limitations on New Zealand's market access.

One of the most persistent critiques of sustainability provisions in FTAs has been their historically weak enforcement mechanisms. Pérez de las Heras (2023) argues that the EU-New Zealand FTA attempts to resolve this issue through a strengthened dispute settlement mechanism that includes binding commitments on environmental and labor standards. Nevertheless, McNeill (2020) and other scholars caution that the actual effectiveness of these provisions will depend on political will and institutional capacity to ensure compliance.

Furthermore, some researchers contend that although the agreement reinforces sustainability commitments, it does not fully address the concerns raised by agricultural sectors in both regions. Kelly and Doidge (2023) highlight that while the deal aims to balance economic liberalization with environmental protection, Leal-Arcas and Al Saif (2024) question how these provisions will be implemented in practice. As a result, discussions continue regarding whether the EU-New Zealand FTA truly achieves its dual objectives of promoting trade while ensuring sustainability.

The literature further reveals a gap in empirical evaluations of the effectiveness of TSD chapters in practice. Although the EU-New Zealand FTA contains stronger provisions than past agreements, its ultimate success will depend on implementation, monitoring mechanisms, and political will. As Pérez de las Heras (2023) notes, the existence of ambitious commitments does not guarantee their enforcement. The actual outcomes will hinge on institutional capacity and stakeholder engagement. The existing body of literature provides a comprehensive overview of the EU-New Zealand FTA's ambitions and innovations. However, it often lacks a critical assessment of enforceability and long-term effectiveness, especially in the context of sanction-based mechanisms. This article contributes to the field by offering a nuanced evaluation of the FTA's sustainability provisions, critically reflecting on their enforceability and coherence, and identifying practical challenges in aligning trade with environmental and social standards. The key research gap lies in the insufficient analysis of how the sanction-based TSD model functions in practice and whether it enhances or undermines the EU's sustainability goals in trade policy—an area this study seeks to address.

2 METHODOLOGY

The main aim of the paper is to critically assess the Trade and Sustainable Development chapter of the EU–New Zealand FTA, focusing on its enforceability, sanction-based approach, and alignment with global sustainability commitments. This paper adopts a qualitative research approach based on document analysis and interpretative content review. The analysis focuses on primary sources, including the full text of the EU–New Zealand Fr, related policy communications from the European Commission, and strategic documents issued by New Zealand's Ministry of Foreign Affairs and Trade. These are complemented by academic literature from peer-reviewed journals and expert reports, which provide a broader theoretical and empirical context.

The selection of sources was guided by relevance, credibility, and publication date, with priority given to materials published after 2020 to ensure alignment with the most recent trade and sustainability developments. The analytical framework draws on themes such as environmental governance, enforceability of sustainability commitments, trade and climate interlinkages, and trade-related social standards.

The analysis centres on the Trade and Sustainable Development (TSD) chapter of the EU–New Zealand FTA. Key areas examined include: the enforcement mechanisms embedded in the agreement, including the role of sanctions; the treatment of green goods and environmental services; labour and gender equality provisions, and commitments regarding fossil fuel subsidy reform.

Due to the very recent entry into force of the agreement (May 2024), no post-implementation data or measurable trade impacts are available at the time of writing. Consequently, the study is exploratory in nature and does not include empirical modelling. The findings are therefore based on the institutional content of the agreement, secondary statistics, and expert interpretations. A future longitudinal study could build upon this analysis once trade and implementation data become available.

3 RESULTS AND DISCUSSION

Sustainable development is about meeting the needs of today without compromising the ability of future generations to meet their own needs. It is built on three key pillars which are economic growth, environmental protection, and social well-being. For sustainable development to be successful, policies must work together in all three areas and support one another. Trade should bring mutually acceptable benefits between trading partners and achieve balanced economic, societal, and environmental outcomes (Henrich Foundation, 2024).

On 25 September 2015, world leaders adopted Agenda 2030, a global framework proposed by the United Nations (UN) in which the European Union (EU) played a major role. This agenda includes 17 Sustainable Development Goals (SDGs) and 169 specific targets aimed at addressing global challenges. The Agenda and Sustainable Development Goals are a global plan to improve lives, protect the planet, and create prosperity for all. They aim to tackle major challenges like poverty and hunger, while also ensuring a healthier environment and better quality of life for everyone. The agenda also focuses on building peaceful, fair, and inclusive societies. Because the SDGs are all connected, making progress in one area helps drive progress in others. Everything is designed to be achieved in a way that supports long-term sustainability (Ihimaera-Smiler, 2020).

The Sustainable Development Report 2024 measured the total progress towards achieving all 17 SDGs. Out of the 193 UN Member States, the highest ranked were counties of the EU. First ranked was Finland with a score of 86.35. Second was Sweden with a score of 85.70. Third was Denmark, which scored 85.00. New Zealand was ranked 26th with a score of 78.81. The score can be interpreted as a percentage of SDG achievement and therefore this shows that the EU and New Zealand are doing a good job when it comes to sustainable development (Sustainable Development Report, 2024).

Since the EU remains fully committed to Agenda 2030 it integrates its goals into EU policies. The European Commission (2021) notes that the modern EU trade deals include specific provisions on trade and sustainable development. Under the provisions of the EU's trade agreements, both the EU and its trading partners are required to:

- effectively implement international labour conventions and environmental agreements, including respect for core principles of the International Labour Organization and effective implementation of the Paris Agreement on Climate Change;
- protect the regulatory space;
- effectively enforce their environmental and labour laws;
- not deviate from environmental or labour laws to encourage trade or investment;
- sustainably trade natural resources, such as timber and fish;
- combat illegal trade in threatened and endangered species of fauna and flora;
- encourage trade that supports tackling climate change;
- cooperate for a shift to a circular and resource-efficient economy, and deforestation-free supply chains;
- promote corporate social responsibility.

The EU also mainstreams sustainability throughout its trade agreements to:

- make liberalisation of goods and services a priority;
- liberalise trade in raw materials and energy goods for the climate transition;
- promote sustainable public procurement;
- remove barriers to trade and investment in renewable energy.

3.1 EU-New Zealand trade relations

The relation between the EU and New Zealand dates back to 1961, when New Zealand established diplomatic relations with the European Economic Community (GIGA, 2016). The EU and New Zealand became founding members of the WTO and support its rules for an open and liberalised trade system. Therefore, both partners promote social, economic, and environmental objectives as main pillars of their trade policy (Pérez de las Heras, 2023).

Negotiations for the EU-New Zealand Free Trade Agreement (FTA) began in 2018, building upon the foundation of the existing PARC agreement. On 30 June 2022, the European Union and New Zealand concluded their four-year negotiations on the trade agreement (European Commission, 2022b). The EU-New Zealand FTA was signed in Brussels on 9 July 2023 and entered into force on 1 May 2024.

Based on the European Commission (2024a) the EU-New Zealand FTA is the EU´s first trade agreement which integrates the following:

The EU's new approach to Trade and Sustainable Development (TSD)

This TSD approach is set out in the European Commission's Communication on "The power of trade partnerships: together for green and just economic growth" of 22 June 2022. The European Commission's Communication identified policy priorities and key action points, which further enhance the effectiveness of the current engagement-based approach to TSD, grounded in the international framework and standards, with stronger implementation and enforcement. In particular, the European Commission (2022a) notes that the new approach to TSD covers results-oriented and priority-based engagement with partner countries which means working closely with partner countries by setting clear goals and timelines to achieve better results. Next, coordinating with EU countries and the European Parliament to monitor and deliver on the trade and sustainability commitments. At the same time, look to open new markets for green products and key raw materials, helping to reduce dependencies in today's global climate. Also, making it easier for civil society and Domestic Advisory Groups (DAGs) to report violations of sustainability commitments, with clearer timelines for how the Commission will handle these complaints. Another key point by the European Commission (2022a) is having stronger focus on implementation and enforcement which means any country that breaks commitments must quickly explain how it will fix the issue and act within a set timeframe. As a last resort, trade sanctions are also allowed for serious violations for example of the Paris Climate Agreement. However, different authors have posited new arguments for and against introducing a sanction-based model in TSD chapters. Some argue that sanctions with respect to labour and environmental standards are inappropriate since it is difficult to estimate the damage caused by their violation of regulations (Durán, 2020). Others advocate adding sanctions as a complement to the dialogue and cooperation in the promotional approach followed by the EU on sustainability commitments (Bronckers and Gruni, 2021).

Commitments to international labour

This also includes the International Labour Organisation (ILO) fundamental principles and rights at work. Both parties have committed to upholding, promoting, and effectively implementing the core labour standards of the International Labour Organization (ILO). These include protecting workers' rights, ensuring non-discrimination, and maintaining safe working conditions. The agreement also prevents either side from gaining an unfair trade or investment advantage by weakening, suspending, or failing to enforce their labour laws.

New Zealand has pledged to continue efforts to ratify two important ILO Conventions it has not yet adopted: Convention No. 87 on Freedom of Association and Protection of the Right to Organise, and Convention No. 138 on the Minimum Age for Employment. This commitment aligns with the 1998 ILO Declaration on Fundamental Principles and Rights at Work.

In addition to international commitments, New Zealand has established key employment rights under its national law. These include a standard 40-hour work week, at least 20 days of annual leave for full-time employees, around 10 days of sick leave per year, 26 weeks of government-funded parental leave for the primary caregiver, and a minimum hourly wage set by the government.

Commitments to environmental standards

The commitment to international climate obligations, particularly the Paris Agreement, in unlike many past FTAs, includes strong enforcement mechanisms, allowing for the suspension of trade benefits if core climate commitments are not met. This marks a significant shift from previous agreements, where environmental provisions were often non-binding. By incorporating trade sanctions for sustainability violations, the agreement ensures higher environmental standards and strengthens the EU's leadership in climate diplomacy. It also sets a precedent for future agreements where non-compliance with sustainability commitments could result in tangible economic consequences.

In relation to natural resource management, New Zealand is focusing its efforts on environmental impact reduction which involves accelerating its transition towards a circular economy. This means protecting the marine environment from the harmful impacts of human activities; protecting and restoring rivers, lakes, streams and other freshwater bodies; reducing greenhouse gas emissions and adapting to a changing climate; protecting biodiversity by focusing on policies; and incentives that support conservation efforts. New Zealand has made notable progress towards its 2050 goal of a circular economy, emphasising waste reduction, recycling, and sustainable use of resources. An important initiative is the Aotearoa New Zealand Waste Strategy, which aims to transition from a "take-make-dispose" model to a circular approach by keeping resources in use longer and minimising waste generation (VIR, 2024).

Next, the removal of tariffs on environmental goods boosts trade and investments in low-carbon technologies and sustainable solutions. The agreement simplifies trade in low-carbon goods, services, and manufacturing, with green products such as building insulation, wind and hydro turbine parts, solar panel components, and geothermal heat pumps being free of tariffs. Because of this, the FTA aligns with global efforts to liberalize trade in environmental goods, as seen in the WTO’s Environmental Goods Agreement and also align with the EU’s Green Deal objectives. The reduction of financial barriers enhances access to these technologies, helping industries transition to sustainable production models. It also includes firm commitments to support environmental and circular economy services like waste management, nature conservation, recycling, and repair.

Provision on trade and fossil fuel subsidies reform

Governments subsidize fossil fuels to lower the price of the production and consumption of fossil fuels, so the economy and population can receive cheaper fuels. However, fossil fuel subsidies (FFS) have a series of negative effects. FFS are socially regressive, encourage wasteful consumption, increase local pollution, contribute to climate change, disadvantage clean energy technologies and are a drain on scarce public resources (FFFsR, 2025). For these reasons, New Zealand is a leading advocate for the reduction and elimination of fossil fuel subsidies internationally. New Zealand´s FTAs with European Union and also the United Kingdom therefore include provisions on fossil fuel subsidy reform, including commitments to strengthen cooperation on reform policies and take steps to eliminate harmful fossil fuel subsidies (MFAT, 2025a).

The commitment to fossil fuel subsidy reform dates back to the launch of the Friends of Fossil Fuel Subsidy Reform in 2010, and the Fossil Fuel Communiqué led by then-Prime Minister Key in 2015. The Friends of Fossil Fuel Subsidy Reform are an informal group of non G20 countries including New Zealand, Costa Rica, Denmark, Ethiopia, Finland, Netherlands, Norway, Sweden, Switzerland and Uruguay. The Friends work internationally to raise awareness around fossil fuel subsidies and promote the environmental, energy security, social development, and trade benefits of reform. They use many international forums to spread the message, including APEC, the OECD, and major economies forums such as the G20.

Article on trade and gender equality

The EU and New Zealand commit to effectively implement relevant United Nations and ILO conventions that address gender equality or women’s rights and not weakening or reducing the levels of protection nor to otherwise derogate from laws aimed at ensuring gender equality or equal opportunities for women and men, in order to encourage trade or investment (European Commission, 2024a).

However, the effectiveness of these measures will depend on the monitoring frameworks and political willingness to implement corrective actions when necessary. From an economic perspective, integrating sustainability into trade agreements presents both opportunities and challenges. While green trade liberalization supports the diffusion of clean technologies and sustainable investment flows, concerns remain regarding the potential competitiveness impacts on sectors that may struggle to adapt. Agricultural trade, for example, remains a sensitive issue in the EU-New Zealand FTA, with some stakeholders raising concerns about market access and environmental production standards. The agreement attempts to balance these concerns by preserving regulatory autonomy, allowing both parties to maintain their own food safety and environmental protection measures. However, there is ongoing debate about the extent to which sustainability provisions may act as de facto trade barriers, particularly if compliance costs disproportionately affect certain industries.

3.2 EU-New Zealand Trade

Even before the EU-New Zealand FTA, the EU had already been one of New Zealand's top trading partners. For the past five years New Zealand has exported mostly meat, fruit, nuts, dairy products, fish and nuclear reactors to the EU. For the last three years the most exported commodity was meat which reached its peak in 2022 with export valued at USD725 mil. Detailed export of commodities value can be seen in table 1.

Tab. 1 New Zealand´s top five commodities exported to the EU (2020-2024) in USD mil.

HS2 code	Commodity	2020	% Value	2021	% Value	2022	% Value	2023	% Value	2024	% Value
Total NZ commodities exported to the EU		2 517	100	2 782	100	2 909	100	2 537	100	3 012	100
02	Meat and edible meat offal	564	22.41	544	19.55	725	24.92	662	26.09	689	22.88
08	Edible fruit and nuts; peel of citrus fruit...	541	21.5	644	23.15	481	16.53	339	13.36	593	19.69
04	Dairy produce; birds' eggs...	101	4.01	129	4.64	230	7.91	180	7.10	214	7.10
03	Fish and crustaceans, molluscs...	126	5.00	145	5.21	153	5.26	160	6.31	196	6.51
84	Nuclear reactors, boilers, machinery...	67	2.66	87	3.13	88	3.03	96	3.78	150	4.98
Other commodities		1118	44.42	1 233	44.32	1 232	42.35	1 100	43.36	1 170	38.84

Source: Trade Map, 2025

From 2020 until 2024 the most imported commodities from EU to New Zealand were nuclear reactors, vehicles, pharmaceutical products, electrical machinery, and optical measuring. The highest value (USD1 624 mil.) of nuclear reactors was imported in 2023. Detailed commodities export value can be seen in table 2.

Tab. 2 New Zealand´s top five commodities imported from the EU (2020-2024) in USD mil.

HS2 code	Commodity	2020	% Value	2021	% Value	2022	% Value	2023	% Value	2024	% Value
Total NZ commodities imported from the EU		5 692	100	7 779	100	7 794	100	7 809	100	6 742	100
84	Nuclear reactors, boilers, machinery...	1 234	21.68	1 570	20.18	1 561	20,03	1 624	20.80	1 500	22.25
87	Vehicles other than railway...	937	16.46	1 525	19.60	1 458	18,71	1 564	20.02	1 049	15.56
30	Pharmaceutical products	430	7.55	736	9.46	703	9,01	644	8.25	557	8.26
85	Electrical machinery and equipment...	356	6.26	414	5.32	437	5,61	452	5.79	438	6.50
90	Optical, photographic, cinematographic, measuring,	262	4.60	328	4.22	367	4,71	406	5.20	390	5.78
Other commodities		3219	56.55	3206	41.22	3268	41,93	3119	39.94	2808	41.65

Source: Trade Map, 2025

3.3 Benefits of the EU-New Zealand FTA

The European Commission (2022b) states that the EU business can take advantage of benefits which come from the EU-New Zealand FTA. The first one being zero tariffs on EU exports to New Zealand. New Zealand removed high duties on products as cars and motor vehicle parts (before, tariffs up to 10%), machinery (before, tariffs up to 5%), chemicals (before, tariffs up to 5%), clothing (before, tariffs up to 10%), shoes (before, tariffs up to 10%), pharmaceuticals (before, tariffs up to 5%), pet food (before, tariffs up to 5%), wine and sparkling wine (before, tariffs up to 5%) and chocolate, sugar confectionary and biscuits (before, tariffs up to 5%).

Next, the EU can benefit from the protection of the full list of EU wines and spirits. Wines and spirits as Prosecco and Champagne, as well as the most renowned traditional EU products (Geographical Indications), such as Feta cheese and Lübecker Marzipan.

Another benefit is that New Zealand´s services market is now in key sectors such as financial services, telecommunications, maritime transport and delivery services.

EU companies now have an improved access to New Zealand government procurement contracts for goods, services, works and works concessions.

There is a dedicated chapter to help small business exports. This ensures that also small businesses fully benefit from the opportunities the agreement offers.

Not to forget, the significantly reduced compliance requirements and procedures (European Commission, 2024b).

For New Zealand’s economy the FTA means access to a market of over 450 million consumers and cost savings of around USD151 million in duties each year, creating a more competitive edge for New Zealand exports. To be more precise, 91 % of New Zealand exports to the EU now enter duty-free because of the FTA. After seven years, when the agreement is fully in place, 97% of current trade will enter the EU duty-free (Thinkstep, 2023).

Based on New Zealand Trade and Enterprise (2024) New Zealand´s businesses can take advantage of benefits such as eliminating or substantially reducing EU duties on most New Zealand goods exported to the EU. For example, New Zealand kiwifruit exported to the EU had a pre-FTA tariff of 8.0-8.8%. Under the FTA, the kiwifruit tariff dropped to 0%. Other examples of products that have 0% tariffs include onion, apples and wine.

Second, the increase of tariff rate quotas. Sensitive EU agricultural products such as meat from cattle, sheep and goats, dairy products, sweet corn and ethanol have tariff rate quotas (Hartinger, 2024). The tariff rate quotas will increase every year until 2030. For example, before the EU-New Zealand FTA entered into force, the Most Favoured Nation (MFN) rate was applied for the Carcasses and half-carcasses of lamb, fresh or chilled, which was 12.8% of the price + 171.3 EURO/100kg. From May 2024 2,967 tonnes spread across 15 fresh or chilled lamb meat had 0% tariff and after exceeding this amount the MFN tariff was applied. In 2025 the quota increased to 5,911 tonnes across 15 fresh/chilled lamb meat. In 2026 the quota will increase to 7,389 tonnes across 15 fresh/chilled lamb meat. From 2030 onwards, 13,300 tonnes across the 15 fresh/chilled lamb meat can enter the EU under this FTA quota duty free. Otherwise, the out-of-quota tariff applies, unless traded under a separate WTO quota (MFAT, 2025b).

Third benefit is the protection of the full list of NZ wines including Marlborough, Central Otago, Waiheke Island and Martinborough.

Next, the benefits for services exporters. Services commitments will help facilitate access and provide greater certainty for New Zealand services exporters in the EU market and make sure that New Zealand exporters can compete on a comparable basis with other EU trading partners. More specifically, New Zealand education providers can offer a range of services, including language, sports and recreation education services.

And there are also benefits for investors. Investment provisions in the FTA incorporate modern investment protection rules and provide certainty to both sides of the investors. No restriction on the specific types of legal entity or joint venture through which an investor of the other Party may perform an economic activity.

CONCLUSION

The EU-New Zealand FTA represents a huge step in aligning trade policies with sustainable development goals. By integrating binding commitments on labour rights, environmental protection, and gender equality, the agreement sets a new standard for future trade deals. The sanction-based enforcement mechanism can also strengthen the credibility of sustainability commitments, ensuring that trade benefits do not come at the expense of social or environmental responsibility. However, challenges remain in fully enforcing sustainability provisions since concerns remain regarding the potential competitiveness impacts on sectors that may struggle to adapt. Because of that, continued cooperation, innovation, and policy alignment will be essential in ensuring that trade agreements contribute to a more resilient, fair, and environmentally responsible global economy.

ACKNOWLEDGEMENT

This paper is a part of research projects VEGA no. 1/0398/22, VEGA no. 1/0689/23, VEGA no. 1/0254/25 and PMVP no. I-25-101-00.

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Application of Cluster Analysis on the Tourism Regions in Slovakia: Assessing the Level of Their Tourism Development

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https://doi.org/10.53465/CEECBE.2025.9788022552257.315-327

Abstract: The paper explores various levels of development across Slovak tourism regions. The main objective is to identify the six most developed tourism regions in Slovakia. Hierarchical cluster analysis was used as the primary tool for assessing the level of tourism development. Several indicators reflecting the level of tourism development in Slovak regions were applied in the analysis. The findings reveal six clusters, with the six most developed tourism regions in Slovakia. These regions are the Region of Bratislava, Turiec, Horehronie, Pohronie, Tatras, and Liptov. For future research, we recommend assessing the level of tourism development in the tourism regions of neighboring countries, which could highlight potential partners for Slovakia's well-developed regions. This could contribute to more effective cooperation among the most developed tourism regions in Central Europe.

Keywords: Tourism Development, Cluster Analysis, Tourism Regions

JEL Classification codes: Z32

INTRODUCTION

Tourism plays a crucial role in the economic and social development of regions, offering opportunities for economic diversification, employment, and infrastructure improvements. In Slovakia, a country with diverse natural landscapes, rich cultural heritage, and a growing tourism industry, assessing the level of development of its tourism regions is essential for strategic planning and policy-making. Understanding the disparities and strengths of different regions can help stakeholders optimize resources, enhance competitiveness, and foster sustainable tourism development.

This study aims to evaluate the level of tourism development across Slovakia's regions using cluster analysis. Cluster analysis is a statistical method that groups regions with similar characteristics, enabling a data-driven classification of tourism performance.

The research is structured to analyze key indicators of tourism development, including tourist arrivals, overnight stays, number of accommodation facilities, beds, etc. The findings from this study can contribute to better regional policy formulation, targeted investment strategies, and enhanced marketing efforts tailored to the unique attributes of each tourism cluster.

In the following sections, we present the theoretical background and methodological framework of the study, followed by an analysis of the results and their implications for regional tourism development in Slovakia.

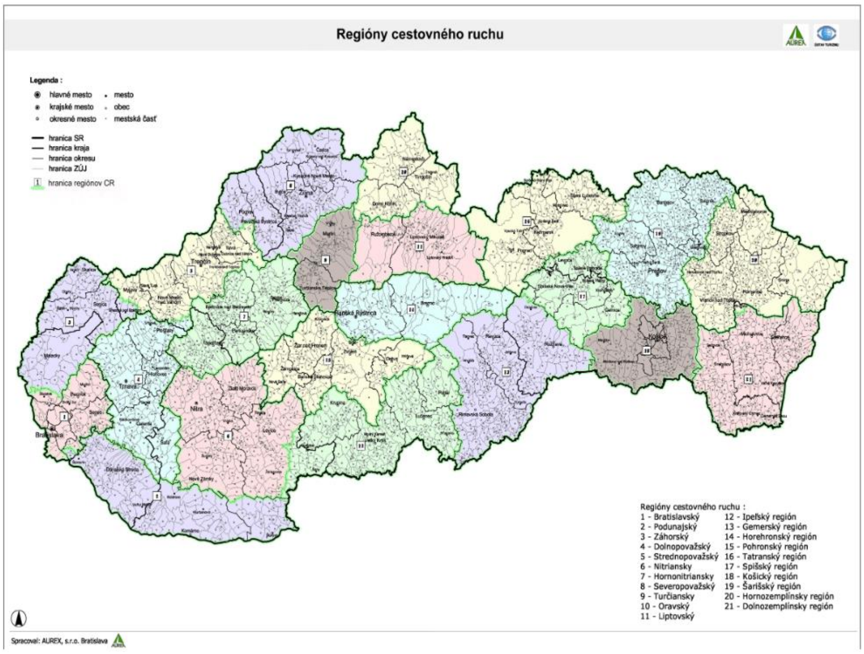
1 LITERATURE REVIEW

"*Tourism has been always considered to be one of the sectors, which could contribute to the economic growth of the country*" (Gajdošíková et al., 2016, p. 411).

