

# Revision of Social Costs of Gambling in the Czech Republic

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**Abstract:** Calculation of social costs of gambling is a widely used analytical tool to measure (often negative) impact of consumer (gambler) behavior to society. However, this tool is very often burdened with biases, inconsistent methodology and, most of all, incompatibility with well-established and widely used economic concepts. Along with comprehensive review of different approaches to the calculation of these costs we use economic approach to revise the most influential Czech study done by Winkler et al. (2014; 2017). Using this improved approach, we were able to reduce authors' sum of social costs by 84% (from 541.6–619.6 million EUR to 88.6–99.9 million EUR), although there are still other costs that have to be taken into account for a complete picture of impacts on society. The objective of the paper is not to downplay the impact of gambling but to provide better foundations for comprehensive evaluations of its effects and suggest routes for further improvement of the analysis.

**Keywords:** Social costs, Gambling, Addiction, Consumer behavior, Public policy

**JEL Classification codes:** L83, D61, I18

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## INTRODUCTION

Together with the tobacco and alcohol industry, the gambling industry is generally a negatively perceived sector, mainly because of behavior of its consumers and its social impact. It is true that it is one of the sectors of the entertainment industry which also brings considerable amount of money to state budgets, yet it also poses a certain risk of addiction on players. Once addiction is established, (pathological) gambler's behavior affects not only himself, but also his or her family and, through associated effects, society as a whole. Since 1990s there has been an ongoing debate about an effective regulation of this social ill (see Eadington (2003)).

A very popular and widely used analytical tool to assess the impact of gambling on society is the calculation of social costs. However, these calculations often suffer from many problems, in particular fragmented methodology, inconsistent assumptions and sometimes even biased results. Another problem is that although the problem in question is predominantly of economic nature (as costs, benefits or externalities are standard economic concepts), researchers attempting to do the calculations of social costs are often addictionologists and there is a significant lack of proper *economic* calculations of social costs of gambling (Walker, 2013). Thus, even the most cited and the most influential studies in the field are overwhelmingly inconsistent or simply incorrect when it comes to using the concepts and conducting the calculations. Although economics is not the only relevant scientific discipline to study the effects of addiction, its well-established toolkit and value-free nature of its inquiry (as opposed

to addictionologists, see Eadington (2003)) make the most suitable discipline to talk about external side-effects of human behavior. Economics is also concerned with the study of the impact of various policies.

Therefore, our research represents a push towards more economically robust and meaningful calculation of the social costs of gambling. In the paper we will revise the most ambitious and influential Czech study examining such costs – study done by Winkler et al. (2014; 2017) which had a significant impact on the most important piece of regulatory legislation in the field as it was featured in explanatory memorandum of the Czech Lottery Act (Act No. 186/2016 Coll.). After comprehensive review of relevant literature and obstacles that social costs researchers are facing in part 1 of the paper, in part 2 we will introduce more consistent methodology which we will use in part 3 to correct the overall sum of social costs of gambling. We will not calculate costs ourselves, as it goes beyond the scope of this paper. Part 4 concludes the paper.