According to Khan et al. (2020), many factors can affect tourism worldwide. Some of these factors are high prices of services, terrorist attacks, and global pandemics. Among these, the COVID-19 pandemic had a particularly severe impact on the tourism industry. During this period, a rapid decline in demand for travelling and a slight increase in unemployment was observed (Vašaničová et al., 2023). According to Grešš (2021), the solution for global pandemics should be to set understandable and unchanging rules to create safe conditions for traveling even in tough times. If we follow the rules, we can minimize the negative impacts on tourism. Regarding the research conducted by Michálková and Gáll (2021), the most vulnerable regions in Slovakia are Tatras, Liptov, Spiš and Orava. Due to the COVID-19 pandemic, the whole tourism sector struggled. The decrease between the first and second quarters of 2020 was more than 12% in the employment in tourism. 75.38% decrease in number of overnight stays and almost 80% decrease of visitors in Slovakia. During this period, it was crucial to maintain as many jobs as possible and to prevent further decline. Moreover, the COVID-19 pandemic could help resolve the problem of fragmented destination management in the most vulnerable tourism regions.

The criteria for defining tourism regions listed in the Regionalization of tourism in Slovakia include natural and anthropogenic conditions and a common demand for tourism. Regionalization also considers the cadastral boundaries of municipalities and higher territorial units. Before the current valid regionalization of tourism, regionalization was also created in 1962, when 20 regions were identified, and in 1981, when 24 tourism regions were identified (Orságová, 2020). At present, the territory of Slovakia is split into 21 tourism regions based on various factors such as interconnections within the region, consistency of conditions, geographical proximity, historical factors and natural centers already existing in the areas (Ústav turizmu, 2005).

Fig. 1 Tourism regions in Slovakia



Source: Ministry of Transport of the Slovak Republic, 2005

Tourism regions belong to the group of purpose-built regions. In Slovakia, regions such as Liptov and the Tatras serve as notable examples. They can be defined as a territory characterized by relatively homogeneous cultural as well as natural resources, which can then be transformed for the further development of these regions. Tourism regions can be classified in terms of their character of the landscape, life cycle, and degree of attractiveness. The landscape's character depends mainly on the altitude of the region, its infrastructural facilities, and the level of provided services. Tourist regions can also be classified according to their phase during the life cycle. Regions can be in the phase of discovery, involvement, development, consolidation, stagnation, decline, or revival. The degree of attractiveness depends mainly on natural and cultural-historical resources, infrastructure facilities, and communication of the destination. Thanks to these aspects, we can easily identify regions with local, regional, national, and international importance (Gúčik, 2021).

A large number of authors, such as Mydlár (2015), Vašaničová (2016), and Vongrej (2014), agree that tourism in Slovakia has great potential. However, this potential is still untapped, and it's far from an efficient use of the resources which Slovakia has at its disposal. To ensure positive development of this industry, it is necessary to stay competitive among the neighboring countries. After 1990, tourism in Slovakia recorded growth rates resulting from the economic boom in the whole of Europe. However, if Slovakia wants to stay competitive in the tourist market, it must set up and implement short-term and long-term goals. In terms of already established source markets, Slovakia has to adjust its product portfolio. Moreover, Slovakia should penetrate other markets by setting up new innovative products. To ensure the competitiveness of Slovakia in the tourism market, it is necessary to stabilize the organizational structure of tourism on the regional, local, and national levels (Malachovský, 2014). It is important to mention that the positive and negative impacts of tourism affect the sustainable development of tourism. For greater tourism development, it is important to maximize positive tourism impacts and minimize negative tourism impacts. Therefore, comprehensive, systematic, and legislative changes are needed (Štrba et al., 2022). Regarding Slovakia, it is important to implement nature-friendly forest management to ensure the sustainability of natural resources in mountainous regions, which are vital for tourism development (Kovalčík, 2020). To stay competitive, Zemanová (2023) recommends in her dissertation thesis Slovakia to participate in exhibitions and B2B meetings organized under the brand Discover Central Europe. Moreover, Slovakia should increase the number of direct flights from countries targeted by the DCE brand, such as Germany, Austria, Holland, etc.

2 METHODOLOGY

The main objective of this research is to identify the six most developed tourism regions in Slovakia. Additionally, we aim to compare our results with a cluster analysis from 2019 and the existing map of tourism region categorization. In this study, we utilized secondary sources of information, primarily statistical data from the Statistical Office of the Slovak Republic. Our main source was the document "Správa o hospodárskom vývoji v krajoch SR v roku 2020 ". Based on this source, we compiled datasets that were subsequently utilized in the analysis. Several indicators were selected to assess the level of tourism development in each region. Specifically, the analysis considered the number of accommodation facilities, the number of beds in these facilities, the number of domestic and foreign tourists, the number of overnight stays by both domestic and foreign tourists, and the revenues of accommodation facilities generated from domestic and foreign visitors. Additionally, we used the average utilization rate of accommodation facilities, as well as the average number of overnight stays by domestic and foreign tourists.

The data and datasets were processed using Microsoft Word and Microsoft Excel, where we calculated mathematical relationships and created the necessary tables. Additionally, hierarchical cluster analysis was conducted using the statistical software R. The subject of our investigation includes all tourism regions in Slovakia. A total of 21 tourism regions were defined in 2005, and all of them were analyzed through cluster analysis to determine which regions exhibit the highest level of tourism development.

Hierarchical cluster analysis

To achieve the goals of this research, we employed hierarchical cluster analysis as the primary data processing method. The selection of tourism regions was conducted using a multivariate statistical approach within the R statistical software. We have chosen to proceed with hierarchical cluster analysis according to Gáll et al. (2021).

1. Choice of input database. As a input dataset we have chosen the data from the document "Správa *o hospodárskom vývoji v krajoch SR v roku 2020* ". In this document, we have identified several indicators reflecting tourism development in the regions.
2. Determination of the Euclidean distance. At the beginning of the research, the same number of clusters (six) was determined. They will be used in the results of all hierarchical cluster analysis techniques. Moreover, the Euclidean distance will be adjusted to three decimal places. Euclidean distance is otherwise known as the geometric distance, which is one of the most used metrics given by the following relationship:

$$d_{ij} = \sqrt{\sum_{k=1}^{n}(K_{ik-} K_{jk})^2}, \qquad (1)$$

where:
d_{ij} = Euclidean distance
n = number of variables
X_{ik} = value of the k-th variable for the i-th object
X_{jk} = value of the k-th variable for the j-th object (Stankovičová and Vojtková, 2007)

3. Types of clustering techniques. The result of the cluster analysis represents the five clustering techniques. We used Complete linkage, Single linkage, Average linkage method, Wards method, and Centroid method.
4. Verification of the results. To verify the correctness of the results, we used the Cophenetic correlation coefficient calculated for the Euclidean distance to find out which cluster analysis method gives the best cluster model. The best cluster model had the highest Cophenetic correlation coefficient.
5. Identification of clusters. After choosing the most relevant cluster model, we can easily identify the tourism regions belonging to all six clusters.
6. Evaluation of individual clusters. Before evaluating all clusters, the average values of the selected indicators must be calculated. Based on the calculated average, the clusters can be ordered according to their level of development (Gáll et al., 2021).

3 RESULTS AND DISCUSSION

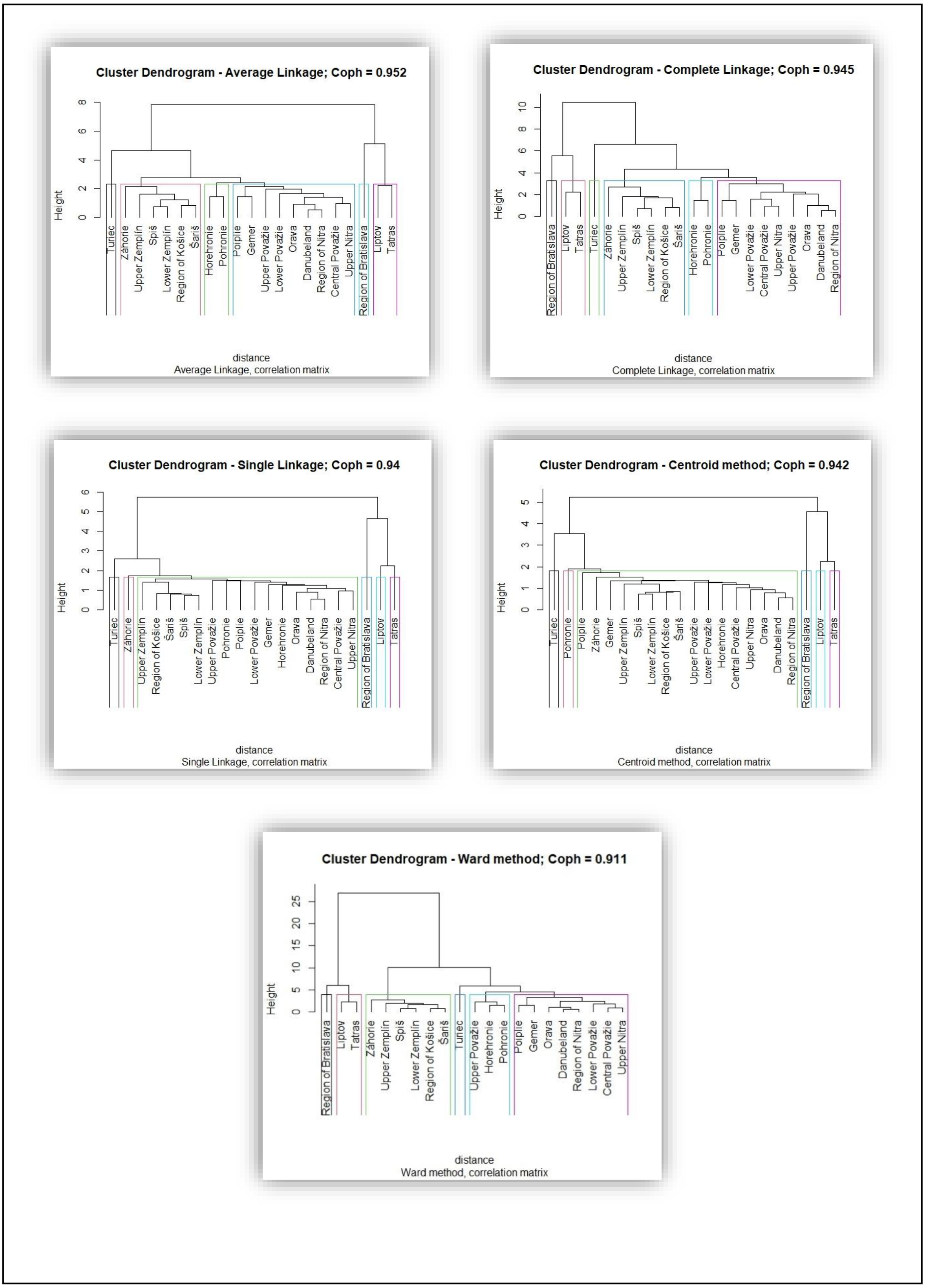
Tourism plays a significant role in regional development, contributing to economic growth, employment, and infrastructure improvements. Understanding the varying levels of tourism development across different regions is essential for effective policy-making and strategic planning. Slovakia, with its diverse natural landscapes and rich cultural heritage, offers distinct tourism potential across its regions. By analyzing key indicators, such as visitor numbers, overnight stays, and revenue, we aim to group regions with similar characteristics, providing valuable insights into their relative development levels.

3.1 Cluster analysis of tourism regions in Slovakia

The following subsection focuses on the application of hierarchical cluster analysis, which categorizes tourism regions into clusters using pre-prepared datasets. These datasets are based on the data from documents called "Výsledky hospodárenia krajov". By applying this stochastical method, we can identify the level of tourism development in each tourism region in Slovakia. At the beginning of the research, we determined that the analysis would be conducted using six clusters. This number of clusters was consistently applied across all agglomerative hierarchical clustering techniques. On average, each cluster was expected to contain 4-5 objects. Considering the total number of investigated objects (21 tourism regions), the number of clusters resulting from the analysis is suitable. However, the results of all hierarchical clustering techniques are diametrically different. Very discrepant clusters were formed when all techniques were used (regarding the number of objects in every cluster). In certain cases, disproportionately large or small clusters emerged, and in some instances, individual regions formed standalone clusters.

The first phase of the cluster analysis involved the formation of clusters. The results from the cluster analysis are presented in Figure 2, which illustrates the outcomes of selected hierarchical clustering techniques in the form of the five different dendrograms. These dendrograms visualize the result of the cluster analysis based on the collected data. Figure 2 presents five dendrograms, which consist of six clusters. The conclusion of each clustering technique is different, but some similarities are retained. In all dendrograms, the Region of Bratislava is always in its own cluster, indicating its relative distance from other investigated regions. The same applies to the Turiec region. The other clusters consisting of regions Liptov, Tatras, Horehronie, and Pohronie indicate relative proximity, as they often appear in common clusters. Compared to the clusters mentioned above, the rest of the clusters consist of more than five tourism regions. Moreover, clusters containing up to 16 variables have emerged within the two clustering techniques. We can further note that despite the total number of regions we worked with, not a single dendrogram came out with the same result. Although each dendrogram provides an interesting evaluation of the input variables, it is not yet possible to determine the statistical significance of individual clusters at this stage of hierarchical cluster analysis.

Fig. 2 Cluster dendrograms



Source: own processing in statistical program R

To validate and compare the applied clustering techniques, the cophenetic correlation coefficient, which is recalculated for Euclidean distance, will be used to determine the adequacy of the clustering technique and to determine the best clustering model. The resulting values of the cophenetic correlation coefficient are presented in Table 1.

Tab. 1 Cophenetic correlation coefficients

Euclidean distance	
Hierarchical clustering technique	Cophenetic correlation coefficient
Average Linkage	0.952
Complete Linkage	0.945
Single Linkage	0.94
Centroid method	0.942
Ward method	0.911

Source: own processing

As shown in Table 1, the Average Linkage method achieved the highest cophenetic correlation coefficient (0.952), indicating the best preservation of the hierarchical clustering structure. While other methods, such as Complete Linkage (0.945), Single Linkage (0.940), and the Centroid method (0.942) produced similar results, Average Linkage was ultimately selected due to its balanced approach between compactness and separation of clusters. In contrast with other applied methods, the Single Linkage and Centroid method led to the formation of one large cluster and numerous very small ones, consisting of only one tourism region, which suggests that these techniques might not be ideal for capturing meaningful outcomes in this case. Finally, the Ward method, which had the lowest cophenetic correlation coefficient (0.911), is designed to minimize intra-cluster variance. However, it may distort the true cluster structure, especially when clusters vary in size or density (Rodriguez et al., 2019). Given the relative performance of all methods, Average Linkage was chosen for its better overall performance and cluster consistency. Therefore, the Average Linkage technique will be used for further research. This clustering technique has resulted in six clusters representing the following regions:

Cluster 1. Turiec

Cluster 2. Záhorie, Upper Zemplín, Spiš, Lower Zemplín, Region of Košice, Šariš

Cluster 3. Horehronie, Pohronie

Cluster 4. Poiplie, Gemer, Upper Považie, Lower Považie, Orava, Danubeland, Region of Nitra, Central Považie, Upper Nitra

Cluster 5. Region of Bratislava

Cluster 6. Liptov, Tatras

Tab. 2 Identified clusters sorted by their level of importance

Order	**Average value in Cluster analysis**	**Cluster**	**Regions**
1.	1.967	Cluster 5	Region of Bratislava
2.	1.185	Cluster 1	Turiec
3.	0.280	Cluster 3	Horehronie, Pohronie

Order	Average value in Cluster analysis	Cluster	Regions
4.	-0.035	Cluster 6	Liptov, Tatras
5.	-0.131	Cluster 4	Poiplie, Gemer, Upper Považie, Lower Považie, Orava, Danubeland, Region of Nitra, Central Považie, Upper Nitra
6.	-0.521	Cluster 2	Záhorie, Upper Zemplín, Spiš, Lower Zemplín, Region of Košice, Šariš

Source: own processing (1. position: the most important tourism regions - 6. position: regions with the lowest importance)

In Table 2, we can see all six clusters in order from the most important cluster in the first place to the cluster with the lowest importance of tourism regions in the sixth place. The outcome of the Hierarchical cluster analysis is the determination of six categories, representing each cluster, which consists of one or several regions:

Category 1

To the first category belongs the Claster 5 with the Region of Bratislava. In terms of tourism, this region is, according to Hierarchical cluster analysis, the most developed in Slovakia. The region has perfect localization prerequisites for tourism development. This is reflected in the various indicators we used in this study. The region of Bratislava is a well-developed tourism region, and its impacts are significant at the regional, national, and international levels.

Category 2

Cluster 1, which achieved the second-best average values, consists of only one region: Turiec. Turiec is located in the northern part of Slovakia, close to the Czech and Polish borders. It is precisely this location and its various attractions that predestine it for attracting more foreign tourists.

Category 3

Cluster 3, which includes the regions Horehronie and Pohronie, took third place. Within the regions, we can find plenty of castles, historical cities, and one of the most renowned ski centers in the country. These regions are located in the central part of Slovakia, close to the border of Hungary, so their future potential has an international reach.

Category 4

In the fourth category, we have another two popular tourist destinations. Cluster 6 consists of the Liptov and Tatras regions. These regions are popular among tourists because of their historical and natural beauty. In these two regions, our two highest mountain ranges are located, which creates perfect prerequisites for attracting domestic and foreign tourists. Therefore, the regions Liptov and Tatras can be considered national and international destinations.

Category 5

In fifth place, we can see Cluster 4, which consists of several regions. Namely: Poiplie, Gemer, Upper Považie, Lower Považie, Orava, Danubeland, Region of Nitra, Central Považie and Upper Nitra. All of these regions have high-quality localization and implementation prerequisites for tourism development, however, their potential is not yet fully exploited.

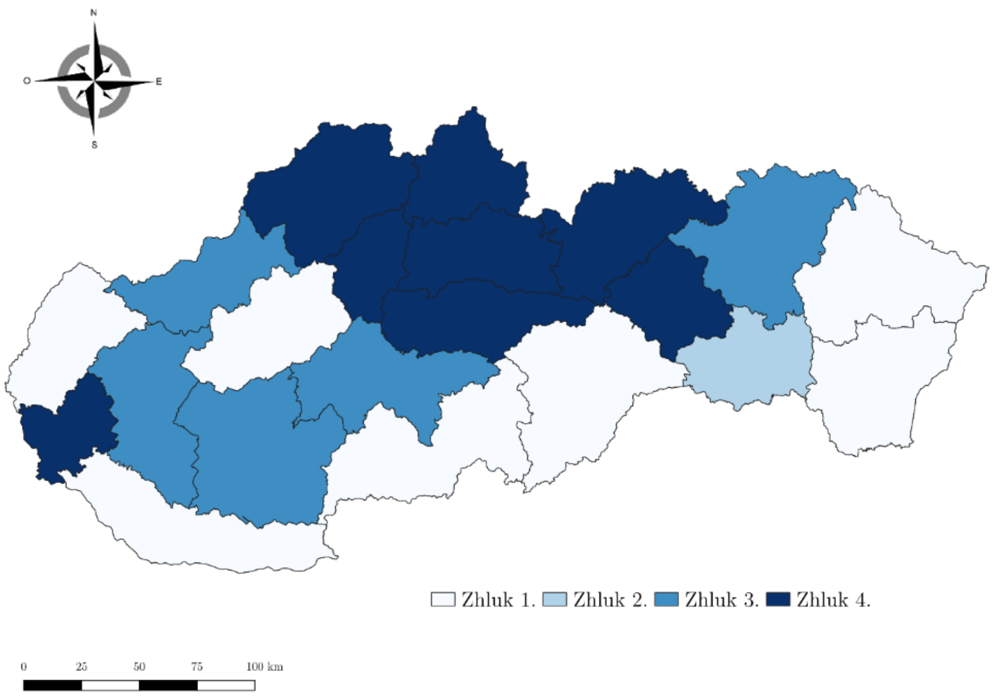
Category 6

The last place has been taken by Cluster 2. As in the case of Cluster 4, Cluster 2 also contains several regions. These regions are Záhorie, Upper Zemplín, Spiš, Lower Zemplín, Region of Košice and Šariš. Some of these regions, mainly in eastern Slovakia, don't have the right localization and implementation prerequisites. The studied indicators are not as significant as in the other researched regions. Therefore, the outcome of this analysis ranks these regions among the least developed in terms of tourism.

3.2 Benchmarking of cluster analysis results

Furthermore, we can now benchmark three different maps, which can give us a clear view of the importance of the tourism regions in Slovakia. Two maps represent the results of the Hierarchical cluster analysis, which are based on datasets from 2019 and 2020. This comparison can show us the most successful regions in both years. Moreover, we are now able to identify the changes that have occurred as a result of the COVID-19 pandemic. The Cluster analysis from 2019 (the best year for tourism overall) shows us four clusters representing the different levels of development of tourism. On the other hand, the cluster analysis of tourism regions from 2020 shows slightly different results. This year, the COVID-19 pandemic significantly impacted the economy, especially the tourism industry. Finally, the third map shows us the differences between the regions, namely regional importance, transregional importance, national importance, and international importance.

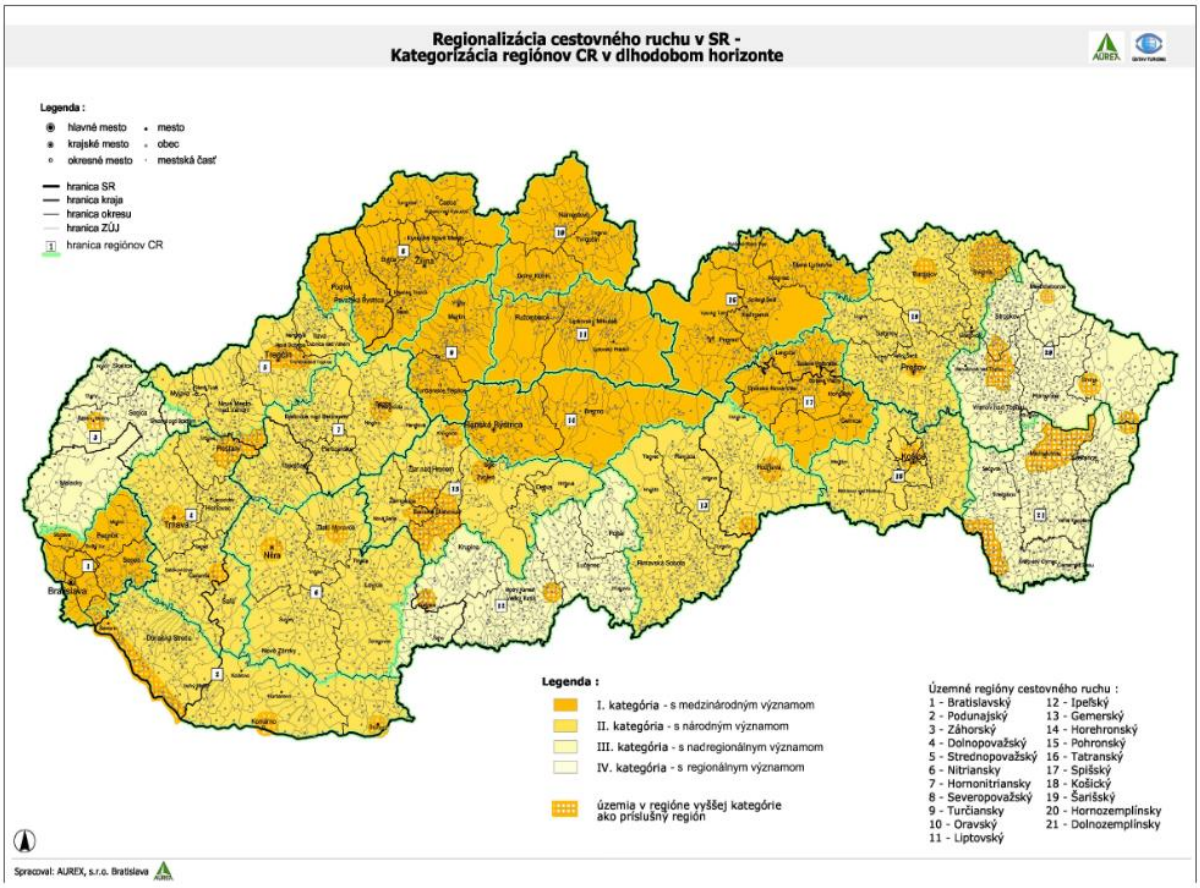
Fig. 3 Map of clusters of tourism regions according to the degree of importance in 2019



Source: author's own processing in the statistical program R, 2019 (Gall, 2021)

Figure 3 shows the four clusters containing the tourism regions resulting from their significant position in the tourism industry. The most important cluster is Cluster 4 with Upper Považie, Orava, Horehronie, Turiec, Liptov, Tatras, Spiš, and Region of Bratislava. From this map, we can see the two parts of Slovakia, where the most developed regions are located. Almost all major tourism regions are focused in the northern part of Slovakia, only Region of Bratislava is located in the western part of Slovakia.

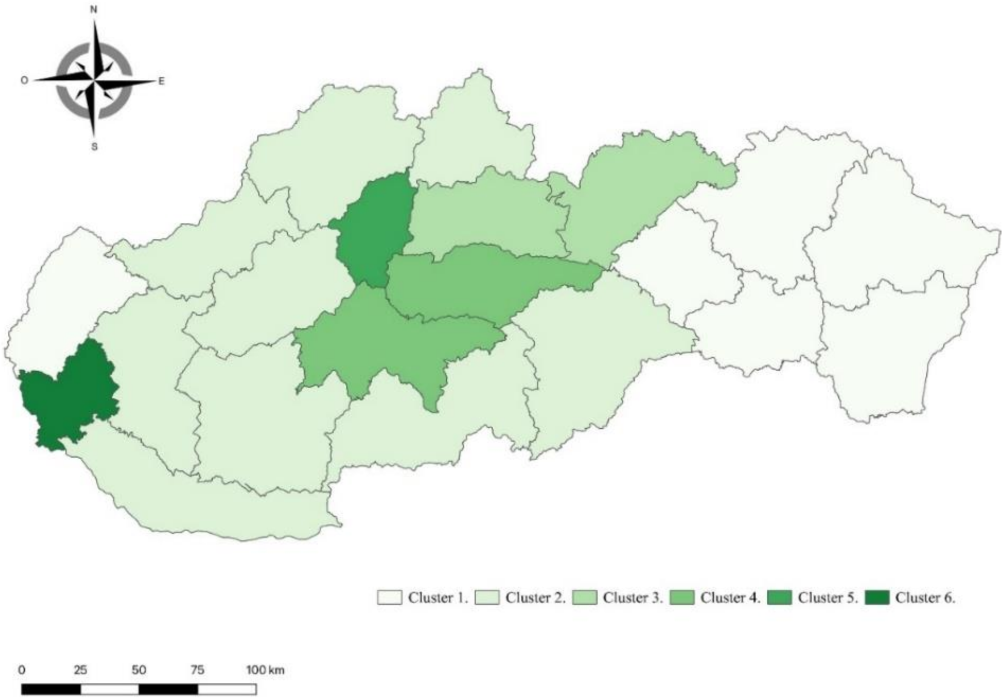
Fig. 4 Categorization of tourism regions in the long-term



Source: Regionalization of Tourism in the Slovak Republic, Ministry of Transport of the Slovak Republic

In the document, Regionalization of Tourism in the Slovak Republic, we can find many maps defining the potential of Slovak tourism regions in terms of tourism development. The most comprehensive map is the long-term categorization map of tourism regions. The regions are divided into four categories depending on their significance in tourism. The first category represents the regions of international importance, the second category represents the regions of national importance, and the other two categories represent the subregional and regional importance. Despite being nineteen years old, this document relatively accurately predicted the development of the tourism regions. In the first category of tourism regions, we can see a hundred percent match with the most successful tourism regions identified in the cluster map from 2019 (Figure 3).

Fig. 5 Map of clusters of tourism regions according to their degree of importance in 2020



Source: own processing in statistic program R based on the data from the document: Správa o hospodárskom vývoji v krajoch SR v roku 2020

The second map (Figure 5) shows 21 tourist regions in Slovakia, which are divided into six clusters according to their importance in tourism. This third map distinguishes from the above two almost identical maps. We can see that Upper Považie, Orava, and Spiš are not among the most successful tourism regions. On the other hand, the region of Pohronie was, according to the cluster analysis, assigned to the most developed tourism regions according to data gathered in 2020. The rest of the most developed tourism regions are identical to the previous maps. The other significant difference is that they are not located in the same cluster but are divided into 4 clusters. Despite this considerable segmentation, we can say that these six regions can be considered the most significant in terms of tourism development. The reason for the slightly different positions of some regions may be the strong impact of the COVID-19 pandemic on these regions. The year 2020 was challenging for all sectors of the economy. However, tourism was among the most affected sectors (Vărzaru, 2021). Therefore, we can also conclude that regions that have maintained their positions compared to 2019 are resilient and have the best prerequisites to overcome potential risk periods such as pandemics. These regions are the Region of Bratislava, Turiec, Pohronie, and Horehronie. Conversely, regions such as Liptov, Tatras, Spiš, and Orava have seen a decline in their tourism significance, losing their previously strong position in tourism development. This trend aligns with the findings of Michálková and Gáll (2021), who identified these areas as particularly vulnerable within Slovakia's tourism sector.

This study faces several limitations that should be considered when interpreting the results. First, the Slovak Statistical Office does not collect data at the level of tourism regions in Slovakia, which significantly restricts the scope of our analysis. As a result, we had to create datasets with the data from the district level, which may not fully capture the nuances of regional tourism dynamics. This methodological limitation could influence the accuracy of our findings at the regional level. Another important limitation is the use of time series data from the year 2020. This year was heavily impacted by the COVID-19 pandemic, which caused significant disruptions to the tourism industry. As a result, the data for 2020 may not accurately represent typical tourism trends. Lastly, the implementation of the outcomes and recommendations of this research could be affected by the lack of coordination between relevant institutions in Slovakia. The absence of effective collaboration among academic, governmental, regional, and local authorities could limit the practical application of the study's recommendations, as coordinated efforts are often necessary to address complex issues within the tourism sector.

CONCLUSION

The research identifies the most developed tourism regions in Slovakia based on the outcomes of hierarchical cluster analysis. The findings indicate that the Bratislava Region, Turiec, Tatras, Liptov, Pohronie, and Horehronie demonstrate the highest levels of tourism development. Furthermore, a comparison of cluster analyses using data from 2019 and 2020 reveals certain differences in regional classification. Additional discrepancies emerge when comparing the 2020 cluster analysis results with the 2005 categorization of tourism regions. Despite these variations, the Bratislava Region, Turiec, Tatras, Liptov, and Horehronie consistently appear among the most developed tourism regions across all three maps. These insights provide valuable guidance for policymakers and tourism stakeholders in optimizing resource allocation, enhancing regional competitiveness, and promoting sustainable tourism development. To further strengthen tourism growth, we propose the establishment of two national tourism destinations. The first would encompass the Bratislava Region and its surrounding areas, while the second would integrate the Turiec, Tatras, Liptov, Horehronie, and Pohronie regions. The creation of these designated tourism destinations would enable responsible institutions to allocate resources efficiently and implement targeted strategies to support the continued development of these key regions.

ACKNOWLEDGEMENT

This contribution is the result of the internal grant project A-25-102/3020-02 of the University of Economics in Bratislava for young pedagogical staff, scientific and PhD. students entitled Digital technology in tourism: Generation Z in the spotlight.

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The Impact of Logistics Performance on Countries' Export Growth: A Global Gravity Approach

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https://doi.org/10.53465/CEECBE.2025.9788022552257.328-339

Abstract: This study deals with defining the link between logistics performance scores (LPI index) and export growth. The main aim of the paper is to evaluate the influence of logistics performance on the expansion of countries' exports, utilising the LPI index and its components, such as infrastructure quality, ability to track and trace consignments, ease of arranging competitively priced shipments, or efficiency of the customs clearance process. Poisson pseudo-maximum likelihood estimators with fixed effects were used to estimate gravity models as the core method of application. The results of the research suggest that higher logistics performance impacts export growth, while increasing the similarity of the overall LPI between countries supports more intensive bilateral trade flows. The study thus emphasises the importance of improving logistics efficiency as a tool to strengthen countries' export performance and support their global competitiveness.

Keywords: LPI Index, Logistics, Gravity Model, PPML

JEL Classification codes: C55, F14, L91

INTRODUCTION

Trade is related to logistics performance because it connects exporting and importing countries, i.e., improving logistics indicators also improve trade performance. (Suroso, 2022) Logistics is considered a crucial factor in sustainable development, as it is related to various industries and is affected by changes in the industrial structure. It is therefore important to understand performing logistics at the national level in order to plan future policies to promote trade and transport. (Song & Lee, 2022) Logistics performance refers to the efficiency of the processes involved in transporting goods from origin to destination, which includes aspects such as transportation infrastructure, customs procedures, quality of service, or overall ease of transportation. (Hoang, 2024) Understanding the relationship between logistics performance and export competitiveness is important in developing countries' bilateral trade. Initially focused on supply chain optimization, logistics now encompasses broader spatial and temporal roles due to globalization and modernization. (Ding et al., 2023) Since 2007, with introducing the Logistics Performance Index (LPI), the focus of several research studies has become to monitor the relationship between logistics and trade efficiency, with many studies focusing on total trade, selected indicators such as the competitiveness index or exports of selected commodities, e.g., palm oil exports. (Takele & Buvik, 2019; Zaninović & Bugarčić, 2023; Sergi et al., 2021; Suroso, 2022)

The aim of the paper is to evaluate the influence of logistics performance on the expansion of countries' exports, utilizing the LPI index and its components, through gravity modelling analysis. The paper will deal with defining the relationship between the logistics performance score (LPI index) and export growth. The main significance of the study lies in its analysis of the impact of individual components of the LPI index on export growth, representing an empirical contribution to scientific research. It is examining the quantity of bilateral trade flows on a large sample of countries, a sufficiently long time series, product groups and using a modern analytical apparatus, depending on the quality of logistics as a whole and then according to individual sub-indices of the LPI. However, the analysis of gravitational modelling is not limited to examining developing logistics quality in the exporting and importing countries but also focuses on the mutual interaction between the two countries. This aspect was achieved by applying and changing Linder's original hypothesis of more intensive bilateral trade between similar countries. Analyzing the links between logistics performance and exports can help identify areas where logistics processes can be improved to support export growth, contributing to overall economic growth.

The primary contribution of this article stems from empirically confirming the relationship between the LPI index and export growth. Furthermore, the research demonstrates that greater similarity in the overall LPI index and its sub-indices is associated with increased bilateral trade flows. The paper is structured as follows. First, it summarizes empirical literature dealing with the relationship between the LPI index and selected indicators, as well as with the advantages and disadvantages of the LPI index from a methodological point of view (data reliability). Next, the methodology is explained, followed by the results of this study and their discussion with the existing studies. Our core method is gravity modelling according to sound literature. Finally, conclusions and limitations are presented.

1 LITERATURE REVIEW

The LPI is an important indicator when comparing individual countries and the efficiency of the logistics sector, or the quality of transport and logistics services. It has been used since 2007, when it established itself as a global indicator of trade and transport facilitation for logistics professionals, academics, and policymakers. It is a tool to identify the challenges and opportunities faced by many companies and countries in terms of transport and logistics focused on six indicators: customs, infrastructure, international shipments, logistics competence, tracking & tracing, timeliness. (Arvis et al., 2023; Arvis et al., 2024)

The LPI index has been dealt with by several authors in their studies, looking for connections related to the impact of logistics performance on selected indicators. Sergi et al. (2021) point to the relationship between the LPI and the Global Competitiveness Index (GCI), with a focus on infrastructure, human factor, and institutions. The identified variables are essential for the proper development of the sector, with the human factor dominating the European logistics sector, infrastructure being the driving force behind logistics for Asia and Oceania. Kalansuriya et al. (2023) also examined the relationship between the LPI index and the competitiveness index in their study, examining the impact of the Corruption Perception Index (CPI), foreign direct investment (FDI), and gross domestic product per capita (PGDP) on the Global Competitiveness Index (GCI). Pehlivan et al. (2024) focused in their study on assessing the logistics performance of G20 countries in 2023 using LPI scores published by the World Bank and using the TOPSIS method and cluster analysis. Based on the analysis, they found the LPI scores were similar, and countries could be grouped into homogeneous clusters. Saini and Hrušecká (2021) investigated the causal relationship between economic development and logistics competitiveness indicators (LPI index) and logistics costs. Suroso (2022) focused on the impact of all logistical performance index indicators on exports of palm oil and palm-based products using a panel data regression approach using an extended gravity model aimed at examining Indonesia and Malaysia as leading exporters of palm oil and palm-based products. Jayathilaka et al. (2022) investigated the impact of gross domestic product (GDP) and LPI on the international trade of countries on each continent and globally using panel regression and a random effect (RE) model. Takele and Buvik (2019) examined the impact of logistics performance and exports on African countries. Puertas et al. (2013) analysed the importance of each component of the LPI index in trade flows also using a gravitational model. Zaninović and Bugarčić (2023) empirically identified the potential contribution of logistics performance to increasing the share of domestic value added in exports. The empirical specification of the study was based on a structural gravitational model of international trade.

An important theoretical starting point for achieving the goal of the paper is defining the advantages and disadvantages of using the LPI index. This issue is dealt with in their studies by several authors who agree on its importance and use, despite some of its limitations from a methodological point of view. According to Starostka-Patyk et al. (2024), the LPI index is a tool that helps evaluate logistics services in a country, but also to see if countries are making any progress. It not only provides data on the overall score but also makes it easier to compare the different components over the course of the year and see whether policy changes have produced the expected results. According to Ju et al. (2024), it facilitates identifying the state of logistics in all countries of the world, helps to build the logistics profile of the country, allows countries to be compared with each other, but also within one country, which makes it a comprehensive international tool for comparison, measuring logistics performance and achieving facilitation of international cooperation in transport. Arvis et al. (2023) point out not only the limitations of the LPI score but also its importance, especially in the current changing environment caused by the pandemic, war, terrorist attacks, when it is important to understand, measure and monitor logistics performance. Saini and Hrušecká (2021) point to the fact that logistics costs, which are a critical component, are not included in the LPI index and in their study propose to extend the indicators used to calculate the LPI to include logistics costs.

According to study prepared by the World Bank we can also consider the limits of LPI. It is often a subjective opinion of representatives of freight forwarding and logistics companies, and also, if respondents did not provide information for all six components of the LPI index than interpolation was used to fill in the missing values replaced by the average country's answer to the question. Another limit of the LPI score may be the limited experience of survey respondents with the countries they evaluate. (Arvis et al., 2023; Arvis et al., 2024)

2 METHODOLOGY

The LPI survey does not take place in every calendar year. In addition, there is a data gap during the Covid-19 pandemic period. Therefore, for our purposes, we changed the database so that the last value of the examined country was used. In order to achieve the declared aim, the method of gravitational modelling in the RStudio software was used with the glm package (family - quasipoisson; R Core Team, 2024) and by calculating robust standard errors using a sandwich package (Zeileis et al., 2020; Zeileis & Hothorn, 2002; Zeileis, 2004, 2021). The tools of the dplyr package (Wickham et al., 2023) were used, as well as Microsoft Office tools. It is currently permissible to estimate gravitational models using a Poisson Pseudo-Maximum (PPML) estimator with specified fixed effects (Silva & Tenreyro, 2006). This approach will not only cover statistically frequent zero or low values of bilateral flows in the database, uncovered variables with a significant impact on the dependent variable, some statistical errors, but also so-called multilateral resistance terms (Adam & Cobham, 2007; Cheong et al., 2014; Hsiao, 2014; Yotov et al., 2016; König, 2021). The latest literature recommends exporter-time, importer-time and exporter-importer fixed effects (Breinlich et al., 2021), but to simplify the calculation, we apply exporter-, importer-, time-fixed effects and, in addition, a fixed effect for the SITC product groups (0 to 9). The regression equation followed form, where β represents an estimate of the parameters of the variables, αi are the fixed effects of exporters, αj are the fixed effects of importers, αs represents the fixed effects of the SITC product groups, γt represents the time effects, and finally the error term εijt (own processing according to Silva & Tenreyro, 2006; Breinlich et al., 2021; Grübler & Reiter, 2021):

$$EX_{ijts} = \exp\left(ln_{X_1}\beta_1 + ln_{X_2}\beta_2 + ln_{X_n}\beta_n + \alpha_i + \alpha_j + \alpha_s + \gamma_t + \epsilon_{ijt}\right) \quad (1)$$

Since our effort was to create the simplest and most transparent models, only one control variable was specified for the individual components of the LPI, namely the similarity term from GDP per person employed as labour productivity and final consumption expenditures. In our case, labour productivity is a proxy variable of national competitiveness (Porter, 1990; Krugman, 1994) and final consumption was included in the specification to quantify the domestic trade flows represented by this variable (Yotov, 2022). This calculation is based on the so-called Linder's hypothesis (Linder, 1961) about the bilateral similarity of more intensely trading countries. The similarity term was expressed as the absolute value of the difference in the natural logarithms of the variables under study (Kitenge, 2021). A negative and statistically significant value of the estimated parameter of similarity terms always shows an increase in similarity between the examined countries, a positive value indicates the opposite. The variables used can be found in Table 1.

Tab. 1 Variables

Variable	**Description**
EX_{ijst}	Goods flow from exporting countries (i) to importing countries (j) for the period 2011 to 2022 (t) and for groups from 0 to 9 of the SITC nomenclature (s) in thousands of current USD (UNCTADStat, 2023).
GDP_ppe	Gross domestic product per person employed (output per worker) in constant and PPP USD as labour productivity (ILOStat, 2023).
F_Cons	Final consumption expenditure in current USD (WBG, 2024b)
LPI	LPI from 1 low to 5 high (WBG, 2024b).
LPI_INFR	Quality of trade and transport-related infrastructur (WBG, 2024b).
LPI_TRACK	Ability to track and trace consignments (WBG, 2024b).
LPI_QUALITY	Competence and quality of logistics services (WBG, 2024b).
LPI_PRICE	Ease of arranging competitively priced shipments (WBG, 2024b).
LPI_CUSTOMS	Efficiency of customs clearance process (WBG, 2024b).
LPI_TIME	Frequency with which shipments reach consignee within scheduled or expected time (WBG, 2024b).

Source: own processing

Obtaining data from the processed databases had a natural impact on the number of observations. Thus, the analysis contains the bilateral trade flows of 156 countries of export (i) and import (j) for the period 2011 to 2022 (t) and for 10 SITC product groups (s), which together represent 2,570,344 observations.

3 RESULTS AND DISCUSSION

The chapter focuses on specifying the results of the gravity model analysis and the LPI index and then comparing empirical results with the literature search in order to define recommendations and conclusions.

3.1 LPI index and gravity modelling analysis

We estimated the parameters of the specified variables using Pseudo Maximum-Likelihood estimators as part of our paper's methodology, which incorporates gravitational modelling with fixed and time effects. The results of the 14 alternative specifications can be found in Table 2.

Estimated parameters of control variables are the first general conclusion applicable to all model specifications. As the similarity in labor productivity between exporting and importing countries grows, so does the volume of their bilateral trade. We have not demonstrated the impact of final consumption similarity, which is a proxy variable for domestic trade flows. This indicates that we did not reject the zero statistical hypothesis of non-significance in estimating the similarity parameter of the term of final consumption, even at the maximum 10% significance threshold. The significant estimated parameter of labor productivity is logical and aligns with Linder's hypothesis. However, insignificant estimates of final consumption are contradictory. These results are statistically robust, as the effects of other uncovered variables in our specifications quantify our diverse fixed effects.

Tab. 2 Gravity models parameters estimations

Dep. Var. = EXijst	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**	**Model 7**
Const.	11.50***	10.33***	11.48***	10.99***	11.48***	10.90***	11.51***
Sim_GDP_ppe	-0.20***	−0.27***	−0.24***	−0.27***	−0.22***	−0.27***	−0.20***
Sim_F_Cons	0.01	-0.01	0.00	-0.01	0.00	-0.01	0.01
Sim_LPI	−0.84***						
ln_LPI_it		0.50**					
ln_LPI_jt		0.32*					
Sim_LPI_INFR			−0.37***				
ln_LPI_INFR_it				0.19			
ln_LPI_INFR_jt				0.14			
Sim_LPI_TRACK					−0.55***		
ln_LPI_TRACK_it						0.18	
ln_LPI_TRACK_jt						0.23*	
Sim_LPI_QUALITY							−0.87***
Dep. Var. = EXijst	**Model 8**	**Model 9**	**Model 10**	**Model 11**	**Model 12**	**Model 13**	**Model 14**
Const.	10.46***	11.58***	11.02***	11.51***	10.96***	11.50***	11.38***
Sim_GDP_ppe	−0.27***	−0.24***	−0.27***	−0.21***	−0.27***	−0.21***	−0.27***
Sim_F_Cons	-0.01	0.01	-0.01	0.00	-0.01	0.00	-0.01
ln_LPI_QUALITY_it	0.39**						
ln_LPI_QUALITY_jt	0.34**						
Sim_LPI_PRICE		−1.29***					
ln_LPI_PRICE_it			0.18				

ln_LPI_PRICE_jt			0.16				
Dep. Var. = EXijst	**Model 8**	**Model 9**	**Model 10**	**Model 11**	**Model 12**	**Model 13**	**Model 14**
Sim_LPI_CUSTOMS				−0.53***			
ln_LPI_CUSTOMS_it					0.25		
ln_LPI_CUSTOMS_jt					0.13		
Sim_LPI_TIME						−1.03***	
ln_LPI_TIME_it							0.16
ln_LPI_TIME_jt							-0.10
n (t=2011–2022)	2,570,344						
PPML	Yes						
Robust st. errors	Yes						
Exporter fixed effects	Yes						
Importer fixed effects	Yes						
SITC 1 fixed effects	Yes						
Time fixed effects	Yes						

Source: own processing

Another important conclusion based on our results is the fact that as the similarity of the overall LPI index and all its sub-indices increases, the quantity of bilateral trade flows increases. Furthermore, we statistically significantly estimate all parameters of the variable. We observe heterogeneity within the estimated parameters of similarity terms, with absolute values ranging from 0.37 (Sim_LPI_INFR) to 1.29 (Sim_LPI_PRICE). Thus, bilateral trade flows respond least to an increase in the similarity of countries in infrastructure quality development, and most to an increase in the availability of international transport services at competitive prices, i.e., the ease of arranging competitively priced shipments. Placing these two thresholds is logical because price adjustments can be made more quickly than infrastructural ones. In addition, cost factors at the microeconomic level are still the dominant component of national competitiveness. In the past, countries influenced the value of exchange rates; today they resort to tax or cost competition, for example in wages (Albu et al., 2022; Baranová, 2013; Turner & Van't Dack, 1993; Dustmann et al., 2014; Teplická & Daubner, 2013). Therefore, this does not imply that infrastructure development should be undervalued. Our results indicate that the stimulation of trade flows will reflect the change in infrastructure quality, albeit with a time delay. That is why it is necessary to invest in infrastructure in a timely manner and with a sufficiently large amount of funds so that they have an economically positive development impact as soon as possible.

To find out how the overall LPI index or its sub-indices change bilateral trade flows, we saw that a rise in the total value of LPI had a positive effect on both exporting and importing countries. The quality of both partners got better, and the ability to track and trace shipments got better, but only in the importing country. This may be primarily since the buyer in the importing country prioritizes shipment tracking when implementing foreign trade operations.

Finally, it is possible to identify LPI sub-indices with a statistically less significant impact than other factors. These indices include the quality of the infrastructure of exporters and importers, the ability to track and trace consignments of exporters, but also the ease of arranging competitively priced shipments, the efficiency of the customs clearance process, and the frequency with which deliveries reach consignees within the scheduled time of both exporters and importers.

3.2 Applications of gravity modelling and contribution of our analysis

Gravity modelling has a wide range of applications. Khan et al. (2024) used this methodology to prove the positive potential of the so-called India Middle-East Europe Economic Corridor, which should bring benefits in terms of transport and logistics itself. Thus, our research confirms the positive impact of the overall LPI and many of its sub-indices on the current credit rating literature. Sy et al. (2020) focused on the ASEAN region and confirmed the positive impact of logistics performance on economies as such, but also on important sectors within the economic structure of the countries under study. For this, they used a rich methodological apparatus, including Poisson pseudo-maximum likelihood estimation. Unlike the presented article, our approach incorporates the latest index results, formulated during the dramatic period of the global COVID-19 pandemic. Additionally, our gravity model includes the widest possible global sample of countries available. A study by the authors Taguchi and Thet (2021) also comes from the ASEAN region, which used gravity modelling to investigate the impact of logistics performance on the integration of emerging markets within vertical global value chains (GVC). Their conclusions not only confirmed the positive impact of logistics and its quality on the deeper integration of economies in the GVC, but the authors also deduced room for positive government policy, as the quality and performance of logistics are, according to them, manageable. Kumari and Bharti (2021) worked with the theoretical assumption in the literature that smaller states achieve higher LPI score values due to their better efficiency than larger ones. Therefore, they considered the size of economies based on population. Indeed, the authors demonstrated that large states had the smallest impact of LPI on trade flows. Finally, we can mention Host et al. (2019), who, using a different specification of the gravity model, demonstrated the positive impact of trade facilitation on international trade. In this case, we used the LPI index as a trade facilitation proxy variable.