## 1. LITERATURE REVIEW

Already the very first essential point of the analysis of various authors – the definition of social costs – is problematic from an economic point of view. For example, one of the most cited studies done by Australian authors of the Productivity Commission (1999; 2010) defines social costs as “*the benefits and costs that are relevant as a basis for possible government intervention in private decisions*” (chapter 4, box 4.1). However, definitions of this kind are circular – as Eadington (2003) correctly points out, virtually any information can serve as a basis for possible government intervention. A common (and understandable) practice of researchers of the social costs of gambling is to adopt definitions and methodologies from research on the social impacts of the tobacco and alcohol industries. For example, the pioneering study by Ladoceur et al. (1994) adopted the model of economic cost of alcohol abuse by Rice et al. (1991). An often-adopted definition of the social cost of gambling is that of the social cost of smoking in Markandya and Pearce (1989): *the private cost is borne by the consumer or producer, the social cost by society*. The focus is generally on those “unconscious” costs of consumers that cause the most social costs. However, it is still a rather vague definition, which has been adopted by, among others, Collins and Lapsley (2003) in their widely cited paper. Among the Czech studies, particularly relevant is the study by Winkler et al. (2014; 2017), which was the first sophisticated attempt to identify and calculate the social costs of gambling in the Czech Republic. In their original 2014 study, which served as one of the main bases for the explanatory memorandum of the Lottery Act (Act No. 186/2016 Coll.), the authors again used a rather vague definition of social costs: *losses caused to society as a result of gambling*. Some studies (e.g. the aforementioned study by Ladoceur et al. (1994)) do not deal with the definition of social costs at all and only list the categories of costs that are then subsequently calculated. Without a much more rigorous approach that economics offers arbitrariness of the calculations cannot be avoided.

A definition of social costs that is anchored in economic theory and compatible with economic analysis has been provided by Douglas Walker (in particular in Walker and Barnett (1999) and Walker (2003)). A social cost arises when an activity results in a situation where a member of society is worse off without anyone else being better off. Walker and Barnett (1999) add that a good measure of such a cost is the transfer required to compensate the member of society who is worse-off. In his 2003 study Walker developed his definition of social cost in a microeconomic context and illustrated the example of social cost in the case of theft as described by Gordon Tullock (1967). If a thief steals an item, the value of the item is not a social cost, as its value has not disappeared from society (as it is just a transfer). The social cost could be the stress, the need to acquire a lock, the expense of acquiring a security system,

etc. This social cost can be represented, for example, by the value of unproduced goods due to the need to produce locks, security systems, etc. Furthermore, such social cost can be represented by, for example, the value of unproduced goods due to the need to produce locks, security systems, etc. (Walker, 2003)

In current literature, however, such standard economic understanding is still not the norm – the authors of social cost analyses are mostly addictionologists and other medical professionals. Their studies then suffer from this lack of appreciation of economics. Walker (2007) and Eadington (2003) point out in detail the biases that such studies suffer from. Most often, such studies suffer from biased methodology or inflated sums of resulting social costs – Walker (2007) mentions, for example, the work of Grinols and Mustard (2006) or Kindt (2001) in this context. An extreme case is the concept of *abused dollar* and *sin good*, where any activities in the context of gambling are taken a priori as harmful (see Gross (1998) and Grinols (2004)). Of course, studies can also be biased in the opposite way, underestimating the harmful effects of gambling, see e.g. Anderson (1997).

There are two more issues related to these biases and to assumptions about the social costs of gambling that are often not reflected in the addiction literature – the issue of the social benefits of gambling and the rationality of the gambler.

In terms of the social benefits of gambling, although it is a negatively-perceived industry, the gambling industry as a form of entertainment also provides benefits to society (Colins and Lapsley, 2003). The most commonly considered social benefits of gambling are consumer surplus (see e.g. Productivity Commission, (1999; 2010), Walker (2003), Rockloff et al. (2019)), labor market benefits and product variety (see Walker (2007)). The omission of calculating social benefits can be understood in the case of cost-of-illness studies – which focus more on the harmfulness of a given activity (gambling, alcohol, drugs, etc.) – but not in the case of the economic approach. This approach should assess the overall impact of an activity (e.g. through cost-benefit analysis), especially in the case of large influential studies that affect policy-making. For example, the authors of the above-mentioned Australian study done by Productivity Commission (1999) calculated social benefits however they did not take them into account in the overall evaluation, justifying by the argument, that it is impossible to compensate for the losing groups, i.e., pathological gamblers. In a similar manner Winkler et al. (2014) did not calculate social benefits at all because, in their view, the data cannot be cleaned of irrationally seeded money. One recent attempt to do so is a study by Rockloff et al. (2019) that calculated the social benefits of gambling in Tasmania. To see how misleading it can be not to include social benefits to the calculation is when we realize that some authors have even concluded that the social benefits exceed the costs, e.g., Walker and Sobel (2016), Chhabra (2016) or, paradoxically, the Productivity Commission (1999) study.