3.3 Recommendations

Based on literature review, multiple studies (Puertas et al., 2013; Suroso, 2022; Pehlivan et al., 2024), and the empirical results of our research, we can summarize a few recommendations for policymakers and practices:

- Trade takes place between countries that increase similarity in LPI scores, and countries with an increase in the value of this index export more. Therefore, it is important to improve the quality of infrastructure, take part in TEN-T networks or pan-European corridors, which contribute to increasing trade flows between countries, geographically close. Increasing investment in transport infrastructure increases logistics performance and stimulates exports and thus economic growth. Investments develop logistics infrastructures will also have a positive impact on the economic growth of countries.
- Bilateral trade flows react least to the increase differ countries in the development of infrastructure quality and the most to the determinant of ease of arranging competitively priced shipments, because of fluctuations and prompt adjustments of prices in line with the development of demand and supply in the markets, as opposed to changes in infrastructure, which are clearer in the long term. Improving performing logistics contributes to the growth of exports and the quality of infrastructure has a positive impact on it, as well as modernizing customs procedures, administration, or adapting transport policies to the real situation. Therefore, it is important for policymakers to remove barriers to trade, reducing transit times and increasing the efficiency of logistics processes.
- Because of the multidimensional nature of logistics, measuring and presenting its effectiveness in different countries is challenging, most times, information is available, but collecting it into a single dataset for multiple countries because of structural

differences in supply chains is complex. Building on the LPI, intending to base it on aim statistical data, it is appropriate to implement them as key KPIs in national transport or logistics strategies, thus serving as a reference tool for a detailed analysis of logistics subsystems, as well as an overview of where a country is in terms of its logistics systems.

CONLUSION

The main aim of the paper is to evaluate the influence of logistics performance on the expansion of countries' exports, utilizing the LPI index and its components, through gravity modelling analysis. Verification of the relationship between the LPI index and exports is especially important when making policy decisions aimed at more efficient and faster business processes, improving the business environment in terms of international transport and logistics, which contributes to increasing the country's competitiveness in the global market.

Our empirical research confirmed the relationship between the LPI index and export growth. We can also conclude that as the similarity of the overall LPI index and all its sub-indices increases, so does the quantity of bilateral trade flows. These findings highlight the importance of investing in improving logistics systems to support international trade and underline the importance of cooperation within trade partnerships. It is also important to focus on affording transport services, as cost factors at the microeconomic level are still the dominant component of national competitiveness.

We can also conclude that countries with a high LPI are more attractive to foreign investors who are looking for efficient logistics chains to support their production and business operations. Thus, the overall effect of logistics performance on a country's export capabilities is significant, which is why it is important to research and develop strategies to improve the LPI index in order to support the country's growth and economic development.

Our research limitations include the need to modify the LPI index database when using the most recent values. However, the World Bank Group's periodic compilation and publication of index values mandated this procedure. Another constraint stems from our failure to incorporate exporter-time, importer-time, and exporter-importer fixed effects, as suggested by Breinlich et al. (2021), to address the issue of multilateral resistance. We have selected a feasible approach for estimating fixed effects, which we can interpret based on temporal changes. However, there is a significant risk that incorporating the mentioned fixed effects could prevent us from estimating the variability of the variables we study, as only fixed effects can mathematically account for them.

ACKNOWLEDGEMENT AND STATEMENT

This paper is a part of the research project VEGA No. 1/0102/24 Positions and perspectives of mutual trade and economic cooperation of the Visegrad Group countries under the influence of geopolitical changes in the world economy, and VEGA No. 1/0398/22: The current status and perspectives of the development of the market of healthy, environmentally friendly and carbon-neutral products in Slovakia and the European Union. The manuscript was linguistically checked and improved using the QuillBot application.

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How to Increase the Attendance of Young Czechs in Classical Music Events: A Qualitative Study

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https://doi.org/10.53465/CEECBE.2025.9788022552257.340-350

Abstract: This study explores the barriers to participation in classical music events among young Czechs. It aims to identify factors influencing attendance and provide recommendations for increasing engagement among this demographic. The research employs in-depth interviews with ten young Czechs. Findings reveal that young Czechs discover music through digital channels, preferring a wide range of genres that fit different occasions in their everyday life. The motivation for attending music events is the pursuit of unique experiences. Classical music is appreciated for its relaxing qualities and ability to increase concentration. Social media play a pivotal role in shaping attendance decisions. The study suggests that blending classical music with contemporary genres may enhance its relevance and attract younger audiences.

Keywords: Young Czechs, Classical Music, Attendance, Barriers, Engagement Strategies

JEL Classification codes: M3

INTRODUCTION

In today's competitive cultural landscape, engaging young people in classical music events represents both a challenge and an opportunity. This study investigates the relevance of classical music for young Czechs - a critical issue not only for understanding current cultural tastes but also for ensuring the sustainability of classical music consumption in the future.

The primary aim of this research is to explore the barriers that deter young Czechs from participating in classical music events. Additionally, it seeks to identify factors influencing attendance and offer recommendations for increasing engagement among this demographic.

The study is organized as follows: First, a review of the existing literature is presented. Next, the research methodology and key findings are outlined. Finally, the paper offers recommendations, discusses limitations, and identifies areas for future research.

1 LITERATURE REVIEW

The literature on barriers to classical music consumption among young people is relatively sparse. Existing studies predominantly focus on strategies to make classical music more accessible to vulnerable groups (e.g., de Aguileta et al., 2023; Kolb, 2001). Social and cultural hierarchies influence perceptions of classical music (Shiu, 2024). Attending concerts may be linked to middle-class cultural values (Crawford et al., 2014).

Young people have diverse musical preferences, selecting genres based on different situations in daily life. A shift towards mainstream popular culture is evident, while interest in "highbrow" culture has declined (Willekens & Lievens, 2014). Musical taste, once shaped by exclusionary rules, is now marked by openness to diverse influences (Widdop & Leguina, 2015).

Classical music is appreciated for its relaxing effects and ability to enhance concentration. Buigut (2016) quotes Goethe, who speaks of the omnipotent effect of music. Kawase (2015) verified that strong emotional experiences and liking of music correlate with the intention to attend concerts. Listening to recordings is more common than attending concerts. While many young people engage with classical music, few attend live performances (Kolb, 2001). However, Shiu (2024) states that in 2023, millennials (48%) and Generation Z (19%) formed a significant share of the classical music audience in the United States.

Limited awareness and interest can make classical music seem irrelevant (Shiu, 2024). Some question whether orchestras should even seek new audiences and how to reach them (Colotti, 2024). Interest often develops early, influenced by parents or musical training (Crawford et al., 2014).

Digital channels are key to music discovery, with social media influencing concert attendance. Those engaging with online classical music content are twice as likely to attend live performances (Frantz, 2015). YouTube has proven effective in promoting classical music, and digital platforms remove financial barriers, enabling broader access (Shiu, 2024). Shiu (2024) also argues that early exposure fosters cultural literacy and lifelong appreciation of classical music.

Ho (2012) and Bălan-Budoiu (2021) highlight the pivotal role of education in fostering acceptance of classical music, which is often perceived as an "elite art form". Young people perceive classical music as elitist and exclusive (Shiu, 2024; Frantz, 2015; Gilmore, 2013). The formal concert atmosphere can be unappealing (Gilmore, 2013). Lack of knowledge about music and concert etiquette further discourages attendance (Frantz, 2015; Crawford et al., 2014).

Financial constraints, including ticket costs, are a major barrier (Frantz, 2015). Declining arts education in schools reduces exposure. Some feel classical music does not reflect their interests or identity (Shiu, 2024). Peer pressure and insufficient information about concerts also hinder attendance (Graham, 2015).

Family and friends play a key role in fostering interest, along with curiosity about new music and experiences (Graham, 2015). Early music education predicts later engagement (Crawford et al., 2014; Frantz, 2015).

Technology and social media help promote concerts and interact with audiences (Shiu, 2024; Frantz, 2015). Reducing barriers—through informal concerts, "Jeans and Beer" events, and public performances—attracts younger listeners (Frantz, 2015). Intermission activities enhance audience engagement (Frantz, 2015). Tailoring programs to younger preferences also boosts attendance. Christiansen (2003) similarly advocates for creative strategic planning to share the "story" of classical music effectively. Digital platforms further support education and accessibility (Shiu, 2024; Colotti, 2024). Social media shapes musical tastes, while family background and education contribute to cultural capital (Vanherwegen & Lievens, 2014; Willekens & Lievens, 2014).

Women show greater cultural engagement than men (Willekens & Lievens, 2016), highlighting the need to consider gender dynamics. Lastly, the pursuit of unique experiences remains a strong motivator for concert attendance.

Other research examines innovative strategies for classical music performers, particularly regarding the application of digital technologies (e.g., Colotti, 2021; Frantz, 2015).

Despite these calls, there seems to be a notable lack of studies specifically analyzing the barriers to classical music consumption and identifying actionable measures addressing them. Addressing this gap is particularly pertinent when considering younger audiences, who represent the future of classical music.

2 METHODOLOGY

We set the following central research question: What are the barriers that deter young Czechs from participating in classical music events, and what measures can be taken to reduce the obstacles?

To address this question, we decided to use qualitative research methodology which enables us to delve deeper into a certain topic (Hendl, 2005).

The data was collected using semi-structured, in-depth interviews. We conducted them with ten young individuals (aged 19 to 24) from various regions of the Czech Republic. The participants included five attendees of classical music events and five non-attendees. Six participants were listeners of classical music, while four were not (see Table 1).

Tab. 1: Characteristics of the Research Participants

Name	City	Age	Region	Listening to classical music	Attending classical music events
Linda	Praha	23	Praha	No	No
Dominika	Olomouc	22	Olomoucký kraj	Yes	Yes (once per year)
Sebastian	Hradec Králové	19	Královéhradecký kraj	Yes	Yes (twice per year)
Oliver	Zlín	21	Zlín	Yes	No
Marek	Praha	23	Praha	No	Yes (once per year)
Oliver	České Budějovice	24	Jihočeský kraj	Yes	Yes (once per year)
Matěj	Ostrava	20	Moravskoslezský kraj	Yes	No
Dagmar	Plzeň	21	Plzeňský kraj	No	No
Viktoria	Praha	24	Praha	No	No
Natalia	Brno	22	Jihomoravský kraj	Yes	Yes (once per month)

Source: Authors

The interview guide included topics such as music preferences, the role of music in daily life, perceptions of classical music, motivations and barriers to attending music events, and recommendations for increasing engagement. The interviews were recorded and transcribed.

The interviews were then analyzed using MAXQDA software. We identified several topics using the coding method. Similar codes were then grouped into categories, which can be found in Table 2.

Tab. 2: Categories Derived from the Coding Analysis

Digital Platforms as the Primary Source for Music Discovery
Music as a Companion for Different Daily Routines
Variety of Preferred Music Genres
Classical Music as Calming and Focus-Increasing
Classical Music Is Associated with the Artists
Desire for Unique Experiences as the Main Driver for Attending Music Events
Social Media Impact Significantly Attendance of Music Events
Calling for Blending Classical Music with Modern Genres

Source: Authors

The description of the categories derived from the Coding Analysis follows in the section findings.

3 RESULTS AND DISCUSSION

3.1 Digital Platforms as the Primary Source for Music Discovery

Digital platforms have transformed the way young Czechs discover music, with Spotify emerging as a key tool in this exploration. This digital transformation is evident in the narratives shared by interviewees, who articulate the significant role digital platforms and their algorithms play in their daily lives. The interviewees also appreciated the element of surprise in their music discovery experience, enhanced by digital platforms.

"I discover music mostly through Spotify. If it offers me those 'For You' playlists, then through that." (Natalia)

"(I discover music) via Spotify, but maybe also in those what aren't playlists but such where it shuffles for you…" (Sebastian)

3.2 Music as a Companion for Different Daily Routines

Music seems to be deeply rooted in the daily activities of young Czechs, which goes beyond simple entertainment. The interviewees choose specific genres to accompany different activities and states of mind. From improving focus and productivity at work to bringing comfort during commuting and energizing exercises, the stories demonstrate the music's changing role as a motivator and companion.

"I don't have a specific genre that I prefer. But I like to listen to techno when I'm working. When I'm driving, I enjoy listening to old-school hits like Maroon 5 and the like, so pop. But I also like classical music. It helps me when I need to concentrate on something, or it calms me down before a match. When I exercise, I like Eminem. When I run, sometimes I listen to dramas or something that pumps me up." (Natalia)

Music seems to be a tool which interviewees use purposefully throughout their everyday routines, for improving focus, emotional support, or brightening repetitive tasks. Different genres seem to perform distinct functions throughout the day.

"It's terribly dependent on the setting for me, for example… when I'm in a good mood… or even according to seasonality… I like rap… and so on, but that's in the car, for example, right? But then I have a phase… when I just want some calm music… So then, I like music which I know, I also like just instrumental music when I need to focus." (Sebastian)

"I don't know. I play it when I go somewhere to unwind, to make the journey to school or work go by faster." (Linda)

"Music brings me in my everyday life relaxation or a background for some repetitive activity." (Matěj)

Marek even describes music as "an escape from silence," implying that he needs to fill all spaces of his everyday life with sound and meaning.

3.3 Variety of Preferred Music Genres

The interviewees seem to incorporate into their daily lives a variety of music genres, depending on their mood and tasks performed.

"Pop, rock, classic rock, metal. And why those genres? Since childhood. From my first encounter with music, it just grabbed me." (Matěj)

"Well, I don't have a specific genre that I prefer. But I like to listen to techno when I'm working... Otherwise, pretty much everything. Sometimes I'm in the mood for classic rock." (Natalia)

"I prefer hip-hop, rap, house, electronic music, R&B, funk. And because they are mostly energetic." (Marek)

"There is a difference which musical genre I prefer when I cook in the kitchen, and there is a difference when it is Friday evening and I feel like having fun with my friends." (Oliver)

3.4 Classical Music as Calming and Focus-Increasing

Throughout the interviews, individuals highlighted the fundamental value of classical music in establishing a peaceful or focused setting. Classical music is valued for its functional utility in relaxing the mind and improving focus.

Last but not least, classical music is perceived as more sophisticated than other music genres, which seems to be in contrast to modern music, characterized as easy-going, energetic, conducive to dancing, more accessible and dynamic.

"Now I want to go to Avril Lavigne, and I'll definitely get energized, but when we go with Adam's parents to Bocelli, or a Film Music concert, it's more about relaxing and chilling." (Natalia)

"So, when I listen to classical music, I feel calmed." (Marek)

"Classical music gives me concentration." (Viktoria)

"For me, classical music is more sophisticated than other music styles, like pop or hip-hop." (Matěj)

Dominika, on the other hand, correlates relaxation and mood improvement with jazz and bar music, implying that a broader range of music might induce a peaceful condition.

"What does music mean to me in everyday life? Relaxation, an improvement of mood, calming down. I would include such music as jazz and similar, or various bar music, can be calming." (Dominika)

3.5 Classical Music Is Associated with the Artists

The interviewees emphasized the link between classical music and those who create and interpret it. Some also associated classical music with their own experience performing this kind of music in childhood, as well as with craftsmanship and the values it represents.

"So, what comes to mind when you hear classical music? Vivaldi, Mozart, simply symphonies and so on." (Natalia)

"When I hear the word classical music, the first thing that comes to my mind is an orchestra for sure." (Dagmar)

"The first thing that comes to mind… I imagine classical performers. I think of my piano lessons back in the day, and I imagine culture and beautiful manners." (Dominika)

"When I hear the word classical music, the first word that comes to mind is craftsmanship." (Matěj)

3.6 Desire for Unique Experiences as the Main Driver for Attending Music Events

When going to live music performances, the interviewees mentioned primarily a uniqueness of experience, as well as an emotional connection with other people as a main driver. Live music experience may provide strong, personal, memorable moments of connection with people and happiness, which often outweigh even the high costs.

"If I want to see someone, I don't really look at how much it costs if it brings me some experience." (Dagmar)

"If it's an artist who I know doesn't come around here often, or I've been listening to since I was little, or someone special knowing that I'll enjoy it and it will be an experience I don't want to miss even if it means crying with a million of people there." (Natalia)

"…. or if it's a direct performance by some artist at a concert that maybe it's not that common, is appearing in the Czech Republic or Slovakia. So, he is here once in a lifetime" (Viktoria)

"It's mostly about being with a group..."(Oliver)

Concerning attending classical music events specifically, some interviewees mentioned limitations of this music genre, which may result in young people's lack of interest. They mentioned that classical concerts are not places for dancing and vibrant entertainment, which young people typically search for.

"It is usually not a place where you go to dance, to have fun. It's a fact that you usually listen to it and feel some energy from it, but it's not really the goal of today's entertainment…" (Natalia)

3.7 Social Media Impact Significantly on Attendance of Music Events

The social media and friend recommendations seem to be the key source of information for young Czechs when it comes to finding out about music events.

"Where do you usually find out about an event? From social media… From Instagram." (Marek)

"Mostly from social networks… Probably on Facebook, they have those events well organized." (Viktoria)

"Well, many times the artists I listen to, I follow them on Instagram, so either they share that they have a tour or that they will be somewhere." (Natalia)

The interviewees agree that social media represents an important avenue for people to hear about music events and thus impact the participation. The ease of information flow on social media platforms appears to generate a cultural ecosystem in which event knowledge and attendance decisions are frequently linked to one's digital social experience.

3.8 Calling for Blending Classical Music with Modern Genres

The interviewees articulated the necessity for creative adaptation of classical music events to modern tastes and lifestyles. They perceived a certain mismatch between the traditional classical music concerts and the current tastes of the younger generation.

While there was a recognition of the need to maintain the fundamental aspects of classical music, the interviewees called for blending classical music with modern genres, e. g. by adapting well-known modern songs into orchestral versions as an appealing entry point for young people, leveraging their familiarity with classical music.

"Definitely if they combine it with music genres popular among the young generation, like if there was some collaboration between classical music and rap, or I don't know, just with another genre." (Linda)

"Playing music that young people listen to and playing or transforming some well-known songs into orchestral versions." (Dominika)

"Maybe if those orchestras collaborated with more current artists, some revivals, and such things. Some mashups of music genres would definitely be attractive." (Matěj)

The interviewees believed that organizers of the classical music events should be actively searching for innovative ways to adjust classical music to the current needs and attention spans of the young (e.g., by decreasing concert lengths and making them more dynamic or performing at special locations).

"Well, make it somewhat untraditional, combine it with something modern. Well, because they don't enjoy sitting for three hours." (Marek)

"Maybe (organizing a concert) at some interesting place for young people, where they would come." (Linda)

They also emphasized the potential of film music in popularizing classical scores, demonstrating how classical music can be pushed to the forefront through the current cultural forms.

"Perhaps film music really brings it to the forefront, that some scores are played or such." (Matěj)

"People like classical music, but they don't know it's classical music. For example, often in movies, classical music is usually in the background and so on, and they just don't realize it. So, it's more like those people are not aware that they are listening to classical music. So, you can promote it through those movies, series, and so on." (Natalia)

Oliver, on the other hand, provided a note of caution concerning these innovative suggestions. He emphasizes the significance of keeping the core of classical music while making it more accessible to younger audiences. He argues that, while adaptation is vital, it should not result in a full alteration that deprives classical music of its fundamental qualities.

"Let's not make it a mashup and stray too far from classical music. It's a question of how much it should change. We don't want it to become something completely different and lose its essence." (Oliver)

Research limitations and future research

This study has several research limitations. First, the qualitative research methodology does not allow for generalizing the findings to the broader population. Additionally, the interpretation of qualitative data may be influenced by researchers' biases and perspectives. Furthermore, social desirability bias could have affected the results, as participants might have provided responses they believed were expected or acceptable to the researcher rather than their genuine feelings or behaviors.

For future studies, researchers could compare these findings with those of other age groups to provide a more comprehensive understanding of the topic. A case study approach could also be utilized to evaluate the practical implementation of the recommendations. Finally, future research could focus on developing and testing strategies aimed at increasing engagement and attendance across various demographic groups.

CONCLUSION

One of the key contributions of this study is the detailed insight it provides into how young Czechs actually discover and consume music in the digital environment. While the literature generally refers to the role of digital channels (Shiu, 2024; Frantz, 2015), the interviews specifically identified Spotify as the dominant platform and highlighted the importance of algorithmic recommendations and personalized playlists in the process of music discovery. This nuanced view of preferred platforms and discovery mechanisms offers more actionable insights for targeted strategies aimed at engaging this demographic group.

Although existing literature states that music is generally appreciated for its emotional effects and its capacity to enhance concentration (Kawase, 2015; Buigut, 2016), the interviews provided concrete examples and specific contexts of such usage, which broadens our understanding of the motivations behind listening to classical music. The interviews also revealed how particular musical genres serve as “companions” to various everyday activities and mental states, with classical music being deliberately selected for its calming effects and its ability to aid concentration.

While Crawford et al. (2014) emphasize the influence of parents and music education in developing an interest in classical music, respondents additionally stressed the role of associations with specific composers or orchestras. This suggests a deeper cultural awareness that is not necessarily linked to frequent concert attendance. A completely new finding, not mentioned in the existing literature, is the specific association of classical music with artistry and craftsmanship—respondents expressed admiration for the artisanal skill of performers.

Finally, a strong call for connecting classical music with modern genres and formats emerged as a clear signal from the young Czech population. Although the literature mentions attempts to lower barriers through informal concert settings (Frantz, 2015; Christiansen, 2003), the specific proposals drawn from the interviews—such as genre fusions, orchestral adaptations of popular tracks, and collaborations with contemporary artists—represent concrete and potentially effective strategies for reaching a younger Czech audience. These suggestions, along with the aforementioned admiration for artistic skill and the presentation of well-known composers, may prove especially valuable.

Overall, while the literature provides a general framework of barriers and motivations related to classical music consumption among young people, the in-depth interviews with young Czechs offer valuable specific details and nuances that enrich our understanding of this issue within the given cultural context. The identification of preferred digital platforms, the detailed account of music's functional uses, the specific associations tied to classical music, and the concrete proposals for genre fusion represent unique insights that may be key in developing effective strategies to increase engagement with classical music among young Czechs.

To conclude, the study explores the engagement of young Czechs in classical music events and identifies factors that influence their participation. Through qualitative research involving in-depth interviews with ten participants, the paper examines barriers, motivations, and perceptions of classical music compared to other genres. Recommendations aim to make classical music more appealing to this specific demographic by leveraging digital tools and innovative strategies.

Digital platforms like Spotify seem to dominate how young Czechs discover music, with algorithmic recommendations and curated playlists playing a pivotal role. Music serves as a companion for various daily routines, with genres selected to match specific activities or moods. For example, classical music is favored for focus and relaxation, while energetic genres like hip-hop and techno are preferred for workouts or social gatherings. Despite the diverse musical preferences of young Czechs, classical music is appreciated for its sophistication and calming qualities, but is often overshadowed by the dynamism of contemporary genres.

Social media's influence on event discovery highlights the importance of digital presence.

Unique and memorable experiences drive participation in music events. Live performances that evoke strong emotions and foster social connections are particularly appealing. The participants suggest blending classical music with contemporary genres or offering formats to create novel experiences.

The study suggests leveraging digital engagement strategies and creating engaging content that resonates with younger audiences. To make classical music events more appealing, it is recommended to blend classical music with modern genres and formats. For example, orchestral adaptations of popular songs or collaborations with contemporary artists can attract younger audiences. Hosting performances in unconventional venues and incorporating visual and interactive elements can enrich the concert experience. Shortening concert durations and including dynamic programming can align with the attention spans and preferences of younger attendees.

Also, programs linking classical music to broader cultural narratives and modern genres, such as highlighting the use of classical compositions in film scores and popular media, can foster appreciation.

All of these strategies not only may enhance accessibility of classical music to the young but also ensure the genre's cultural and artistic relevance for future generations.

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From Quarantine to Normality: How Emotions and Productivity Concerns Influence the Intention to Continue Teleworking

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https://doi.org/10.53465/CEECBE.2025.9788022552257.351-362

Abstract: The COVID-19 pandemic has transformed teleworking from an occasional practice into a widespread necessity, raising questions about its long-term viability. This study examines the determinants of workers' intentions to continue teleworking after a crisis, focusing on the role of positive emotions, productivity concerns, and social concerns. Using data from 1,142 teleworkers surveyed during the 2020 lockdown, the results show that positive emotions significantly increase the intention to telework, while productivity concerns have a modest negative effect. In contrast, social concerns do not exert a significant influence. These results emphasize the importance of promoting positive experiences of telework to ensure its sustained acceptance. This research contributes to the understanding of the dynamics of telework and provides practical insights for organizations seeking to adapt to the evolving work environment.

Keywords: Teleworking, Emotions, Productivity, Social Concerns

JEL Classification codes: J24, M54, O33

INTRODUCTION

The COVID-19 pandemic has profoundly changed the structure of work and caused a massive transition to teleworking (Kamoshida et al., 2023). During the quarantine period, teleworking became the norm. It offered employees the opportunity to work from home and gave companies the chance to evaluate new working models. After this period, many companies introduced hybrid forms of work, signaling a permanent change in the way we perceive work.

Teleworking is known for its benefits such as flexibility, autonomy, and reduced commute times, but also for the challenges it brings, including the risk of social isolation and difficulties in maintaining a consistent work routine.

The literature suggests that while teleworking can increase job satisfaction, its impact on productivity is controversial (Perelman et al., 2024), with concerns regarding crossdepartmental collaboration and team synergy. The introduction of teleworking has also raised concerns about social support and the loss of a sense of belonging to work teams (O'Neil et al., 2023; Chen et al., 2023; Parent-Lamarche & Saade, 2024).

Although numerous studies have examined the effects of teleworking on employee satisfaction, there are few studies that simultaneously examine the influence of emotions, productivity concerns, and social concerns on the intention to continue teleworking. To address these gaps, this study aims to answer the following research questions: How do positive emotions influence employees' intention to continue teleworking? To what extent do productivity concerns influence the decision to continue teleworking? What role do social concerns play in employees' intention to telework in the long term?

In this context, the present study aims to investigate these factors using a quantitative approach. It uses data from employees who have teleworked during the quarantine period. The results of this study can support companies in optimizing teleworking strategies and help to improve employee engagement, performance and retention, thus providing valuable insights into the sustainability of this working model in the future.

The paper is divided into several sections. This section is followed in Section 2 by an analysis of the relevant theoretical framework, including the literature on telework, positive emotions, productivity, and social concerns. Section 3 describes the methodology used, including the sample, data collection method, and analysis procedures. The results of the study are presented in Section 4, followed by a detailed discussion of the theoretical and practical implications in Section 5. Finally, the paper concludes with conclusions, limitations, and suggestions for future research.

1 LITERATURE REVIEW

1.1 The role of positive emotions in teleworking

Positive emotions such as satisfaction, enthusiasm and joy play a crucial role in shaping attitudes and behaviors in the workplace. According to Fredrickson’s (2004) Broaden-and-Build theory, positive emotions expand a person's cognitive and behavioral repertoire, and promote psychological resilience, creativity, and engagement at work. Employees who experience more positive emotions are more adaptable to change, more open to working remotely, and more resilient to work-related stress (Bakker & Demerouti, 2017).

In the context of teleworking, studies show that employees who experience positive affect are more likely to perceive remote work as beneficial and show higher work motivation and engagement (Mérida-López et al., 2020; Parent-Lamarche, 2022). In addition, research by Wang et al. (2021) suggests that higher levels of job satisfaction and well-being are associated with greater acceptance of telework, particularly among knowledge workers. These findings are consistent with self-determination theory (Deci & Ryan, 2000), which posits that intrinsic motivation and emotional well-being influence job performance and decision-making.

In addition, teleworkers who feel valued and supported by their organization develop greater commitment and loyalty, which reduces the risk of voluntary turnover (Jamal et al., 2023). Given the increasing importance of hybrid and remote working models, it is important to examine the role of positive emotional experiences in shaping employees’ long-term teleworking preferences.

Based on these findings, we formulate the following hypothesis:

- (H1): Positive emotions have a favorable influence on the intention to continue teleworking.

1.2 Productivity concerns and the effectiveness of teleworking

Productivity concerns refer to employees’ worries about maintaining or improving their performance while teleworking. Following Vroom’s (1964) expectancy theory, employees' motivation to continue teleworking decreases if they feel that teleworking has a negative impact on their productivity. The EU-OSHA report (2021) highlights that the feeling of lack of control when teleworking is exacerbated by the intensification of work, social isolation, limited collaboration in virtual teams and the difficulty of separating work and private life, which can lead to stress, and lower employee well-being and productivity.

The effects of teleworking on productivity are highly controversial. Gajendran and Harrison (2007) conducted a meta-analysis which concluded that while teleworking improves job satisfaction and reduces work-family conflict, some employees experience lower productivity due to distractions and lack of direct supervision. Allen et al (2015) also found that teleworkers report difficulties with communication and collaboration, which can affect work efficiency and speed of decision making.

Recent economic trends show a growing concern about telework productivity. Large companies such as Amazon, Google, and Meta have implemented restrictions on telecommuting, arguing that prolonged telecommuting hinders innovation, spontaneous collaboration, and cohesive company culture (Hatchuel, 2024). These measures suggest that companies are emphasizing interaction in the office to encourage creativity and teamwork, although hybrid models remain an option.

However, other studies show that teleworking can increase productivity under the right conditions. Bloom et al. (2015) found that employees who telework in structured environments have higher output and better work performance.

Given these competing perspectives, we propose the following hypothesis:

(H2): Telework productivity concerns have a negative impact on the intention to continue teleworking

1.3 Social concerns and loneliness in teleworking

Social concerns refer to the feeling of isolation, the lack of personal contact, and the challenges of maintaining professional relationships while teleworking (García-Salirrosas et al., 2023). According to Deci and Ryan’s (2000) self-determination theory, the need for social belonging is fundamental to well-being and motivation. If teleworking undermines social belonging, employee engagement may decrease and they may prefer to work in the office (Buonomo et al., 2024).

Several risks associated with prolonged teleworking are highlighted in the literature, including reduced team cohesion, weaker professional networks and fewer opportunities for mentoring (Golden et al., 2008; O'Neil et al., 2023). Eurofound (2021) reports that employees who work from home for extended periods experience higher levels of stress and loneliness, particularly in entry-level positions or highly collaborative work.

Corporate policy after the pandemic reflects these concerns. Companies such as Amazon and Ubisoft have advocated a return to office work, citing the need to strengthen workplace culture and facilitate informal learning. In France, employees see remote working as a social benefit, leading to tensions between employees' expectations and companies' requirements for office work (Rodier, 2024).

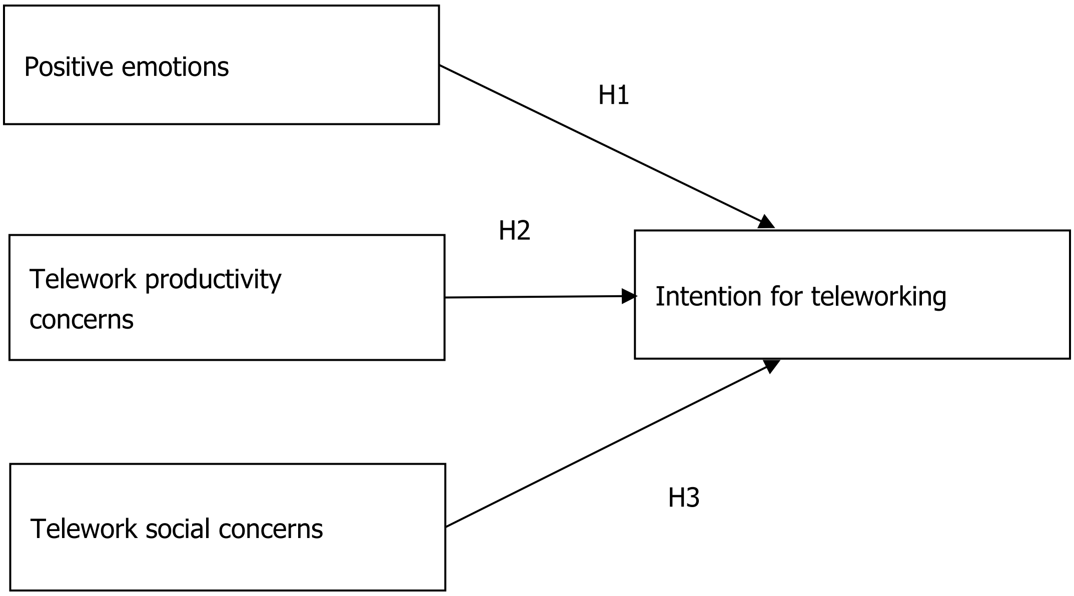
Furthermore, Wang et al. (2021) found that social support from colleagues and supervisors mitigates the negative effects of isolation, suggesting that organizations can mitigate these issues by introducing initiatives to create virtual teams and structured hybrid work models.

Based on these findings, we hypothesize the following:

(H3): Telework social concerns have a negative impact on the intention to continue teleworking.

Based on these hypotheses, we propose the following conceptual model (Figure 1):

Fig. 1 The conceptual model



2 METHODOLOGY

The study is based on data from a sample of 1142 employees who worked remotely during the 2020 quarantine period. The data was collected online between May 13 and June 14, 2020. The demographic composition of the sample includes age groups, gender, education level and employer types (Table 1).

Tab. 1 The sample structure

Variables of the sample		Percent during quarantine
Age	18-25 years	12.7%
	26-35 years	30.1%
	36-45 years	28.3%
	46-55 years	19.4%
	Over 55 years	9.6%
Gender	Male	49.6%
	Female	50.4%
Education	High school	16.5%
	Post-secondary school	10.8%

Variables of the sample		Percent during quarantine
	University	52.4%
	Postgraduate studies	20.3%
Type of employer	Multinational company	30.3%
	Large Romanian company	27.9%
	Small and medium-sized Romanian company	32.3%
	Micro-firm	9.6%
Total		100%

Source: authors' computation

The sample is made up of 50.4.3% women and 49.6% men, with the majority of respondents aged between 26 and 45. The snowball sampling method was used. This is a non-probability sampling method in which the original participants can recommend other people with the desired characteristics of the target population to participate in the study (Nunan et al., 2020).

To test the conceptual model, several latent variables were defined based on the literature (Table 2): telework social concerns, telework productivity concerns, positive emotions, and intention to telework. A latent variable is constructed when the phenomenon under investigation is complex, abstract and unobservable (Hair et al., 2017). To measure the items that define these latent variables, a Likert scale was used, ranging from 1 - strongly disagree to 5 - strongly agree.

Tab. 2 The latent variables

Latent variable	Items	Source
Telework social concerns	Loss of sense of belonging to the organization/work group	Mann & Holdsworth, 2003; Wang et al., 2021; O'Neil et al., 2023; García-Salirrosas et al., 2023; Buonomo et al., 2024
	Lack of support from colleagues	
	Lack of support from management	
Telework productivity concerns	Uncertainty about the future	Gajendran & Harrison, 2007; Allen et al., 2015; EU-OSHA, 2021; Ficapal-Cusí et al., 2024
	Potential loss of productivity (e.g. due to lack of synergy, loss of interpersonal cooperation, distraction from work)	
	The feeling that I can't control things	
Positive emotions	I was proud that I could work from home	Bloom et al, 2015; Wang et al., 2021; García-Salirrosas et al., 2023; O'Neil et al., 2023; Perelman et al., 2024; Urien & Erro-Garcés, 2024
	I felt more productive when I worked from home	
	I was grateful that I could work from home	
	I felt better when I was able to work from home	
Intentions for teleworking	I will always enjoy working from home, no matter the situation	Gajendran & Harrison, 2007; Allen et al., 2015;

	I intend to improve myself technically to be able to work from home in the future	Bloom et al, 2015; Eurofound, 2021; Nosratzadeh & Edrisi, 2023; Ernst & Young, 2024
	I will recommend the system of working from home to others	
	I intend to work from home even outside of crisis situations	

For data analysis, structural equation modeling was performed using the partial least squares (PLS-SEM) approach with SmartPLS 4 software. The reliability and validity of the constructs were assessed to evaluate the measurement model and the structural model was assessed to examine the relationships between the latent variables.

3 RESULTS AND DISCUSSION

To ensure the robustness of the model, the reliability and validity of the constructs were assessed. The results in Table 3 confirm that all latent variables fulfill the reliability criteria. The values of Cronbach's alpha and of the composite reliability (rho_a and rho_c) are above the threshold of 0.7 (Hair et al., 2017), indicating a good internal consistency. In addition, the values for the average variance extracted (AVE) are above 0.5 and the factor loadings are higher than 0.7 (Nunan et al., 2020), which confirms the convergent validity.

Tab. 3 Construct reliability and validity

Latent variable	**Cronbach's Alpha**	**Composite reliability (rho_a)**	**Composite reliability (rho_c)**	**Average variance extracted (AVE)**
Intentions for teleworking	0.905	0.910	0.934	0.779
Positive emotions	0.879	0.891	0.916	0.733
Telework productivity concerns	0.815	0.837	0.890	0.730
Telework social concerns	0.820	0.838	0.891	0.732

Source: authors' computation

With regard to discriminant validity, the heterotrait–monotrait ratio (HTMT) matrix (Table 4) shows that all values are above the threshold value of 0.9 (Henseler et al., 2015), meaning that the discriminant validity of the constructs is given.

Tab. 4 The heterotrait–monotrait ratio (HTMT) matrix

	Intentions for teleworking	**Positive emotions**	**Telework productivity concerns**	**Telework social concerns**
Intentions for teleworking				
Positive emotions	0.860			
Telework productivity concerns	0.290	0.241		
Telework social concerns	0.248	0.210	0.857	

Source: authors' computation

Another way of assessing discriminant validity is the Fornell-Larcker criterion (Fornell & Larcker, 1981). For each construct, the square root of the AVE is higher than the correlations with other constructs (Table 5). This criterion is therefore fulfilled.

Tab. 5 Fornell-Larcker criterion

	Intentions for teleworking	Positive emotions	Telework productivity concerns	Telework social concerns
Intentions for teleworking	0.882			
Positive emotions	0.777	0.856		
Telework productivity concerns	-0.256	-0.217	0.854	
Telework social concerns	-0.223	-0.190	0.718	0.855

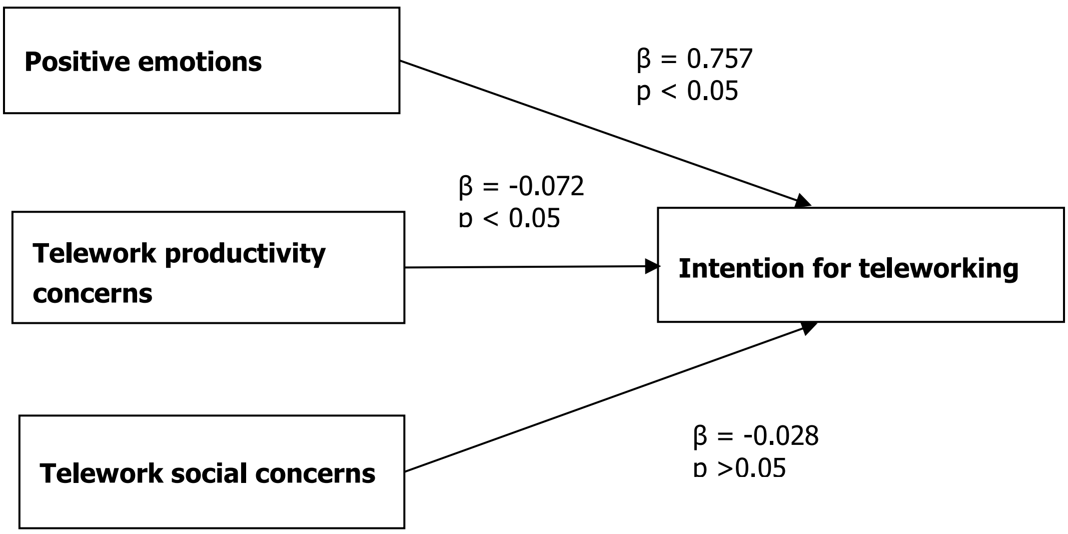
Source: authors' computation

The model is not affected by collinearity, as the variance inflation factor (VIF) does not exceed the threshold value of 5 (Hair et al., 2017).

The structural model was evaluated using the bootstrapping procedure on 5000 subsamples to determine the path coefficients (β), the t-test values and the p-values to assess the strength and significance of the relationships between the variables (Table 6).

Based on these findings, the resulting model is shown in Figure 2.

Fig. 2 The resulted model



The positive emotions manifested by feelings such as joy, pride, gratitude and confidence have a strong favorable influence ($\beta = 0.757$, $t = 51.948$, $p < 0.001$) on the intention to continue teleworking (Table 6). This result supports hypothesis H1 and confirms that positive emotions significantly increase employees' willingness to continue teleworking.

On the other hand, telework productivity concerns, which refer to worries such as lack of control or distraction from work, have a negative but weakly significant effect ($\beta = -0.072$, $t = 2.428$, $p = 0.015$) on the intention for teleworking, supporting hypothesis H2 (Table 6). Although the effect is statistically significant, its relatively low coefficient suggests that productivity concerns may not be a primary barrier to the adoption of telework, but still play a role in shaping employee attitudes.

Conversely, social concerns about telework do not exert a statistically significant influence on the intention to continue teleworking (β = -0.028, t = 0.917, p = 0.359) (Table 6). Thus, hypothesis H3 is not supported, suggesting that the social concerns seen as loss of sense of belonging to the organization or lack of support from colleagues or management may not be a decisive factor in employees' decision making regarding telework.

Tab. 6 Test of the research hypotheses

Relationship	Path coefficient (β)	t test	P value	Result
H1: Positive emotions -> Intentions for teleworking	0.757	51.948	0.000	Supported
H2: Telework productivity concerns -> Intentions for teleworking	-0.072	2.428	0.015	Supported
H3: Telework social concerns -> Intentions for teleworking	-0.028	0.917	0.359	Not supported

Source: authors' computation

The model has strong explanatory power (Hair et al., 2017), as the coefficient of determination R2=0.61 means that 61% of the variance for the exogenous variable intention to telework is explained by the endogenous variables considered in the model.

These results underline the importance of positive emotions for the attitude to continue teleworking. Employees who perceive teleworking as a positive experience and associate it with greater autonomy, flexibility, and a better work-life balance are more likely to continue teleworking. This is consistent with augmentation and construction theory (Fredrickson, 2004), which posits that positive emotions expand the cognitive and behavioral repertoire so that individuals are able to adopt and maintain beneficial practices such as telework.

The negative impact of productivity concerns, albeit modest, suggests that employees are concerned about maintaining efficiency when teleworking. This is consistent with previous research (Gajendran & Harrison, 2007) which found that productivity perceptions are critical to teleworking preferences. However, given the small effect size, it can be concluded that well-implemented telework policies and digital collaboration tools can mitigate these concerns.

The non-significant effect of social concerns is an interesting result. While the literature suggests that workplace belonging is critical to job satisfaction (O'Neil et al., 2023), the current results suggest that social disconnectedness does not deter employees from choosing to telework. One possible explanation for this is that employees have become accustomed to virtual means of communication, so the loss of face-to-face interaction is less of an issue. This is in line with studies that indicate that hybrid working models can compensate for social deficits (Parent-Lamarche & Saade, 2024).

From a practical perspective, organizations should harness the role of positive emotions by creating a supportive environment for teleworking. Employers can improve the experience of teleworking by offering ergonomic facilities, flexible working hours and wellbeing initiatives that promote job satisfaction and engagement. In addition, strategies such as virtual team building activities and interactive digital collaboration platforms can further enhance the emotional appeal of teleworking.

When tackling productivity issues, companies should invest in training employees in time management, self-discipline and digital tools to increase productivity when working remotely. In addition, introducing clear performance metrics and promoting a results-oriented work culture can reduce employee uncertainty about their efficiency when working remotely.

From a theoretical perspective, these results contribute to the telework literature by emphasizing the dominant role of emotions over rational concerns (e.g., productivity and social aspects) in shaping telework preferences. The results suggest that the adoption of telework is driven more by affective experiences than logistical or operational concerns, providing a new insight into the motivation to work from home.

CONCLUSION

The study provides evidence that positive emotions are a decisive factor in the intention to continue teleworking. In this regard, employers could support this feeling by recognizing and rewarding the flexibility and autonomy that teleworking brings. It is also important that companies find ways to alleviate productivity issues by introducing technology to support collaboration and providing training to improve virtual communication.

Although this study provides valuable insights, some limitations should be noted. First, the cross-sectional design does not allow for causal inferences about the relationship between emotions, concerns, and telework intentions. Future studies should use longitudinal approaches to track how employees' perceptions evolve over time. Second, the sample consists of employees who teleworked during the lockdown in 2020, which may limit the generalizability of the results to the post-pandemic period. Future research could examine other periods and geographic settings to further validate these conclusions.

Finally, the role of hybrid working models deserves further investigation. Given that many companies are now adopting hybrid teleworking models, it would be instructive to examine how employees reconcile office and remote work and whether hybrid models better balance productivity and social concerns.

ACKNOWLEDGEMENT

Participation in the conference was funded by the Bucharest University of Economic Studies.

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The Impact of UNESCO Sites on International Tourism: The Relationship Between Cultural Heritage and International Tourism Arrivals

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https://doi.org/10.53465/CEECBE.2025.9788022552257.363-375

Abstract: Cultural heritage represents a key factor in destination attractiveness, with UNESCO World Heritage Sites playing a significant role in tourists decision-making processes. The aim of this paper was to explore the relationship between the number of UNESCO sites and the intensity of international tourism, measured by the number of tourist arrivals. A quantitative approach was adopted, using an Ordinary Least Squares (OLS) regression model, based on 2019 data from UNESCO and the World Bank. The analysis suggests that each additional UNESCO site is associated with an average increase of 2.03 million international tourist arrivals, with the model explaining 57.09% of the variance. While the results emphasize the potential contribution of cultural heritage to tourism development, they also highlight the need for cautious interpretation due to methodological limitations and the absence of causality testing.

Keywords: Cultural Heritage, UNESCO World Heritage, Tourism Demand, Destination Attractiveness, Economic Development, Regression Analysis

JEL Classification codes: Z32

INTRODUCTION

Tourism is one of the primary drivers of global economic growth and socio-economic development. According to Smith (2015), it has become one of the largest sectors of the global economy, contributing more than 10% of global GDP and employing approximately one in ten people worldwide. Beyond its economic indicators, tourism also fosters cultural exchange, supports infrastructure development, and strengthens local communities.

An important concept in the analysis of tourism is the destination theory developed by Buhalis (2000). This theory emphasises the importance of a holistic approach to destination development, with the key element being the synergistic effect between natural, cultural and economic resources. According to this theory, it is important to create experiences for tourists that are not only attractive, but also sustainable and of long-term benefit to local communities.

Another relevant concept is the concept of "overtourism" (Peeters et al., 2018), which highlights the negative impacts of excessive tourism, including infrastructure congestion, environmental degradation, and disruptions to local 'residents' daily lives. These issues call for effective planning and the implementation of sustainable tourism policies that consider local specificities and promote a balance between development and conservation.

Cultural heritage plays a key role in tourism by offering authentic experiences and values that attract tourists globally. According to Novacká et al. (2020), the preservation and presentation of cultural heritage not only contribute to tourism development but also promote sustainability and ensure the protection of these values for future generations.

UNESCO World Heritage Sites are widely recognized as unique destinations of outstanding cultural and historical significance (UNESCO, 2025). Existing research indicates that their presence may positively affect international tourist arrivals, thereby contributing to both economic and social development (see e.g., Yang et al., 2010; Su & Lin, 2014).

The main objective of this paper is to explore the relationship between the number of UNESCO sites and the number of international tourists visiting these countries. The data were drawn from UNESCO and World Bank databases, and a linear regression model was used to process the results. The year 2019 was chosen to avoid bias caused by the constraints associated with the COVID-19 pandemic, which has significantly affected global tourism.

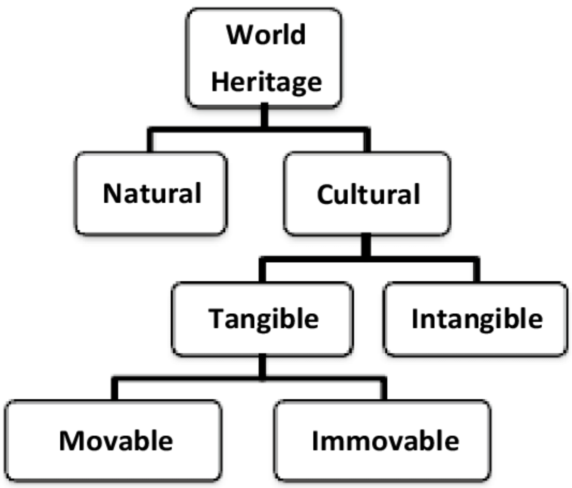
The paper focuses on a quantitative assessment of the importance of UNESCO sites as a factor influencing tourism. The results of the analysis can serve as a basis for policy making aimed at the use of cultural heritage in tourism development, while highlighting the importance of balancing its protection and promotion.