Rationality of a gambler, let alone pathological one, is a rather complex issue. Many addictionologists dismiss rationality of gamblers as implausible or unrealistic in the first place (e.g., Productivity Commission (1999; 2010), Auld and Grootendorst (2004) and also Winkler et al. (2014)). In the context of economics, this issue is not so clear-cut as there are two concepts to consider: the neoclassical concept of *homo oeconomicus* (i.e., man is a utility-maximizing individual) and the behavioral concept of *bounded rationality* (man is limited in his perception by his imperfect cognitive abilities, see for example Gigerenzer and Selten (2002)). For example, according to the Productivity Commission (1999; 2010), a pathologically addicted individual is unable to consider the “true cost” of his behavior and in such a situation authors question the concept of voluntary decision-making altogether. However, in an economic sense it would be a mistake to dismiss the rationality of gamblers, even addicted ones. (Walker and Barnett, 1999) In this context the decision to (not) participate in the game is purely rational, as it is made knowing the possible outcomes and benefits. Even in the case of the subsequent emergence of addiction, this decision was rational because risk does not automatically imply

irrationality – even in hindsight. Furthermore, as Ludwig von Mises (2006, p. 18) emphasizes, it is difficult to find scientific reasons for declaring the individual as *a priori* irrational and decide on his behalf what is best for him. Given subjectivity of utility and hence costs in economics, it is utterly impossible for an outside observer to assess true costs to the acting individual. Becker and Murphy (1988) introduced their model of rational addiction which shows that actions of addicted individual are compatible with microeconomic theory (see also Mobilia (1993)). Although this model has been criticized by the Productivity Commission (1999; 2010) and by Auld and Grootendorst (2004), it remains the most sophisticated description of addiction in purely economic terms.

Because of all these issues, the methodology for determining and calculating the social costs of gambling is highly inconsistent and often fragmented (see Wynne and Schaffer (2003)), and hence the results of individual studies are quite difficult to compare as they typically include different lists of categories (vaguely linked to the concept of social welfare) and their often problematic enumeration. Thus, the influential study by Ladoceur et al. (1994) included in the sum of social costs the costs of treatment and related services, money wagered, debts, employment effects (reduced work productivity, absenteeism, etc.), correlation with other addictions (e.g. alcoholism), and illegal activities related to the financing of gambling. The authors of the study, who were the first to come up with such calculation in the context of gambling, calculated a specific amount based on data from 60 anonymous gamblers interviewed in four Canadian cities. Another noteworthy calculation was made by Thompson et al. (1997), who included in the social costs the effects on employment (lost work hours, unemployment benefits, and lost productivity), debt, justice costs (including prosecution, arrest, incarceration, etc.), therapy costs, and government transfers. The Productivity Commission (1999; 2010) study – being the main inspiration for Winkler et al. (2014; 2017) and other authors – included financial costs (family debt and bankruptcies), effects on productivity and employment, crime (theft, lawsuits and incarceration) personal and family impacts (divorce and separation, depression, suicide) and treatment costs. Schwer et al. (2003) included virtually all of these categories in their sum of social costs. One of the more recent attempts to unify the methodology is the British study by Wardle et al. (2018).

Eadington (2003) stresses the economic approach to the issue and sets out six main issues involved in calculating the social costs of gambling: (1) it is very difficult to assess whether the impacts are solely caused by the gambling, (2) certain types of costs are very difficult to conceptualize and categorize, (3) private costs need to be distinguished from social costs, (4) in addition to the difficulty of conceptualization, these costs are difficult to measure or calculate, (5) for some costs there may be weak or non-existent methods to measure them (e.g. costs related to suicide), and finally (6) studies measuring the social costs of gambling should have a policy objective and they should compare it with the state of nature. Therefore, it is important to compare, for example, the social costs of the situation before the Lottery Act (“natural state”) and the situation after the introduction of the law.