1 LITERATURE REVIEW

Cultural heritage is a key part of humanity's identity and historical consciousness. It includes not only material objects such as historical monuments, buildings, works of art or archaeological sites, but also intangible elements such as languages, traditions, folklore or craftsmanship. The protection of these values is important for the preservation of cultural diversity and the transmission of knowledge to future generations (Gašparová, 2013).

World Heritage, as defined by UNESCO, includes cultural and natural values that are of particular importance to humanity. Sites on the UNESCO World Heritage List are assigned a specific category depending on their nature and value. The categorization helps to define what kind of protection and support is needed to preserve these sites for future generations. The diagram shows that World Heritage Sites are divided into two main categories:

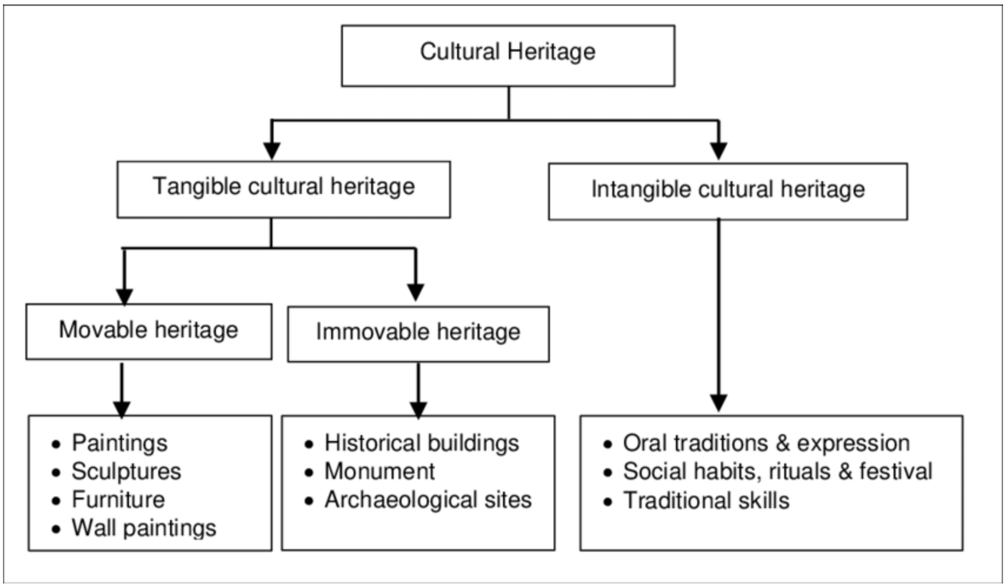
Tab. 1 UNESCO World Heritage Division



Source: Taher Tolou Del, M. S., Saleh Sedghpour, B., & Kamali Tabrizi, S., 2020

1. Natural heritage includes natural phenomena and areas with outstanding natural features, such as national parks or geological formations.
2. Cultural heritage is divided into two sub-categories based on the chart:

Tab. 2 Division of cultural heritage by UNESCO



Source: Wan. M. W. I. et al., 2018

- Tangible heritage, which can be movable (e.g. paintings, sculptures, furniture) or immovable, these objects are firmly linked to a specific place and their conservation requires a comprehensive approach involving restoration. (e.g. historic buildings, archaeological sites) (Gašparová, 2013).
- Intangible heritage, includes living traditions and expressions that are integral to the identity of communities. Intangible cultural heritage, which is passed down between generations and is continuously created in response to the external environment, interaction with nature and one's own history, provides individuals with a sense of identity and continuity. This process also promotes respect for the diversity of cultures and human creativity. According to the Convention, intangible cultural heritage (ICH) is manifested mainly in the areas of living traditions and expressions, as well as in language, performing arts, social practices, rituals and festivals, knowledge and practices related to nature and the universe, as well as in traditional crafts, folklore, music, dance, as well as social customs, rituals and festivals (Paprčka, 2014).

This classification aims to facilitate understanding of heritage diversity and its importance for conservation and sustainable development (Smith, 2006).

Recent studies further examine the factors that moderate the impact of UNESCO status on tourism. Jiménez-Beltrán, López-Guzmán, and Millán (2021) explore the role of accessibility and marketing in Spain and conclude that UNESCO inscription alone does not guarantee increased tourist arrivals. Their findings highlight the necessity of coordinated destination management. Similarly, Figueiredo, Raschi, and Patuelli (2022) analyze peripheral European regions and find that tourism benefits of World Heritage status depend on complementary regional policies, accessibility, and existing tourism demand.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) was founded in 1945 to promote peace and security by fostering international cooperation in the fields of education, science, culture and communication. One of UNESCO's main objectives is to protect the world's cultural and natural heritage. This objective is implemented through the World

Heritage List, which was established in 1972 through the Convention Concerning the Protection of the World Cultural and Natural Heritage (UNESCO, 1972).

Research on the relationship between UNESCO sites and tourism highlights the importance of these sites in attracting tourists and promoting economic development. A paper by Su and Lin (2014) analyzed the impact of the inscription of sites on the UNESCO World Heritage List on tourist arrivals in China and found a positive effect on international arrivals. Similarly, Yang, Lin, and Han (2010) examined the Chinese market and identified that UNESCO listing increases the attractiveness of a destination to international visitors.

In a European context, a study by Poria, Reichel and Biran (2006) investigated the motivations of tourists visiting World Heritage sites and found that personal meaning and perceived value of a place are key factors influencing a visit. Also, Cuccia, Guccio and Rizzo (2016) analyzed Italian UNESCO sites and concluded that inscription has a positive but heterogeneous impact on tourist demand, depending on regional characteristics.

Despite the positive aspects associated with UNESCO inscription, some studies point to potential negative consequences, such as overtourism and associated environmental and social problems. Poria et al. (2013) highlight the need for effective management of these sites to ensure sustainability and protection of cultural heritage.

2 METHODOLOGY

The main objective of the paper is to examine the relationship between the number of UNESCO sites and the number of international tourists visiting these countries. Based on the objective and the available data sources, we set the following research question and its associated hypotheses:

VO: What is the effect of the number of UNESCO sites on international tourist arrivals?

Main hypothesis:

- H0 (null hypothesis): The number of UNESCO sites has no effect on the number of international tourist arrivals in a given country.
- H1 (alternative hypothesis): The number of UNESCO sites has an effect on the number of international tourists in a given country.

Secondary hypothesis:

- H0 (null hypothesis): Countries with a higher number of UNESCO sites do not show differences in the variability of the number of tourists.
- H1(alternative hypothesis): Countries with a higher number of UNESCO sites show variability in the number of tourists.

The analysis focuses on 2019 and includes data from 141 UNESCO–registered countries around the world; the analysis is adjusted for the 28 countries ratified on the UNESCO list for which there is no available data on the number of international tourist arrivals from the World Bank. These are countries such as Afghanistan, Congo, Democratic People's Republic of Korea, Libya and others. We used a quantitative approach with an emphasis on regression analysis.

The mathematical representation of the regression analysis can be represented in the form of a regression equation that expresses the relationship between the dependent variable, the number of tourist arrivals in 2019, and the independent variable, the number of UNESCO sites.

The regression equation, in this case, takes the form:

$$\text{Arrivals\_2019} = \beta_0 + \beta_1 \cdot \text{Number\_of\_UNESCO} + \varepsilon \tag{1}$$

Where:

- Arrivals_2019 - number of tourist arrivals in 2019 (dependent variable),
- Number_of_UNESCO - number of UNESCO sites in a given country (independent variable),
- β_0 - constant (intercept) of the regression equation, which represents the value of the number of tourist arrivals if the number of UNESCO sites were zero,
- β_1 - coefficient for the variable Number_of_UNESCO, which represents how much the number of tourist arrivals will increase if the number of UNESCO sites increases by one,
- ε - the residual (error component), which represents the difference between the actual and predicted values of the number of tourism arrivals.

The used data comes from two main sources: the UNESCO World Heritage Centre, which provides information on the number of UNESCO sites in each country, and the World Bank, which provides data on the number of international tourist arrivals in each destination for 2019. These data were combined and analyzed to identify significant relationships between variables.

The regression analysis was carried out using the Ordinary Least Squares (OLS) model, which allows quantifying the relationship between the dependent variable (Arrivals_2019) and the independent variable (Number_of_UNESCO).

The model was evaluated in Gretl software, which allows detailed analysis of model fit and statistical significance. Key metrics include the coefficient of determination (R-squared), F-statistics and p-values of individual regression coefficients. The regression results provide a detailed insight into the impact of UNESCO sites on tourism.

3 RESULTS AND DISCUSSION

The statistical analysis developed through the linear regression model identifies the relationships between the variables, one dependent variable and one independent variable.

The results of the regression analysis, shown in Table 3, clearly indicate the importance of UNESCO sites as a significant factor influencing international tourism.

Tab. 3 Linear regression analysis model

Model 1: OLS, using observations 1-141
Dependent variable: Arrivals_2019

	coefficient	std. error	t-ratio	p-value	
const	-2,93748e+06	2,19656e+06	-1,337	0,1833	
Number_of_UNESCO~	2,03394e+06	149560	13,60	2,57e-27	***

Mean dependent var	14891953	S.D. dependent var	31833619
Sum squared resid	6,09e+16	S.E. of regression	20927300
R-squared	0,570917	Adjusted R-squared	0,567830
F(1, 139)	184,9468	P-value(F)	2,57e-27
Log-likelihood	-2575,839	Akaike criterion	5155,678
Schwarz criterion	5161,575	Hannan-Quinn	5158,074

Source: own processing via Gretl

The regression analysis carried out using the Ordinary Least Squares (OLS) method focuses on examining the relationship between the number of sites inscribed on the UNESCO World Heritage List and the number of tourist arrivals in 2019. This model uses 141 observations and has one independent variable, the number of UNESCO sites, while the dependent variable is the number of tourist arrivals in 2019 (Arrivals_2019).

The constant (intercept) is -2.93748e+06, which corresponds to approximately -2.94 million. This figure represents the expected number of tourist arrivals if the country had no UNESCO sites. The negative value indicates that the model may not sufficiently cover all factors influencing the number of tourist arrivals, and therefore it would be advisable to consider other variables that would better explain the phenomenon. The standard error of the constant is quite high (2.19656e+06), indicating considerable uncertainty in the estimation of this parameter. The p-value for the constant is 0.1833, indicating that the constant is not statistically significant at the usual level of significance (e.g., 0.05) and therefore does not have a significant effect on explaining the number of arrivals.

The coefficient for the Number_of_UNESCO transformation has a value of 2.03394e+06, which means that each additional UNESCO site is associated with an average increase in tourist arrivals of approximately 2.03 million. This result is highly statistically significant because the p-value is 2.57e-27, which is much lower than the usual thresholds (0.05 or 0.01), and indicates a very strong association between the number of UNESCO sites and the number of arrivals. The presence of UNESCO sites is likely to act as a factor that significantly increases tourist interest. These sites symbolize uniqueness, authenticity and cultural value, making them irresistible to international and domestic visitors.

The t-ratio for this variable is 13.60, indicating that the coefficient is many times larger than its standard error (149560), further confirming its significance.

One of the key indicators of model quality is the R-squared (R^2), which measures how much of the variability in the dependent variable (Arrivals_2019) is explained by the independent variable (Number_of_UNESCO). The R-squared value (0.570917) shows that the model explains approximately 57.09% of the variability in the number of tourist arrivals based on the number of UNESCO sites. This means that the model has a relatively good ability to explain the variability in the dependent variable, although there still remains a significant amount of variability that is influenced by other factors that are not accounted for by the model. The adjusted R-squared (0.567830) decreases slightly, which is expected as it corrects the original R-squared due to the number of variables used.

Despite the statistically significant results, this model should be interpreted with caution due to its simplicity. The analysis includes only one explanatory variable – the number of UNESCO sites – and omits potentially confounding factors that influence international tourism. These include GDP per capita, tourism infrastructure, political stability, population size, and national promotional strategies. As Frey and Steiner (2011) explain, World Heritage designation alone is not sufficient to attract tourists unless it is complemented by accessibility and supportive policies. Furthermore, the use of cross-sectional data from a single year (2019) prevents any inference of causality. As Yang, Lin, and Han (2010) emphasize in their study on China, pre-existing tourism attractiveness may be a factor in acquiring UNESCO status, suggesting a possible reverse causality. Therefore, the observed relationship is better described as an association rather than a cause-and-effect link.

The F-test of the model reaches 184.9468, with a p-value of 2.57e-27, indicating that the full model is statistically significant and the independent variable has a significant effect in explaining the variability of the dependent variable. This result allows us to reject the null hypothesis which would claim that the number of UNESCO sites has no effect.

The results suggest that the number of UNESCO sites is a significant determinant of tourist arrivals. This relationship also makes sense from an economic and practical point of view. UNESCO sites are globally recognised brands that signal the high value of cultural heritage and natural beauty. Tourists are willing to expend considerable resources to visit such sites, which is reflected in the growing number of visitors to destinations that have such sites.

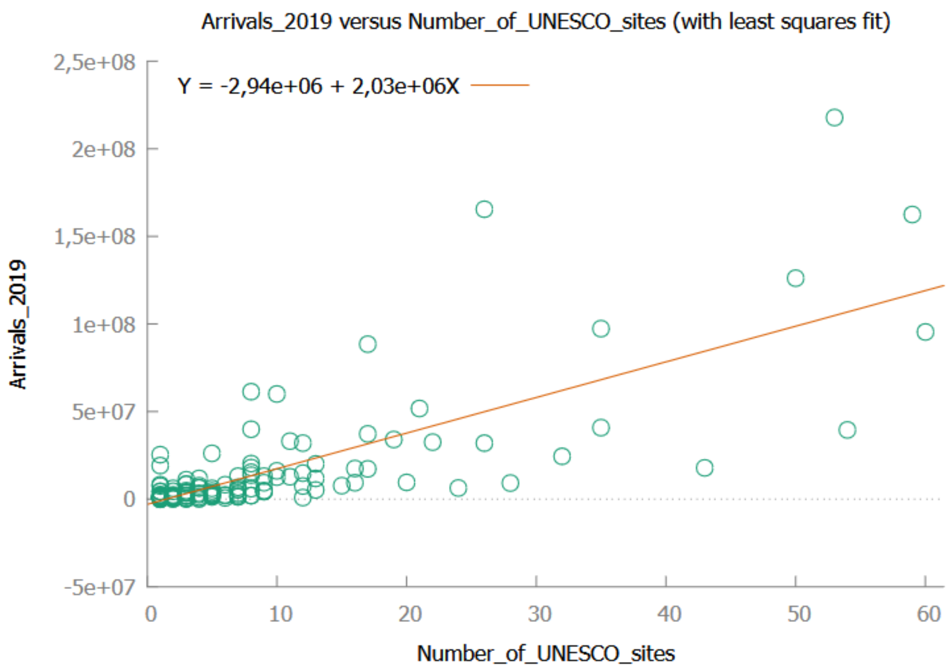
The variability that is not explained by the model (approximately 42.91%) can be attributed to other factors such as:

- Quality of infrastructure and accessibility of UNESCO sites,
- The marketing strategies of each country,
- Security aspects, Political stability or pandemic constraints,
- Overall economic conditions of tourists (e.g., availability of air links, exchange rates).

The regression analysis clearly showed that the number of UNESCO sites is a significant factor influencing tourist arrivals. This finding is consistent with the assumption that cultural heritage and unique natural sites serve as a strong motivating factor for international tourism. The results highlight the need to preserve and promote UNESCO sites as a key asset for tourism development.

Further, to verify the impact of the number of UNESCO sites on tourism, we analyzed the relationship between the number of these sites in each country and the number of tourist arrivals in 2019 graphically, using a scatter plot with least squares fit. This is a plot that displays the individual data points along with the estimated linear regression line using the least squares method. We have illustrated the relationship in the following figure 1.

Fig. 1 Scatter plot with least squares fit



Source: own processing via Gretl

Figure 1 shows the relationship between the Number_of_UNESCO (on the X-axis) and the number of Arrivals_2019 (on the Y-axis). Figure 1 also shows the points that represent each country, with each country having a certain number of UNESCO sites and a corresponding number of tourists in a given year.

The trend line, calculated using the least squares method, is shown in orange and represents the linear relationship between these variables. The equation of the trend line has the form:

$$Y = -2{,}94e + 06 + 2{,}03e + 06\ X \quad (2)$$

The trend line shows a positive linear relationship between the number of UNESCO sites and the number of tourists. This relationship is consistent with the hypothesised "UNESCO effect ", according to which the inscription of sites on the World Heritage List increases tourist interest in a given country.

The straight line guideline (2,03e+06X) means that each additional UNESCO site increases the number of arrivals by an average of 2.03 million tourists. This figure is statistically significant and indicates the strong impact of UNESCO sites on tourism. Based on previous regression calculations (R^2 = 57.09%), we know that the model explains approximately 57% of the variability in tourist arrivals based on the number of UNESCO sites alone. This is a relatively strong relationship, but the remaining almost 43% of the variability may be due to other factors. The value of the constant (-2.94e+06X) suggests that if a country had no UNESCO sites (X=0), it is assumed that it would have a negative value of tourist arrivals, but this is in fact not realistic (the reason for this is the statistical method and the non-inclusion of other factors). Visible outliers, such as countries with an extremely high number of UNESCO sites (more than 50), are countries like Italy, China or France. These destinations have a unique position and combine a significant historical heritage, developed infrastructure and massive international campaigns to promote tourism. Countries with fewer UNESCO sites but nevertheless high tourist numbers (e.g. USA and Canada) may be examples of destinations that have strong attractions of a different nature (e.g. urban tourism). The positive coefficient of the straight line directive supports the hypothesis that the UNESCO site is a value-added for the destination and contributes significantly to the country's tourist attractiveness.

Additionally, it is important to recognize that UNESCO sites vary significantly in terms of their popularity and capacity. Some sites such as the Historic Centre of Rome or the Great Wall of China receive millions of visitors annually, while others may remain relatively unknown. Cuccia, Guccio, and Rizzo (2016), in their study on Italian regions, confirm that the impact of World Heritage listing on tourism demand is heterogeneous and strongly depends on regional infrastructure and policy support.

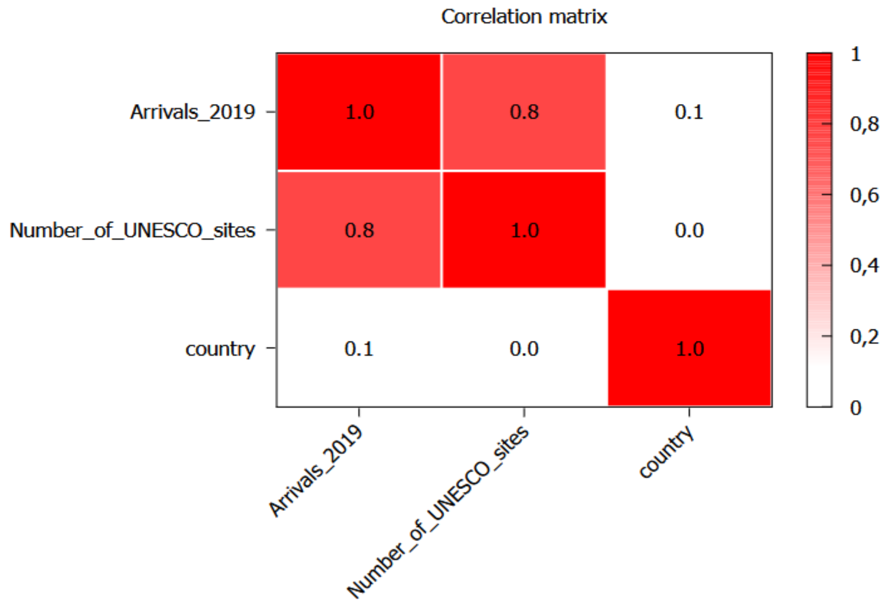
The fact that the model does not explain all the variability ($R^2 \approx 57\%$) means that other factors such as marketing, infrastructure or country accessibility must be part of a comprehensive assessment. The significant p-value (from previous calculations) indicates that the results are not random and the relationship is statistically significant.

Figure 1 clearly shows that the number of UNESCO sites positively influences the number of international tourists. This relationship is significant, but not exclusive - a UNESCO site alone is not enough to ensure massive tourism. Therefore, these sites need to be complemented by quality tourism infrastructure and appropriate tourism management strategies.

The coefficient values in the model are statistical estimates with precision determined by standard errors. In plotting the graph, some of these estimates may be simplified, especially if they are only used to illustrate the relationship.

To support and confirm the previous results of the regression analysis, a correlation matrix was created to illustrate the relationships between the number of UNESCO sites, the number of tourist arrivals in 2019, and another variable representing country categorization. The correlation matrix, shown in Figure 2, visualizes the interconnections between these variables and allows a better understanding of their relationships.

Fig. 2 The correlation matrix



Source: own processing via Gretl

The correlation matrix shows the relationships between the three variables: Arrivals_2019, Number_of_UNESCO and country. On both the *x* and *y* axes, the variables are the same, which allows a comparison of the correlation between them. There is a high positive correlation between the Arrivals_2019 and the Number_of_UNESCO. A value of 0.8 indicates that countries with more UNESCO sites tend to attract more tourists. This relationship is strong, as confirmed by the previous regression analysis. The correlation between Arrivals_2019 and the country variable is very low (0.1), indicating that country categorization does not have a significant relationship with the number of tourists. This variable is unlikely to have a significant effect on the observed arrivals. There is no correlation between the Number_of_UNESCO and the variable "country" (0.0). This suggests that country categorization is not related to the number of UNESCO sites. Each variable has a correlation with itself on the diagonal, which is always 1.0. These values are shown in dark red in the matrix.

Figure 2 supports the results of the regression analysis and shows that the most significant relationship is between the number of UNESCO sites and the number of tourists in 2019. Low or zero correlation coefficient values between other variables indicate a weak or no relationship, allowing us to focus on the key factor: the impact of UNESCO sites on tourism.

The results are in line with previous research showing the positive impact of UNESCO sites on tourism (Su & Lin, 2014; Yang, Lin & Han, 2010). Nevertheless, it should be emphasized that the number of UNESCO sites alone may not be a sufficient explanation for the variation in tourist arrivals. For example, a study by Cuccia, Guccio & Rizzo (2016) found that the effect of UNESCO inscription varies across regions depending on infrastructure, marketing strategies and accessibility.

The analysis also does not take into account the phenomenon of overtourism, which is a significant factor in destinations with a high concentration of UNESCO sites. Venice and Machu Picchu, for example, face overtourism, leading to problems with monument conservation, infrastructure congestion, and a deterioration in the quality of life of local residents (Peeters et al., 2018). Future research should include variables related to the quality of the visitor experience and the level of regulation of tourism.

Another potential extension of the research is to analyse whether factors such as GDP per capita, political stability or accessibility of transport infrastructure also influence the number of tourists. It could turn out that in some countries the UNESCO site plays a key role (e.g., developing countries), while in others (e.g., the U.S.) other tourist attractions dominate (Frey & Steiner, 2011).

CONCLUSION

Based on the results of the regression analysis, we can clearly reject the null hypothesis (H0) and accept the alternative hypothesis (H1). The coefficient for the variable Number_of_UNESCO sites reached 2.03394e+06 and was statistically significant at the p-value level of 2.57e-27. This means that the Number_of_UNESCO sites have a positive and statistically significant effect on the number of international tourists in a given country. Each additional Number_of_UNESCO site leads to an average increase in the number of tourists of approximately 2.03 million.

This result suggests that UNESCO sites are positively associated with international tourism arrivals and may act as an important component of destination attractiveness. However, due to the limitations of the model and the lack of causal testing, their role should be understood as one factor among many influencing tourism flows.

Based on the available data, we can also evaluate a secondary hypothesis. The variation in the number of tourists was analyzed using the standard error of regression (S.E. of regression), which reached a value of 20 927 300, which is a relatively high value. This high variability may indicate differences between countries depending on the number of UNESCO sites, but a more accurate assessment of this hypothesis would require additional analysis, for example, comparing the variability between groups of countries with low and high Numbers_of_UNESCO sites.

However, based on the current results, it can be said that countries with a higher number of UNESCO sites tend to have higher numbers of tourists. The extent of variability in international tourist arrivals is probably also related to other factors such as the quality of infrastructure, marketing strategies and the security situation.

The importance of UNESCO sites in influencing tourism is clear and is confirmed in the wider context. The positive correlation between the Number_of_UNESCO and the Arrivals_2019 underlines that these sites serve not only as symbols of cultural and natural heritage, but also as key points of interest for travellers from all over the world. This effect is particularly important for countries seeking to increase their attractiveness on the global tourism market.

At the same time, however, it is important to stress that the mere existence of UNESCO sites is not enough to maximise the potential benefits for tourism. The results show relatively high variability in the number of tourist arrivals, suggesting that the number of UNESCO sites is only one of many factors that influence tourists' decision-making. Other factors include the quality of tourist infrastructure, the effectiveness of marketing strategies aimed at promoting these sites, as well as the overall security and political situation in the country.

Countries wishing to make effective use of their UNESCO heritage should therefore pay attention to the comprehensive development of tourism. This includes investment in infrastructure, working with local communities to protect sites, developing services for tourists and targeted international campaigns. In addition, it can be useful to use digital tools and social networks to raise awareness of these sites and to attract a younger generation of travellers.

Based on the results of this analysis, we can recommend further research that would include a more detailed examination of the variability factors, as well as expanding the dataset to include additional variables. Analysis of differences between regions or groups of countries based on geographic location, per capita income or type of heritage (cultural, natural) could provide deeper insights into how best to integrate UNESCO sites into tourism development strategies.

In conclusion, UNESCO sites play a key role in building a country's attractiveness in the international tourism market. However, their potential can only be fully exploited if they are supported by strategic measures that take into account the diverse needs and expectations of tourists. These findings underline the importance of protecting and developing cultural and natural heritage, not only in terms of its value to humanity, but also as a tool for promoting economic development and strengthening national identity.

Our results showed that the Number_of_UNESCO sites has a significant and statistically significant effect on the number of international tourist arrivals – Arrivals_2019. This fact confirms that cultural and natural heritage is a strong motivating factor for travelers and has the potential to promote the economic development of countries (Poria, Reichel & Cohen, 2013).

For policymakers, we recommend:

- Implement sustainable tourism strategies to avoid the negative impacts of mass tourism at UNESCO sites (Dodds & Butler, 2019).
- Improve infrastructure at lesser-known UNESCO sites in order to distribute tourist flows more evenly.
- Encourage digital marketing and innovative forms of tourism, such as virtual tours of UNESCO sites, which can help alleviate over-visitation (Buhalis & Amaranggana, 2015).

Future research could focus on the dynamics following the COVID-19 pandemic and how demand for cultural heritage is evolving in the post-pandemic era (UNWTO, 2023).

ACKNOWLEDGEMENT

This contribution is the result of the internal grant project A-25-102/3020-02 of the Bratislava University of Economics and Business for young pedagogical staff, scientific and PhD. students entitled *Digital technology in tourism: Generation Z in the spotlight.*

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Reasons for Establishing Business Centers in the CEE Region

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https://doi.org/10.53465/CEECBE.2025.9788022552257.376-384

Abstract: The article aims to identify the reasons for establishing business centers in the CEE. The main method for processing the empirical part of the article is a multiple case study. The objects of the investigation were four business centers in Slovakia whose main activity is providing financial services. The original reasons for building centers in the region included cheap labor, geographical position, time zone, political situation, and tax system. The result of our research is the expansion of the existing literature with additional factors and the updating of the literature with the current reasons for establishing and preserving business centers in the region. Currently, the centers are motivated to stay in the country mainly by a qualified workforce that can adapt flexibly to changed market conditions. A limitation of the research is the focus of the investigation on one country.

Keywords: Business Centers, Motives for Establishing, Central Europe, Slovakia

JEL Classification codes: M13, M19

INTRODUCTION

Currently, shared services and business centres are becoming an integral part of the global economic environment. These institutions play an important role in the framework of effective movement of business operations, especially in the field of services such as IT, HR, logistics and financial services (Slusarczyk, 2017; Marciniak, 2019). Within the global trend, these centres are being built in different regions and countries, each of which shows specific motivations and conditions influencing the location decision. The Central and Eastern European (CEE) region has established itself as an important player in this field in recent decades, mainly due to its strategic location, highly skilled workforce and increasing economic stability (Golnik and Golnik, 2016; KPMG, 2022).

According to research by Ślusarczyk (2017), the main motives for choosing the CEE region are lower operating costs, availability of skilled labour and favourable investment conditions. The dynamics of the global economy, which increasingly favours flexibility, digitalisation and innovative processes, also have a significant impact on this trend. While Western Europe and the US have already established their shared services centres, the CEE region shows an increasing competitiveness in the field of outsourcing and financial services provision. This is also underlined by research by Marciniak (2013), which states that this region is a strategic point for companies that want to expand in the Eastern European markets while reducing operating costs.

Slovakia, as part of CEE, is an interesting case region with a growing number of business centers that specialize in the provision of financial services. As Golnik and Golnik (2016) suggest, Slovakia is profiled as a key player in this sector thanks to his business environment, geographical location and EU membership. In addition, factors such as political stability, developed infrastructure and support from the state create favorable conditions for the development of these centers. Another important motive is the institution's activities in the country, which actively contribute to building the country's reputation and favourable business environment (SARIO, 2019). However, Slovakia has not been sufficiently studied in the literature. This is the gap in the literature that we will review in our article.

The aim of this article is to explore the motives that lead to building these centers in the CEE region, with a special emphasis on Slovakia, on the example of an example Four selected business centers providing.

1 LITERATURE REVIEW

From a CEE perspective, the region has garnered significant attention in recent years due to its economic potential and competitive advantages. The region is characterized by an abundant and diverse labor force, which is skilled across various sectors and remains relatively more affordable compared to Western Europe (Golnik & Golnik, 2016; Ślusarczyk, 2017; Marciniak, 2013). In addition to a competitive labor force, the region benefits from well-established IT infrastructure, which is crucial for the development of business centres that require robust technological support (Tarkowski, 2018). As a result, many multinational companies have chosen to locate their shared services and business centres in CEE, seeking to capitalize on these economic advantages.

One of the most significant factors influencing the location of business centres in the CEE region is its strategic geographical location. The region's proximity to Western Europe, combined with favorable time zone alignment, facilitates effective global operations. CEE centres are able to respond to customer needs across different time zones, providing services to clients in the US during the afternoon and evening and to clients in Asia during the early morning hours (Ślusarczyk, 2017; Marciniak, 2013).

Cultural homogeneity is another critical factor that makes CEE attractive for business operations. The cultural proximity between CEE countries and Western Europe, as well as the alignment with US corporate culture, offers a competitive advantage over regions like India, where cultural differences may present additional challenges (Ślusarczyk, 2017; Marciniak, 2013). Additionally, the multilingual capabilities of the population in the CEE region further enhance its attractiveness, enabling businesses to better meet the needs of global clients. For example, in Slovakia, a large percentage of the population speaks English, followed by German, Russian, French, and Spanish, thus providing a versatile workforce capable of supporting various international markets (Sario, 2022).

Furthermore, the CEE region benefits from relatively favorable tax policies that offer a range of incentives for foreign investors. Many CEE countries provide tax exemptions or partial reductions in tax burdens, especially during the initial years of operation in the region. This tax environment, combined with the aforementioned economic factors, makes the region a highly appealing destination for multinational companies seeking to establish or expand their operations (Ślusarczyk, 2017; Marciniak, 2013).

These combined advantages of labor force availability, infrastructure, geographic positioning, cultural proximity, language skills, and favorable tax policies create a highly attractive environment for the establishment of business centres in CEE. As a result, the region has become an important hub for shared services and business operations, with many global corporations seeking to optimize their cost structures while maintaining a high level of operational efficiency.

2 METHODOLOGY

The authors of the article used a number of scientific research methods. The basis for the preparation of the theoretical part of the article was the collection, processing and analysis of available sources of domestic and foreign literature. The dominant method of the article was the case study method.

In many cases, the case study is not classified as a research method in the literature. According to Yin (2014), a case study is an empirical method that examines the current phenomenon in the context of its real life, especially when the boundaries between the phenomenon and the context are not clear and obvious. Its aim is to understand the phenomenon and its context (Cavaye, 1996). A case study as a research method is a research strategy that includes several research methods, using specific approaches to data collection and analysis. Based on the above, it can be said that the case study is not only the data collection technique or the design element itself. It is a comprehensive research strategy (Yin, 2014). In carrying out this research, the authors of the article followed Yin, 2014. They used the multiple case study method.

According to Yin (2014), it is also necessary to identify several aspects at the beginning of the examination:

- Research question
    - What motives have led to parent companies to build business centers and sharing services in Slovakia?
- Analysis unit
    - business center
    - located in Slovakia
    - provide financial services
- The number of objects of examination – Yin (2014) states that the minimum number of objects of examination for the elaboration of a quality case study are 4 objects of examination. So, in our research we will explore 4 business centers.

In preparing a case study, the authors used a strategy based on theoretical premises - the objectives and design of the case study were based on theoretical literature sources and similar research questions or literature review (Yin, 2014).

They were obtained through interviews with business centre managers. They were conducted between August 2023 and November 2023. The interviews lasted 60-90 minutes. The interviews were conducted online. The questions were sent to the respondents beforehand. After the interview, the answers were transcribed into a continuous text. The text was modified and cleared of information that was not related to the content under investigation. The final text of the case study was sent to the respondents for approval.

Given the information used in our research, it is not possible to mention the company names of the companies or business centres studied. For this reason, it is not possible to publish the names of the respondents or the names of the official website of the centres.

The data obtained were processed and then compared using the comparative method. The main findings and conclusions related to the whole CEE region were summarised in a synthesis.

When examining business centres and shared service centres in the CEE region, authors often focus on a single aspect within one country and generalise their findings to the region as a whole. This approach, based on the common characteristics of CEE countries, is common in the literature, with conclusions drawn from countries such as the Czech Republic or Poland being applied to the wider region. Similarly, in our research on Slovakia, we apply our findings to the entire region, identifying similar patterns and motivations in the development of business centres and shared service centres.

3 RESULTS AND DISCUSSION

In this section of the article we present the multiple case study, in which we pay attention to the motives of building business centers in Slovakia. In the following table, we present basic indicators about the selected business centers, which are an object of examination of the multiple case study.

Tab. 1 Business centers: Basic indicators

Business Center	Year of foundation in SR	Location of headquater	Core activity of the center	Location in SR
BC 1	2000	USA	IT services	Bratislava
BC 2	2002	USA	Financial services IT services	Bratislava
BC 3	2005	Switzerland	Insurance services IT services	Bratislava Košice
BC 4	2006	Germany	Financials ervices IT services	Bratislava

Source: processed by authors based on interviews

In the following subchapters we present case studies of selected examples of business centers in Slovakia.

3.1 Business Center 1

Business Center 3 (BC 1) was established in Slovakia on 3 April 2017 through the merger of two global companies. This merger has resulted in a new company and a new brand. The company is a leading global independent company providing new generation IT services (Internet source, 2024). The company is one of the world's leading independent IT companies. It provides IT services that customers need to modernise their operations and support innovation across their IT environment. It helps them to create a complete working environment, simplify and optimise IT, achieve a secure, high-performance cloud and hybrid environment to ensure positive business results (Internet source #1, 2024).

The main motives for building the centre on the territory of the Slovak Republic were the country's steps towards integration and participation in international structures - the entry of the Slovak Republic into the European Union and the Schengen area. The country also had potential in terms of the population needed to provide corporate services and a favourable tax environment. It was a combination of several factors, and the cost of labour was also lower than in Western Europe. Taking into account these costs, together with the quality of higher education, which is better than in the surrounding countries, the Slovak Republic was a quality space for the construction of the business centre (Semi-structured interview #1, 2023).

The gradual development and progress of the Business Centre can be seen in the development of the company. Over time, the number of employees increased, as did the volume and value of the services they provided. They began to provide internal support to the whole company.

After two years, they also started to attract external clients (Semi-structured interview #1, 2023).

3.2 Business Center 2

Business Center 2 (BC 2) was established in the Slovak Republic in 2002. We can talk about the global business centre that provides a wide range of IT services, finance, marketing, sales, technical support and support for business operations on a global scale (Internet source #2, 2024).

The parent company of the centre has its headquarters in the USA. However, the cost of labour there was very high. In addition, the labour market was constrained by a number of rules and regulations or local restrictions. The parent company was looking for a solution to this situation (Semi-structured interview #2, 2023).

The availability of labour dominated the decision-making process in the Bratislava business centre. In this context, they focused on labour costs. They also looked at the language skills of the local population. Their original intention was to find a location in Bratislava with cheap labour that spoke German. The aim was to cover the German market with services focusing on finance. About twenty employees were available for such activities (Semi-structured interview #2, 2023).

They began to provide regional services for the whole of Europe. The traditional shared service centre became a reporting centre within a few months, which then grew. They found that these services could be provided not only for Germany, but also for other countries, and so began to provide services for the UK and Switzerland. In the next 10-12 years, a strong expansion and reorientation towards the European market can be observed. In 2014 and 2015, these services began to be provided to countries outside Europe (Semi-structured interview #2, 2023).

3.3 Business Center 3

Business Center 3 (BC 3) is a branch of the Swiss company. It is a highly specialised centre of competence that employs recognised experts in the field of insurance and mathematical services. The international team of more than 400 employees provides value-added services to the company's business units worldwide (Interview 3, 2023). In addition to the centre in Slovakia, the organisation has five other centres. Three are located in Europe, one in North America and one in South America. The activities of the centres are not divided geographically. In most of them, the teams provide their services on a global scale (Semi-structured interview #3, 2023).

BC 3 started its operations in the Slovak Republic in 2005. The original aim of the Swiss investors was to set up a call centre. Investors were mainly motivated by the availability of skilled labour. The positions that BC 3 created were not demanding in terms of education and experience. They were mainly junior positions. They required potential employees to have a basic overview of accounting and appropriate language skills. The Slovak Republic met these requirements and, in addition, labour costs were much lower than in Western European countries (Semi-structured interview #2, 2023).

Over the next two years, the call centre was cancelled. Transnational decided to lay off most of the centre's original staff. The structure consisting of insurance mathematicians was retained. Seven of them did not leave the centre and used their qualities. They laid the foundations for the current form of the Centre. At present, the majority of employees are insurance mathematicians. The second part is represented by employees who provide IT services (Semi-structured interview #2, 2023). At present there are 410 employees in the centre (Internet source #3, 2025).

3.4 Business Center 4

The Business Center 4 (BC 4) is located in Bratislava, where, in addition to the business divisions, there is also an expert branch. The centre in Bratislava is one of the strategic locations of the company's branches from the beginning of their work can be observed continuous growth. From the original 650 positions, almost 1,700 employees are currently working in the centre (Internet source 4, 2024). Since its establishment in 2006, BC 4 has been one of the most important parts of the company in Slovakia and worldwide (Semi-structured interview #4, 2023).

The main reason for the company's management to establish a business centre in Bratislava was the level of language skills and higher education (currently focused more on secondary school graduates). In addition to the level of education, the company management was also attracted by the price of work (Semi-structured interview #4, 2023).

Expert BC 4 is where the latest ideas in finance, IT, marketing and customer service are developed for Europe and beyond. The centre's experts include top analysts and developers, forensic specialists, market researchers and leading designers (Semi-structured interview #4, 2023).

From the point of view of the Human Resources Department, the company is working on a market that is demanding, and this forces them to be the most progressive of all corporation centers. They take the Slovak Republic as a pilot country and test procedures and processes (Semi-structured interview #4, 2023).

3.5 Findings

The following table presents the key findings derived from the case study focusing on the motivations of parent companies in establishing business centers within the Slovak Republic. These findings address the key factors that influenced decisions regarding the location of these centers. The table summarizes the most important aspects that played a role in the location selection and their impact on regional development.

Tab. 2 Motives for establishing business centers in Slovakia

Business Center	Motives
Business Center 1	Entry into the EU and Schengen Area Availability of workforce Labor costs Favorable tax environment
Business Center 2	Availability of workforce Labor costs
Business Center 3	Availability of skilled workforce Labor costs
Business Center 4	Quality of workforce Language skills Labor costs

Source: processed by authors based on interviews

In the literature, there are various analyses dealing with the motives that influence the decision to locate a business centre in a region. Ślusarczyk (2017) and Marciniak (2013) include the geographical location, the availability of cheap labour, cultural homogeneity, political stability, the level of education, the use of the euro, the time zone and the tax system. Golnik and Golnik (2016) emphasise the importance of a country's human capital, quality of education, wage costs, legal framework, transport infrastructure, environment and overall living conditions.

Similarly, Tarkowski (2018), in his research focused on the Polish city of Gdynia, found very good access to modern office space, excellent communication infrastructure and a sufficient supply of labour.

In their findings, Gorzelak and Smetkowski (2012) also underline the importance of an increase in the number of modern office spaces as a significant factor in the decision to locate business centres in the CEE region. They also discovered the factors mentioned in the literature, such as geographical location, labour costs, language skills of the population or the qualifications of the workforce. However, labour and its aspects, such as labour availability, labour costs and the level of education of the population, play a key role in our research. These factors turned out to be decisive for the location of business centres and proved to be the dominant motives influencing the decisions of parent companies to choose Slovakia as a location for their investments.

Thus, our findings confirm that the labour force, together with its qualification and affordability, is the main factor in the creation of business centres in the region, which is in line with the theories listed in the literature.

Our research also creates space for new areas of research on Business Cantier and factors that lead them to create, respectively staying and preserving Cantier in the country under investigation. Literature GAP and therefore our future research could deal with motives for which business centers remain in Slovakia.

CONCLUSION

Business centers are being established in various regions around the world, with the Central and Eastern European (CEE) region emerging as an important hub for the development of these investments. This region has attracted the attention of numerous authors who examine the factors influencing decisions about the location of business centers.

In our study, we focused on the motivations behind the establishment of business centers in the Slovak market, as this topic has been less explored in the literature. The findings suggest that labor represents a key common factor influencing the decisions of parent companies when choosing a location. This factor can be further specified into three main aspects:

- the availability of labor,
- the qualification of the workforce,
- and labor costs.

All selected companies confirmed that the availability and quality of the workforce, coupled with competitive labor costs, were the decisive motivations for choosing Slovakia as the location for their business centers.

When foreign companies started setting up shared service centres in Slovakia 20 years ago, they were attracted by the country's favourable geographical location in the heart of Europe and the low cost of skilled labour. However, the sector has gradually moved away from relying solely on the cheap labour model. Today, business service centres in Slovakia are seen as indicators of the country's potential. With the development of new technologies and the assignment of more complex tasks, sector representatives see great potential for the arrival of new centres and the expansion of existing ones. As Peter Rusiňák, coordinator of the Business Service Centre Forum, said, "They are a significant step away from industrial production towards Industry 4.0" (Liptáková, 2022).

A limitation of our study is its focus on four selected business centers in one CEE country, which may affect the generalizability of the conclusions. Future research could expand this analysis to include additional centers in Slovakia, as well as in other countries within the region, providing a more comprehensive view of the factors driving the development of business centers in Central and Eastern Europe.

Overall, this study contributes to a better understanding of the dynamics of business center development in this region and their impact on local economic growth.

ACKNOWLEDGEMENT

VEGA no. 1/0254/25. Artificial Intelligence and FDI-invested Business Service Centers: Selected Macroeconomic and Corporate Aspects.

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Gender Balance in Banking: Insights from a Case Study in the Czech Republic

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https://doi.org/10.53465/CEECBE.2025.9788022552257.385-399

Abstract: The creation of an inclusive work environment has been one of the challenges addressed for the past decade when gender equality was at the forefront. Even though numerous initiatives have been communicated, parity has not been reached yet. A comparative analysis examines Corporate Social Responsibility (CSR) activities and Environment, Social, and Governance (ESG) initiatives employed by the most well-established banks in the Czech Republic (CZ). Further, a qualitative descriptive single-case study of MONETA Money Bank, a.s. (MMB) complements the empirical study, allowing for a more profound examination of MMB strategies to eliminate equity disparities. The case study provides deeper insights based on 27 semi-structured interviews with company stakeholders of several layers. The research findings from the case study identify the most essential components for addressing equity disparities. Recommendations are discussed, along with proposed managerial implications.

Keywords: Gender Equity, CSR, ESG, Banking Sector

JEL Classification codes: J16, M14

INTRODUCTION

Although, for decades, numerous initiatives have aimed to achieve gender equality, the Czech Republic ranks third worst among European Union (EU) countries (Eurostat, 2024b). According to the European Institute for Gender Equality's Index, in 2022, the most considerable discrepancies in the CZ were observed in the sector of Finance and Insurance, where the gender pay gap was high at 37.9 %. In contrast, the European average was reported at 12.7 % (Eurostat, 2024a).

This article delves into the efforts of Czech banks to address gender equity, employing a comparative analysis of CSR activities and ESG initiatives. A qualitative case study of MONETA Money Bank, a.s. MMB further enriches this examination, providing deeper insights into strategies for eliminating equity disparities. This research identifies the key components contributing to creating a more gender-equitable and inclusive workplace, offering valuable recommendations for academia and practice.

1 LITERATURE REVIEW

In recent decades, there has been a growing interest in addressing gender equity among academics (Belingheri et al., 2021; Birindelli et al., 2018; Fine et al., 2020; Hideg & Krstic, 2021) and private entities (Deloitte, 2022; McKinsey, n.d.) since not only does discrimination place women in disadvantageous positions, but it also hinders economic and social growth (Maceira, 2017; Minasyan et al., 2019). Furthermore, society worldwide faces this severe issue that concerns not only individual nations (Office of the Government of the Czech Republic, 2021; European Commission, n.d.) but also multiple international organisations (OECD, 2023; United Nations, n.d.-a; World Economic Forum, 2022).

While there are numerous bodies of research with focal point on gender inequality conducted by scholars (Belingheri et al., 2021; Birindelli et al., 2018; Fine et al., 2020; Fitzsimmons et al., 2023; Hideg & Krstic, 2021), many studies primarily focus on identifying and describing the problem of gender disparity itself, rather than analysing factors and corporate policies that effectively contribute to its elimination (Belingheri et al., 2021). This gap underscores the need for research beyond problem identification and emphasises solutions-oriented approaches, particularly within specific industry contexts (Belingheri et al., 2021).

Over the last century, corporations have been exposed to increasing pressure that deviated from generating substantial profits for shareholders and securing companies' established position in the market (Moura-Leite & Padgett, 2011). More prominent attention has been drawn to more respectful and sustainable stakeholder interactions, contributing to developing a new theoretical framework, CSR (Moura-Leite & Padgett, 2011).

Thus, diverse theoretical frameworks linked to CSR, such as Tripple Bottom Line (Elkington, 1998), CSR Pyramid (Carroll, 1991) and Stakeholder Theory (Freeman & Mcvea, 2001), were developed and introduced to endow corporate management with a toolkit for how to address the urgent need to contribute to societal development, including also fair and equitable working conditions to employees (Vishwanathan et al., 2019). Additionally, ESG factors are crucial in academics (Becchetti et al., 2022; Jinga, 2021) and the corporate world (European Central Bank, 2024; KPMG, 2023). As the name suggests, the ESG factors encompass three fundamental factors, underscoring the significance of sustainable corporate practices. For our purposes, the essential element is Social, including respecting human rights, practising activities promoting diversity and inclusion and strengthening relationships with stakeholders (Jinga, 2021).

Moreover, a novel school of thought has emerged over five decades, combining comprehension and the fight directly against exclusive and inequal corporate practices, discriminating against marginalised groups based on race, gender, class, etc. (Nkomo et al., 2019). Subsequently, this movement has contributed to designing a new concept, either known under the acronym EDI (Equity, Diversity, and Inclusion) or DEI (Diversity, Equity, and Inclusion) (Oswick & Noon, 2014).

In addition, new policies and frameworks have been conceived on the multinational level. For instance, the United Nations (United Nations, n.d.-b) has elaborated the 2030 Agenda for Sustainable Development, stemming 17 Sustainable Development Goals amid Goal 5, standing for gender equity. Furthermore, increasing interest in and need for sustainable practices have evolved to formulate a novel ESG concept and an EU directive that obliges corporations to report on their practices in these three spheres (European Central Bank, 2024; European Commission, n.d.).

Although approximately 50,000 corporations are subject to mandatory ESG reporting (KPMG, 2023), these companies must publish their ESG reports in 2025 (European Commission, n.d.). However, in the banking sector, mandatory disclosure of ESG practices was required in 2023, as specified by the European Banking Authority (European Central Bank, 2024). Nowadays, future economic development is closely related to national financial markets, securing optimal capital allocation (Guru & Yadav, 2019).