## 2. METHODOLOGY

An economically robust methodology was proposed in the study Walker and Barnett (1999) and Walker (2007). Apart from working with correct definition of social costs and assuming rationality of (even pathological) gamblers, their methodology could be summarized by those four principles. First, the value of the monetary transfer – the mere transfer of money from one individual to another – does not count as a social cost, since society has not lost that amount. Thus, from an economic point of view, the value of the debt or the money forfeited cannot be included in the social cost category. However, it is possible to include secondary costs that would not otherwise have been incurred – e.g. the cost of collecting the debt.

Second, internalized costs cannot be considered as social costs. This eliminates often-used items such as lost productivity or lost employment – both costs are borne either by the gambler (through lower wages) or by the employer, who is in a voluntary contract with the gambler and can compensate with lower wages or by finding a new employee. Various authors include the emotional and psychological costs borne by the gambler's family but these costs are very difficult to calculate. The third principle is the distinction between technological and pecuniary externalities. Only technological externalities that reduce the ability of an entity to produce the same amount of product as before (e.g. the need for a restaurant to soundproof its windows because of a neighboring casino) should be counted as social costs. In contrast, pecuniary externalities, e.g. competitive pressure on restaurant prices caused by the casino, are a natural market process and not a social cost.

The last and most difficult problem is the evaluation of comorbidities. Comorbidities in a medical context are common causes of a given problem, which in the case of gambling can be, for example, depression. It is extremely difficult to determine the direction of causality – whether depression is to blame for gambling problems or whether gambling is to blame for depression. This problem could be illustrated by the Thompson et al. (1996) study which found out that out of the 98 Gamblers Anonymous (GA) members surveyed in Wisconsin, 30 admitted to alcoholism, 25 admitted to compulsive shopping, 22 admitted to binge eating, 14 admitted to drug problems, and four admitted to depression. Consequent research by WEFA (1997) in Connecticut produced very similar results on sample of 112 local GA members. The authors of the Productivity Commission (1999; 2010) solved this comorbidity problem for example, by simply discounting certain cost categories by a certain percentage. Walker's and Barnett's perspective was criticized by McGowan (1999) and their quite illustrative discussion is summarized by Smith and Wynne (2000).

Therefore, Walker's methodology can serve as a basis for the revision of social costs of other researchers. Walker and Barnett (1999) themselves revised the calculation of the Thompson et al. (1997) study and were able to reduce the calculated annual social cost per pathological gambler from \$9,469 to \$2,974. Moreover, according to the authors, this amount is not final, as adjustments for comorbidities would still need to be included. In the case of the study by Schwer et al. (2003) examining the social cost per pathological gambler in Las Vegas, Walker (2007) was able to reduce the social cost from \$8,207 to just \$881. Using Walker's principles, Eadington (2003) reduced the total annual social cost of gambling calculated by the Productivity Commission (1999) study from AUD 1.8–5.6 billion to less than AUD 100 million (mainly due to the high share of internalized costs).

Following this line of research, the study by Winkler et al. (2014; 2017) – mainly the more recent 2017 study – will be reviewed. This study stands as the most important and most influential attempt to calculate social costs of gambling in the Czech Republic. It is also the first such study to do so in the whole region of Central and Eastern Europe.

The underlying assumptions of the authors, the definition of social costs, the approach to rationality, and the overall consistency and compatibility with the findings of economics will be discussed in the context of aforementioned studies and perspectives. In particular, the calculations of the social costs themselves and their compatibility with an economic approach to the issue will be reviewed. Specifically, Walker's methodology described in Walker and Barnett (1999), Walker (2007) and Eadington (2003) will be applied. The four principles mentioned in Walker's studies will be used: (1) non-inclusion of transfers, (2) non-inclusion of internalized costs, (3) non-inclusion of pecuniary externalities, and (4) inclusion of comorbidities. Just as these studies have revised the calculations of previous authors, this work will result in a corrected sum of the social costs of gambling in the Czech Republic.