2 METHODOLOGY

To thoroughly understand the complex and dynamic environment designed by the Czech financial institutions – we employed a comparative analysis and a descriptive single-case study with a focal point on MBB (Berg & Lune, 2017; Saunders et al., 2023; Savin-Baden & Howell Major, 2023) which compile insights from the bank employees, contributing to more profound comprehension how to combat against gender inequity (Belingheri et al., 2021).

Thus, to shed light on this issue, we aim to examine gender equity in the Czech banking sector. Therefore, the research question is formulated as follows: What are the most significant factors in a bank's gender equity policies and strategies experienced by employees? Answering this inquiry helps identify and strengthen the most vital aspects linked to gender equity within the banking sector in the CZ, contributing to both academia and practice. Not only do the research findings reveal the most valuable means applied by financial institutions how to combat gender discrepancies, but they also provide further applicable recommendations.

2.1 Research context

This research was conducted within the scope of the Czech banking sector since substantial gender disparities are observed within the industry, suggesting restraint in leadership positions and career advancement opportunities. As demonstrated in part Comparative Analysis, MMB was selected as a research subject due to its proactive approach to gender equity, including flexible working arrangements, parental support comprising activities such as children group and children allowance, and Women's development programs, positioning it as an ideal financial institution to explore employee experiences.

2.2 Data collection

Firstly, it was necessary to identify the most suitable organisations, allowing us to examine the current activities and initiatives implemented by the Czech banking institutions. Therefore, we focused on ten financial institutions with the most well-established customer base in the CZ, such as Česká spořitelna (ČS), Československá obchodní banka (ČSOB), Komerční banka (KB), Raiffeisenbank (RB), MMB, Fio Banka, Air Bank, UniCredit (UC), Creditas, and Trinity Bank. For more details, see Table 1: Ten banks with the most well-established customer base in the CZ.

Tab. 1 Ten banks with the most well-established customer base in the CZ

Bank names	Number of customers	Source
Česká spořitelna	4 545 699	(Česká spořitelna, 2024)
Československá obchodní banka	4 309 000	(ČSOB, 2024)
Komerční banka	1 664 000	(KB, 2024)
Raiffeisenbank	1 960 000	(Raiffeisenbank, a.s., 2024)
MONETA Money Bank	1 578 000	(MONETA Money Bank, 2024)
Fio Banka	1 400 000	(Fio Banka, 2024)

Bank names	Number of customers	Source
Air Bank	1 200 000	(Air Bank, 2024)
UniCredit	660 000	(UniCredit, 2023)
Creditas	205 000	(Banka Creditas, 2024)
Trinity Bank	139 000	(Trinity Bank, 2024)

Own analysis, sources are listed above in the right column.

According to Article 449a (Regulation (EU) No 575/2013, 2021), „from 28 June 2022, large institutions which have issued securities that are admitted to trading on a regulated market of any Member State" are required to report on their ESG risks. Only those institutions that meet the criterion of being „large" are mandatory to publish ESG reports. A bank is deemed large if it is recognised as one of the following:

1. Globally Systemically Important Institution (G-SII) – financial institutions such as banks and insurers possess a significant position in the global financial system due to their strong international presence, activities, and well-establish integration worldwide.
2. Other Systemically Important Institutions (O-SII) – institutions playing a crucial role at the national level within an individual Member State.
3. One of the three largest institutions in the Member State.
4. Its total asset value equals or exceeds the threshold of €30 billion on an individual or consolidated basis (Directive 2013/36/EU, 2022; Regulation (EU) No 575/2013, 2021).

Therefore, Fio Banka, Air Bank, Creditas, and Trinity Bank are excluded from the comparative analyses as they do not satisfy the condition of being classified as large.

Subsequently, five annual sustainability reports from 2023 were thoroughly analysed. However, in the case of UC, the published report outlines strategies and activities that are applied across the entire organisation operating in multiple states rather than focusing solely on practices within the CZ. Additionally, the annual report was utilised for RB since no individual document addressing ESG practices was published.

In conducting semi-structured interviews, we followed a phenomenological approach to deepen our understanding of interviewees' lived experiences, their perception of being in employees' work environment and the more profound meanings they ascribe to those experiences (Flowers et al., 2022; Saunders et al., 2023). This approach resulted in categorising two crucial factors in a bank's gender equity policies and strategies that contribute to creating a gender-equitable and inclusive workplace, as experienced by employees.

Altogether, 27 semi-structured interviews were conducted. These included three expert interviews with Klára Escobar (Director of HR), Adéla Malinová (Senior Manager for Sustainability), and Linda Kavanová (Member of the MON FAIR Commission). Firstly, these expert interviews were carried out to comprehend organisational sustainable policies related to gender equity and their fair implementation. Secondly, interviews were performed with three managers to acquire their perspectives on how employees utilise these programs. Finally, 21 subordinates, 18 women utilising programs and policies, and three male employees were interviewed to capture firsthand experiences, perceptions, and outcomes of using the programs. The research ensured diverse perspectives, addressing potential gender-related differences in program utilisation by including both women and men. All interviews were audio-recorded and subsequently transcribed for analysis.

2.3 Data analysis

First, we conducted a comparative analysis of CSR practices and ESG strategies among six banks with well-established customer bases. This analysis provided insights, allowing for a deeper understanding of MMB's positioning relative to other financial institutions in the Czech market regarding promoting gender-equitable practices. Secondly, we created a profile of the interviewees, including demographic information about 18 female respondents utilising programs. For a better illustration, see Tab. 2. In the program section of Tab. 2, number 1 represents part-time work, 2 corresponds to children's groups, 3 denotes kindergarten allowances, and 4 refers to development programs for women. Finally, the transcripts, with the help of MAXQDA, were analysed and coded.

Tab. 2 Demographics and information about respondents

Nr.	Respondent	Department	Job Titles	Program	Area of operation
1.	Respondent 1	HR	Development Project Specialist	1,3	Headquarters Prague
2.	Respondent 2	Commercial Banking	Specialist	1,2.3	Headquarters Prague
3.	Respondent 3	Retail Banking	Campaign Specialist	1,3	Headquarters Ostrava
4.	Respondent 4	Retail Banking	Senior Manager, Web Portal, Retail Development & Direct Communication	1,2,3,4	Headquarters Prague
5.	Respondent 5	Retail Banking	Contact Center Reporting Team Leader	1,2,3,4	Headquarters Ostrava
6.	Respondent 6	Commercial Banking	Small and Medium-sized Enterprises Area Manager	4	Branch network
7.	Respondent 7	Marketing Communication & Brand	Senior Marketing Communication & Brand Specialist	1,3	Headquarters Prague
8.	Respondent 8	Digital	Solution Architect	1,3	Headquarters Prague
9.	Respondent 9	Finance	Senior Investor Relations Manager	2,3	Headquarters Prague
10.	Respondent 10	Retail Banking	Personal Banker	1	Branch network
11.	Respondent 11	Retail Banking	Personal Banker	1	Branch network
12.	Respondent 12	Retail Banking	Personal Banker	1	Branch network
13.	Respondent 13	Retail Banking	Sales Team Manager	4	Branch network
14.	Respondent 14	Commercial Banking	Small Business Area Manager	4	Branch network
15.	Respondent 15	Retail Banking	Branch Manager	1,3	Branch network
16.	Respondent 16	Retail Banking	Personal Banker	1,3	Branch network

Nr.	Respondent	Department	Job Titles	Program	Area of operation
17.	Respondent 17	Operating	Shared Services Team Leader	4	Headquarters Ostrava
18.	Respondent 18	Risk Management	Planning & Reserving Manager	4	Headquarters Prague

Source: Own analysis

3 RESULTS AND DISCUSSION

In the following sections, a comparative analysis is presented, featuring two tables that illustrate quantitative indicators from ESG reports alongside a summary of existing programs and policies aimed at promoting gender equality. The results highlighted in italics represent data applicable across the entire organisation, which operates in multiple states. Additionally, in Tab.4 the information regarding childcare group in ČS was acquired from LinkedIn rather than a sustainability report, and it was not available until the end of 2023. Following this, the article introduces a qualitative single-case study conducted at MMB, which identifies two fundamental factors for advancing gender equity. Finally, this chapter concludes with a discussion of recommendations for further improvement.

3.1 Comparative Analyses

By analysing the official ESG reports and Raiffeisenbank's annual report, we identify the seven most essential quantitative indicators, revealing the state of gender equity in the Czech banking sector in 2023. For a better illustration, see Table 3: Summary of quantitative indicators from ESG reports.

The first metric, capturing the percentage of women in the board and supervisory positions, reveals that UC, headquartered in Milan, employs 42% of women in top management positions. In contrast, the RB's executive positions are predominantly occupied by men. Secondly, we shed light on the representation of women in management positions. The leading bank in this category is KB, exceeding 50%, closely followed by ČS and UC, while the female employees in ČSOB are less present in managerial positions.

According to the compiled data, five out of six financial institutions support part-time employment. The leader is MMB, which holds 11% of its contracts on a part-time basis, substantially with female personnel. Additionally, female workers at MMB benefit from optimal remuneration conditions, as the gender pay gap within the organisation records the lowest percentage among the scrutinised institutions.

Furthermore, ČSOB, KB, MMB, and UC are included in the Bloomberg Gender-Equality Index (GEI), which assesses companies across 54 industries headquartered in 45 countries and regions. The GEI is based on over 70 metrics across five key pillars: Leadership and Talent Pipeline, Equal Pay & Gender Pay Parity, Inclusive Culture, Anti-Sexual Harassment Policies, and External Brand (Bloomberg, n.d.). Likewise, nearly all financial institutions under observation participated in the Czech Top Odpovědná Firma competition, which awards companies based on a rating that assesses corporations' strategies and actions related to responsible and sustainable business practices (Byznys pro společnost, n.d.).

Tab. 3 Summary of quantitative indicators from ESG reports

Metrics/Banks	ČS	ČSOB	KB	RB	MMB	UC
% of women in the board and supervisory positions	26.67%	28.50%	33.00%	20.00%	28.50%	42.00%
% of women in management positions	51.00%	34.50%	53.00%	X	43.00%	46.00%
% of part-time employees	9.60%	7.50%	7.00%	8.50%	11.00%	X
% of part-time employees - women	92.00%	89.00%	91.00%	X	90.00%	X
Gender pay gap	X	3.00%	1.80%	X	0.88%	2.00%
Bloomberg Gender-Equality Index	X	Yes (KBC)	Yes (SG)	X	Yes	Yes
Rating Top Odpovědná Firma 2023	28. place	2. place	20. place	27. place	11. place	X

Source: Own analysis (Česká spořitelna, 2024; ČSOB, 2024; KB, 2024; Raiffeisenbank, a.s., 2024; MONETA Money Bank, 2024; UniCredit, 2025)

To promote gender equality, multiple diverse programs depicted in Table 4: Summary of existing programmes and policies to promote gender equality have been implemented within these financial institutions. Except for KB, the human resource (HR) departments maintain contact with parents on both maternity and parental leave in case they have the capacity to be employed part-time or full-time. The banks also recognise the significance of organising childcare groups and providing kindergarten allowances, facilitating parents' reintegration into the workplace. The comparative analysis also highlights the importance of women's development programs provided by nearly all banks except ČS. Among the less frequent reinforcement policies applied by the HR department are support for men/fathers, a program for informal caregivers, and single parents.

Tab. 4 Summary of existing programmes and policies to promote gender equality

Programs and policies/banks	ČS	ČSOB	KB	RB	MMB	UC
Contact with parents on maternity/parental leave	Yes	Yes	No	Yes	Yes	Yes
Childcare groups	Yes	Yes	No	Yes	Yes	Unknown
Kindergarten allowance	No	Yes	Yes	Yes	Yes	Unknown
Women's development program	No	Yes	Yes	Yes	Yes	Yes
Support for men/fathers	No	No	Yes	No	Yes	Unknown
Program for informal caregivers	No	Yes	No	No	Yes	Unknown
Program for single parents	No	Yes	No	No	No	Unknown

Source: Own analysis (Česká spořitelna, 2024; ČSOB, 2024; KB, 2024; Raiffeisenbank, a.s., 2024; MONETA Money Bank, 2024; UniCredit, 2025)

3.2 Insights from a Case Study at MMB

To deepen our understanding of the aspects contributing to gender equity within the Czech banking sector, a qualitative, single-case study was conducted at MMB. Key insights emerged through 27 phenomenological and semi-structured interviews with stakeholders across various organisational levels. These findings can be categorised into "hard" (tangible policies and benefits) factors and "soft" (intangible aspects) factors.

Hard Factors: Tangible Policies and Benefits

MMB demonstrates a commitment to gender equity through concrete policies and benefits designed to support employees, mainly working parents. Key "hard" factors identified in the study include:

Flexible working arrangements: A significant emphasis was placed on flexible working arrangements, enabling employees to balance work and personal responsibilities effectively. This comprises options for part-time work, telecommuting, and flexible hours. When reflecting on the expert interview with Klára Escobar, HR Director, she also recognises the significance of flexible *working arrangements.*

"We currently have about 13% of employees working part-time, which is double the market average." (2024)

When discussing part-time employees, the HR Director refers mainly to mothers. Furthermore, in the statement, Klára Escobar highlights MMB's outstanding position in the Czech labour market, revealing her perception of MMB as an excellent employer. Additionally, throughout the expert interview with Adéla Malinová, Senior Manager of Sustainability, the analogous perspective vis-à-vis flexible working arrangements is shared.

"What appears in those comments (from a company-wide regular survey of employee satisfaction on the implemented HR policies and programs) are mostly positive responses to flexibility and the possibility of part-time positions.... I would say that flexibility has gained the most recognition." (2024)

Thus, this statement underscores that the HR department across the corporation receives appreciative remarks about adjusting their working hours to maintain work-life balance.

*Parental support: MMB offers parental support programs, including childcare groups in Prague and Ostrava, a kindergarten allowance, and ongoing communication with parents on maternity and parental leave (*Parents at MONETA community)*. These initiatives facilitate the reintegration of parents back into the workplace and provide tangible assistance with childcare responsibilities. Respondent 9 utilises the services of the childcare group.*

"I consider a huge advantage because I can really just run downstairs and be with it, I don't have to commute anywhere for a long time." (2024)

Respondent 9 refers to the logistical benefit since she does not have to transport the child to the kindergarten. Not only does it enable her to be more time-efficient, but it also reduces her commuting expenditures (deterioration in fuel consumption and tickets for a parking slot in front of the childcare group edifice) and eliminates her stress related to late arrivals due to quotidian morning congestion.

Subsequently, even though Respondent 4 commences with a positive comment linked to the parental support provided by MMB, she underscores a further attribute of the childcare group.

"I'm satisfied, but the childcare group is expensive, very much so, and they actually raised the price again in September." (2024)

Respondent 4 expresses her discontent with expenses when discussing attending the childcare group. Moreover, she points out that MMB contemplates increasing the price by 25% from the autumn. There might seem to be a slight growth in household expenditures. However, expenses double when having two children creates a substantial financial burden for the family.

Additionally, Respondent 1 states her position on kindergarten allowance, which is eligible for parents with children up to six years old. The attitude toward this implemented policy is appreciated, but it also attracts some criticism.

"The allowance is so terribly small that it doesn't solve much." (2024)

Although MMB offers its personnel the possibility to utilise the services of established childcare groups, it subsequently supports its employees with additional financial assistance. Respondent 1 draws attention to the insufficient allowance amount, especially for workers outside Prague, since the monthly expenditures might seamlessly upsurge to CZK 9,000. In contrast, annual contribution fluctuates from CZK 10,000 to CZK 60,000, depending on a child's age.

Women's development program: MMB's commitment to providing fair and equal opportunities is evidenced by its engagement in women's development programs, *focusing on skill-building, leadership training, and career advancement. In* the first year, 2021, 111 female employees participated in the program, followed by 48 women in 2022 and another 106 women in 2023. *This demonstrates an effort to ensure equal conditions in the workplace.* Moreover, Respondent 1 confirms this with the following words.

"I'm really glad that within MONETA, a lot of projects are now emerging to support women.... " (2024)

Despite Respondent*'s* 17 enthusiasm, fulfilment and empowerment acquired from the training, she outlines an additional aspect vis-à-vis the women's development program.

"When the training (of the women's development program) ended, and I had a great feeling that it gave me a lot and that I wanted to work with it, that feeling was immediately cut off by the fact that I had to return to the work process." (2024)

A clear contradiction emerges when referring to the immediate shift from her positive sentiment to the reality of returning to her employment obligations. Although Respondent 17 was eager to implement the newly gained knowledge into her work processes and professional life, her work environment did not enable her to apply it to the desired extent.

These "hard" factors provide a foundation for gender equity by addressing practical challenges and creating a supportive environment for employees with diverse needs.

Soft Factors: Inclusive Culture and Supportive Communication

Beyond the tangible policies, the case study revealed the importance of "soft" factors contributing to a gender-equitable culture at MMB. These include:

Supportive communication: Interviewees highlighted a culture of open communication and support from managers and colleagues. This comprises a willingness to listen to concerns, provide mentorship, and offer assistance when needed.

At MMB, the HR department conducts a regular company survey to measure employee satisfaction. In addition to the general survey, extra feedback is collected directly from participants of specific programs at the end of each program cycle. *For instance,* Respondent 14 *appreciates the commitment and initiatives taken by HR personnel to enhance the development programs' quality and fine-tune them according to participants' needs. To illustrate this further, these training programs were transformed into a digital format* *throughout the pandemic, not to omit them from MMB's agenda entirely. After Covid-19, the format remained analogous. However, participants expressed interest in transitioning from the online environment to in-person sessions.*

“We (female participants in the development program) always give feedback at the end of each year, and HR works very actively with it to adapt the program for us.” (2024)

Furthermore, Manager 1 highlights the significance of communication between a supervisor and her employees, which plays a fundamental role in team dynamics and long-term performance. As a crucial aspect, Manager 1 emphasises mutual trust and honesty, enabling a profound comprehension of individual personal and professional objectives, such as starting a family.

“I think it's also about them not being afraid to discuss it with me as a manager.” (2024)

Information transmission is vital among managers, other departments, and colleagues, as stressed in the following statement.

“Our entire team (manager and two subordinates) actually works at 0.8 (80% of full-time), we're all three moms with two children, so we actually accommodate each other in this regard.” (Respondent 3, 2024)

When elaborating on the phrase "accommodate each other," it underscores camaraderie and mutual support among team members, enabled by proper and precise verbal interaction. By synchronising schedules and respecting each other's needs, the team fosters an environment where everyone can personally and professionally thrive.

Inclusive culture: MMB fosters an inclusive culture that values diversity and cultivates a sense of belonging for all employees. This is achieved through various initiatives, such as promoting tolerance and helpfulness in the workplace.

Respondent 3's answer includes another essential element, highlighting the significance of communication and, more importantly, a respectful attitude towards their working conditions. When mentioning "everyone knows," the interviewee signifies that their colleagues are aware of the specific working hours of the three mothers. This acknowledgement fosters an inclusive environment of understanding and support among team members, reinforcing the importance of mutual respect and collaboration.

“Moreover, everyone knows that we (three mothers with two children working part-time) work Monday through Thursday.” (2024)

These "soft" factors create a more welcoming and equitable workplace by fostering a sense of belonging, promoting open communication, and providing opportunities for professional growth.

Based on the comparative analyses and the qualitative descriptive single-case study of MMB, the article reveals which CSR activities and ESG initiatives have been implemented by "large" financial institutions operating in the CZ to eliminate gender equity disparities. The case study provides deeper insights based on 27 semi-structured interviews with company stakeholders of several layers. The research findings from the case study identify the most essential components for addressing equity disparities, which are categorised into hard and soft factors. While hard factors represent tangible policies and benefits such as flexible working arrangements, parental support, and women's development programs, soft factors comprise supportive communication and inclusive culture.

This research body provides valuable insight into combating gender equity discrepancies in financial institutions. The results furthermore align with existing literature. The findings presented in the section – Hard Factors: Tangible Policies and Benefits – are in agreement with (Azmat & Boring, 2020; Jayne & Dipboye, 2004; Stamarski & Son Hing, 2015), which highlight the significance of corporate framework and policies when addressing gender inequalities. In accordance with the present results, previous studies (Azmat & Boring, 2020; Gartzia, 2021; Stamarski & Son Hing, 2015) have demonstrated that practices described under the subchapter Soft Factors: Inclusive Culture and Supportive Communication are essential aspects of eradicating gender equity disparities.

The following recommendations are proposed based on the qualitative descriptive single-case study of MMB.

Flexible working arrangements

- Increase awareness: publish information about part-time positions through internal communication channels and employee communities on maternity/parental leave and include them in recruitment processes.
- Support men: highlight examples of men in part-time positions, offer mentoring programs, and promote active fatherhood.
- More flexible work models: consider implementing additional flexible work models, such as remote work or shared positions.
- Manager support: provide training and tools for managers to effectively lead teams with various work arrangements. Raise awareness among managers and showcase examples of teams where the coordination of multiple part-time positions works well.
- Job adaptation: analyse job positions and identify those that could be adapted for part-time work.

Childcare groups

- Cost reduction: consider reducing costs for using childcare groups, for example, through employer contributions or negotiating favourable terms with service providers.
- Expansion to other regions: if there is interest, develop collaboration with childcare groups across the CZ.

Children allowance

- Increase in allowance amount: consider regular adjustments to the allowance amount in light of rising childcare costs.
- Regional differentiation: consider the possibility of regional differentiation in the allowance amount to account for differences in childcare costs in various regions.

Women's development program

- Long-term sustainability: create a long-term strategy to support talent development. Consider establishing a community of female alumni who meet regularly and continue informal discussions about current successes and challenges.
- Feedback: continue to actively work with feedback and adapt the program content to current topics and challenges.

Supportive communication and inclusive culture

- Communication and openness in teams: create an open atmosphere where employees can safely share their family plans with supervisors, enabling managers to plan long-term better and stabilise the team.
- Manager awareness: offer training and tools for managers to lead teams with various work arrangements effectively. Raise awareness among managers and showcase examples of teams where the coordination of multiple part-time positions works well.
- Communicate successes: actively communicate the successes of employees who combine work and family, inspiring others.
- Strengthening a aulture of flexibility: further, develop a culture of flexibility and support employees in finding a balance between work and personal life.

- Advertising positions allowing part-time work**:** advertise positions with information about the type of employment to attract candidates for whom part-time work is required.

Several limitations should be noted regarding the present study. Firstly, the research is based on a descriptive single-case study focusing on only one smaller bank, MBB, whose shares can be purchased on the Prague Stock Exchange and operate solely within the CZ. In contrast, the other "large" financial institutions mentioned in the comparative analyses are branches of international banks operating across multiple European member states. Secondly, the study examines the banking sector, where European institutions have imposed more substantial pressures to eliminate gender equity disparities compared to other industries. Therefore, such an advanced approach to addressing gender discrepancies may not be observed across different sectors.

A fruitful area for further research would involve incorporating multiple financial institutions and analysing their approaches to this phenomenon. Additionally, it would be beneficial to explore diverse industries and compare outcomes across sectors. Furthermore, it would be essential not to limit the research nationally but to analyse how this issue is addressed internationally. Finally, it would be advisable to investigate additional factors such as age diversity, culture, specific abilities, and LGBTQ+ inclusion.

CONCLUSION

The study highlights two fundamental conditions essential for addressing gender inequalities. First, hard policies and frameworks such as flexible working arrangements, parental support, and women's development programs promoting gender equality must harmonise with the corporate strategies established by the board of directors and top managers. Only when this alignment is achieved can these practices be effectively integrated into a financial organisation's agenda and adopted by the HR department. This alignment forms the foundation for combating gender discrepancies.

However, merely implementing these practices is not sufficient to resolve the issue. Therefore, it is vital to consider soft factors, particularly supportive communication and an inclusive corporate culture fostered by managers. Managers play a pivotal role in shaping the standards and norms that govern departments and teams, making their attitudes toward gender equality critical in eliminating disparities. In conclusion, soft factors should not be overlooked or underestimated when designing a framework for cultivating an equitable and inclusive work environment.

ACKNOWLEDGEMENT

This paper was created as a part of a research project of the Ministry of Education, Youth and Sports of the Czech Republic, Internal Grant Agency for the term from 2025 to 2027 ("Enablers of economic growth through the framework of management in diverse workplaces").

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Title: 25th International Joint Conference Central and Eastern Europe in the Changing Business Environment : Proceedings

Published by: Vydavateľstvo EKONÓM, Bratislava University of Economics and Business
Dolnozemská cesta 1
852 35 Bratislava

Publishing year: 2025

Edition: 50 copies

ISBN 978-80-225-5225-7

ISSN 2453-6113

https://doi.org/10.53465/CEECBE.2025.9788022552257

ISBN 978-80-225-5225-7