### 3. RESULTS AND DISCUSSION

Winkler et al. (2017) misunderstand several basic assumptions about gamblers and the gambling itself. Authors consider gambling to be a “*zero sum game*” (p. 1294), but at the same time they state that “[f]or many people, gambling is a form of entertainment”. From the technological point of view the gambling indeed is a zero-sum game (if one loses \$100 another gains \$100) but not in the economic sense. Analogically to any exchange, all participants – buyers and sellers – expect to benefit. If the transaction is voluntary (which is somewhat discussable in case of pathological gamblers, but not in case of ordinary players) it gives the player utility as a form of entertainment, the player also has consumer surplus from the game. That is true even if the player suffers a loss at the end of the day. By willingly (often repeatedly) entering the game, the player demonstrates by his actions that he values the enjoyment of the game (with the risk and pay-off involved) more than the money wagered, even knowing the possible outcome of losing. This is after all the essence and attraction of the game.

Since their 2014 study authors updated their vague definition of social costs (mentioned above) to more economically consistent form: “[...] *social costs arise only when some activity leads to society as a whole getting poorer. That is in cases where any individual or group of individuals is losing without anyone else gaining.*” (p. 1295). Yet, correct definition notwithstanding, a crucial problem arises with proper categorization of concrete types of social costs.

The authors do not explicitly discuss the rationality of gamblers, but we see another progression from the 2014 paper. In 2014 they rejected rationality quite strictly; in a more recent paper they suggest a softer approach: “*problem gamblers can be considered to behave, at least to a certain degree, irrationally*” (p. 1295).

Regarding the methodology of calculation of social costs, authors adapt the methodology of Productivity Commission (1999; 2010) – both in the choice of categories of social costs and in their calculation itself, including a very vague 20% reducing of some costs due to comorbidities.

In terms of epidemiological data, prevalence of gambling in certain groups, number of problem and pathological gamblers etc. we do not have any major objections to those. Winkler et al. collaborate with experts and cite numerous sources, quantitative researches and high-quality studies. One possible objection could be against some samples that are quite small (e.g. 20 respondents in case of people who were judicially ordered to avoid gambling), but that is widespread problem among such studies (see for example Ladouceur et al., (1994) or Schwer et al. (2003)).

Tab. 1 summarizes results and overall social costs of gambling presented by Winkler et al. (2017).

**Tab. 3 Types of social costs of gambling in the Czech Republic and their results by Winkler et al. (2017)**

<b>Type of cost</b>	<b>Estimate (thousands of EUR)</b>
<b>Costs of treatment</b>	
Treatment	1,508
<b>Financial costs</b>	
Costs of bankruptcy	3,512–4,854
<b>Costs of productivity loss</b>	
Reduced work performance	19,933–47,120
Reduced housework performance	138–326
<b>Costs of unemployment</b>	
Employee search	12,241–16,918
Job search	5,406–7,472
<b>Crime and legal costs</b>	
Police interventions	25,861–35,803
Judicial proceeding	2,051
Prison system	42,887
<b>Personal and family costs</b>	
Burden of family members	67,873
Relationships breakdowns	35,746
Divorces	34,442
Violence	14,298
Depression	1,431–5,035
Suicidal thoughts	15,597–44,580
Suicide attempts to gambler	92,603
Suicide attempts to family	72,232
Suicide attempts to parents	16,670
<b>Cost of completed suicide</b>	
Completed suicides	77,190
<b>Total</b>	<b>541,619–619,608</b>

Source: Winkler et al., 2017, own processing

### **3.1 Costs of treatment**

The first type of costs that Winkler et al. (2017) include are costs of treatment and other services. In particular, the authors multiplied average health insurance company spending by the extrapolated number of relevant gamblers. In this case, these are clear internalized costs that pathological gamblers pay themselves (or their employers) through insurance. From the

economic point of view the insurance company evaluated the risk, which included the probability of an insurance payout due to the health consequences of pathological gambling, and set an equilibrium price. This sum cannot therefore be counted as a social cost. To evaluate social costs for this category, it would be necessary to account for the non-internalized costs impacting wider society, e.g. the increase in the equilibrium price of insurance for all insured people due to pathological gambling.

### **3.2 Financial costs**

Regarding second type of social costs – financial costs – Winkler et al. correctly assumed that gamblers' expenditures are transfers and therefore not social costs. Regarding secondary costs authors multiplied fees for judicial proceedings by relevant number of bankrupted gamblers. The calculation is correct – average administrative fee is multiplied by estimated number of relevant gamblers. Unfortunately, authors were not able to find data to calculate costs of unsuccessful distraints, which would be another important addition to the sum of social costs.

### **3.3 Costs of productivity losses**

Winkler et al. multiplied the estimate of the percentage reduction in productivity by the number of gamblers affected and the average wage. In the case of household productivity, the authors took the estimate to be two-thirds lower than work productivity. However, those are again internalized costs. Gamblers who go to work less (or not at all), or lose this productivity at home, bear this loss themselves through lower wages, or through layoffs and unemployment. We have three further objections to the authors' calculation – firstly, it is debatable whether pathological gamblers earn the average wage and whether isn't better to use the median wage. The second criticism is the thoughtless adoption of the assumption by the authors of the Productivity Commission (1999) that household productivity is comparable to one-third of labor productivity. Not only is this figure almost 20 years old at the time of writing, but it is very much country-specific. And finally, in this case the issue of comorbidities is highly relevant. For example, if someone suffers from gambling-related depression, it is very difficult to say how much of the problem is gambling and how much is depression.

### **3.4 Costs of unemployment**

In this case Winkler et al. multiplied cost of finding new employee (or job) by number of relevant job losses (or job changes). As in the case of loss of productivity, these costs are in fact again internalized. In the case of cost of gambler finding a new job, it is quite evident, that these costs are borne by the gambler. Also internalized are the cost of finding a new employee – these costs are a risk that the employer takes and optimizes. Neither item is therefore part of the social costs. Moreover, the actual costs calculated by Winkler et al. are greatly exaggerated – the authors cite the Productivity Commission (1999), when, among others, the internet was not yet widespread, which can realistically be expected to dramatically reduce the cost of finding both a job and an employee. At the same time, it can be considered that in a period when it is difficult to find employees, it will be easy to find jobs and vice versa, so these two effects will complement each other. And again, the case of comorbidities is relevant here.

### 3.5 Crime and legal costs

Crime and legal costs seem to be mostly correct. The authors have included the costs of courts (costs of proceedings times cases relevant to gambling), police interventions (unit costs times cases relevant to gambling) and imprisonment of people who have committed gambling-related crimes (average daily cost of prison times relevant prisoners time 365) as a social cost. Unfortunately, because of data unavailability, the authors were not able to calculate the portion of costs attributable to the prevention of gambling-related crimes (most often non-violent crimes). Another problem is that some of the costs of imprisonment that the authors have calculated are paid by the prisoners themselves. (Vězeňská služba České republiky, 2022) This average amount multiplied by the number of relevant gambling prisoners should therefore be deducted from the social cost as it is an internalized cost.

### 3.6 Personal and family costs

By far the most problematic types of costs are the last two – personal and family costs and cost of completed suicides. Specifically, the authors calculate emotional costs for immediate family and for the parents, relationship breakdown, divorce or separation (even though the Czech legal system has no such concept at all), violence, depression and cost of attempted suicide for the gambler, immediate family and parents. In general Winkler et al. simply multiplied the specific unit cost (taken from Productivity Commission studies) by estimated number of relevant gamblers. In these categories (including completed suicides), the authors included comorbidities in the calculation and, like the Productivity Commission authors, subtracted 20% from costs.

Two major issues regarding economic approach are problematic adoption of practices and results from abroad and internalized costs. Authors simply used personal and family unit costs published in Australian study, and then convert it from AUD to EUR (adjusted to Czech GDP per capita and to inflation by PPP). In their original 2014 study, Winkler et al. acknowledged the methodological problems and argued that the Australian study provides the most appropriate method to use. Authors even mentioned the fact that Australian costs may not be the same or similar to Czech costs. However, these items make up the vast majority of the total estimated social costs (74–79%) and are inherently highly sensitive and problematic, so emphasis on credible calculation is key. Moreover, most of these are internalized costs.

Out of all the personal and family costs presented by Winkler et al. only one is admittedly correct in the context of economic approach – costs of violence calculated by multiplication of number of relevant violent crimes and unit cost of such event (comorbidity-adjusted). Other costs are problematic. Firstly, in the case of costs affecting the gambler itself (depression, suicidal thoughts and suicide attempts affecting the gambler), those are purely internalized costs and not permissible as social costs. Second, in the case of the life partner and parents of gambler, although this topic is extremely sensitive, in economic sense, life partner is in voluntary relationship with gambler (see Walker and Barnett (1999) or Manning et al. (1991)). Therefore, costs of relationship breakdown, divorce or separation, emotional costs for the parents and attempted suicide for the parents are again not permissible, because parents could again be considered to be in voluntary relationship with the gambler. The only case in which we would consider relevant social costs are underage children, as they cannot be considered to be in voluntary relationship.

Thus, the task for addictionologist experts would be to determine the portion of the remaining type of costs (burden of family members and attempted suicide for the immediate family) attributable to children. Such estimation is indeed extremely problematic not only in practice, but also philosophically, because such items are quite difficult to grasp. The authors should

have at least tried to adjust the quantified items to Czech conditions or at least explain why for example cost of attempted suicide bore by the immediate family is the same size as the cost of divorce. These data are also adjusted for comorbidities, which is correct, but again, it would be beneficial to at least try to find a specific percentage reduction for Czech conditions. Especially in the case of suicide attempts, comorbidity (e.g. depression) is a huge problem, so it is not sensible to give those comorbidities the same weight as for example in the case of relationship breakdown.

### **3.7 Costs of completed suicides**

Winkler et al. decided to include costs of *completed* suicides into their calculation of social costs of gambling (by multiplying cost of male and female suicides by estimated number of relevant cases), despite the fact that the authors of the Productivity Commission did not include them in their analysis. There are multiple problems with this. First, it is extremely difficult – philosophically, let alone practically – to estimate the cost of ending a human life. Authors again adopted the unit cost (1.4–1.6 million EUR) from another study, this time from Ireland, which again shows lack of sophisticated methodology. If we venture onto such thin ice – can it be argued that all people are worth the same in an economic context? Even some gamblers who e.g. have lower market output, are violent towards their surroundings, financially drain their family, etc.? We are not arguing that they are or are not, only that these are the issues that the authors need to discuss if they go ahead with the calculation. Second, regarding the number of such suicides, authors again adopted very vague methodology, in particular, that Australian gamblers are 5–10 times more likely to commit suicides than regular population. It is very questionable whether this number can be transferred to Czech conditions – especially when authors also showed, that Czech registers exhibited higher number (7% of discharged treated gamblers committed suicides within a year). Third, the comorbidity problem is hugely important here, it is highly unrealistic that only 20% of gamblers (same amount as in other categories) who committed suicide did not have any more underlying problems present. And finally, the most important objection – in economic sense completed suicides are again internalized costs for which the gambler himself bears the consequences (again with the exception of the effect on underage children). Therefore, the only permissible social cost in this category is the impact of suicides on underage children of the gambler.

In Tab. 2 we present the results in the form of a table of corrected categories of social costs of gambling.

**Tab. 4 Corrected social costs of gambling in the Czech Republic**

Type of cost	Estimate (thousands of EUR)	Notes
<b>Costs of treatment</b>		
Treatment	0	Internalized costs, need to add costs of raising equilibrium price of insurance for all people insured
<b>Financial costs</b>		
Costs of bankruptcy	3,512–4,854	Need to add costs of unsuccessful distrains
<b>Costs of productivity loss</b>		
Reduced work performance	0	Internalized costs
Reduced housework performance	0	Internalized costs
<b>Costs of unemployment</b>		
Employee search	0	Internalized costs
Job search	0	Internalized costs
<b>Crime and legal costs</b>		
Police interventions	25,861–35,803	Need to add costs of prevention of gambling-related crimes
Judicial proceeding	2,051	
Prison system	42,887	Need to subtract the costs that gamblers pay themselves
<b>Personal and family costs</b>		
Burden of family members	0	Internalized costs, need to add costs attributable to underage children
Relationships breakdowns	0	Internalized costs
Divorces	0	Internalized costs
Violence	14,298	
Depression	0	Internalized costs
Suicidal thoughts	0	Internalized costs
Suicide attempts to gambler	0	Internalized costs
Suicide attempts to family	0	Internalized costs, need to add costs attributable to underage children
Suicide attempts to parents	0	Internalized costs
<b>Cost of completed suicide</b>		
Completed suicides	0	Internalized costs, need to add costs attributable to underage children
<b>Total</b>	<b>88,609–99,893</b>	

Source: own processing

## CONCLUSION

Using the aforementioned economic approach to calculating the social costs of gambling (developed primarily by Walker and Barnett (1999) and Walker (2007)), we recalculated the sum of the social costs of the study done by Winkler et al. (2014; 2017). Mainly by accounting for internalized costs we were able to reduce the overall estimate of social costs by 84% (from 541.6–619.6 million EUR to 88.6–99.9 million EUR). However, our estimate represents only the lower bound of the social costs, as the costs of unsuccessful restraints, costs of crime prevention and emotional costs attributed to underage children of the gambler needs to be added. The calculation of these items is beyond the scope of this paper and may present an opportunity for follow-up research.

Even though Winkler et al. worked with high-quality epidemiological data and followed relevant studies, their approach lacks methodological consistency and extensively relies on the results and methods of foreign studies. Unfortunately, many of those methods and results do not necessarily fit the Czech realities. The resulting sum of social costs which they come up with is therefore vastly misleading. In addition, a cost-of-illness study is not suitable for a comprehensive assessment of the impact of gambling on society, as the social benefits, which Winkler et al. refused to calculate, need to be included in the calculation. However, this is rather a mistake of the Czech legislators who cited this type of study in the explanatory memorandum of the Lottery Act.

The Winkler et al. study demonstrates the need for complementing medical and epidemiological knowledge with the findings of economics, especially when it comes to dealings with costs, benefits or risk, i.e. categories connected to human action which economics has been studied for centuries. For future research we propose those areas where the use of economics could be particularly fruitful: to refine both the methodology and the calculation of the social costs and benefits of gambling itself, to establish methods and factors specific to social cost analysis in the Czech Republic, and to evaluate public policies or policy proposals designed to respond to gambling and other addictions.

Although our results showed drastic reduction of social costs, we do not want to downplay the issue of pathological gambling in the Czech Republic. The effects of gambling addiction extend to hundreds of thousands of Czechs (see Mravčík et al. (2021)) and their families, friends and communities. However, the solution of this problem does not lie in estimating excessive inconsistent social costs and by ignoring economics, but rather by methodical and multidisciplinary analysis of a specific problem at a specific location.

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