

Problem gambling –
a behavioral-economic approach

Statements of the PhD thesis

Tessényi Judit

UNIVERSITY OF SZEGED
FACULTY OF ECONOMICS AND BUSINESS ADMINISTRATION
DOCTORAL SCHOOL IN ECONOMICS
ECONOMIC PSYCHOLOGICAL WORKSHOP



Supervisors

Prof. Dr. Hámori Balázs
senior professor

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Table of Content

1. Foreword	2
1.1. The objective, the aspects of writing	2
1.2. Justification of the topic.....	3
2. Introduction	6
3. Experimental and / or computational methods	7
4. Results	8
5. Theses	9
6. Application opportunity	13
Main publications in the topic of the dissertation	15
<i>References</i>	16

1. Foreword

1.1. The objective, the aspects of writing

In my paper, I tried to highlight the problematics of problem gambling from various points of view. I have sought to apply economic and psychological examination methods at all times. Since the technical literature is continuously growing, I have tried to take into consideration the newest research results up to the moment of closure. I have expanded the theoretical dissertation with personal investigations in each subchapter, which were established on primary and secondary data sources depending on the topic. The objective of my paper is the introduction and examination of gambling behaviour - appearing as a harmful passion.

It has been far from the thinking of economists to consider the economic characters' inner, psychical processes as a factor (Friedman 1986). In my paper I undertook the introduction and investigation of a research theme, which - openly or covertly - touches upon this issue, that is I attempted to explore the economic-psychological aspects of the issue of problem gambling. The human image of neoclassical economy applied the simplification that the consumers should decide and

implement their economic transactions perfectly according to rational preferences and without any uncertainty (Jolls 1998).

According to my point of view, the study of *problem gambling player* is possible as a temporally dynamic, but inconsistent decision instead of a line of static decisions. This research topic is suitable for the examination of what would happen if the consumer would not behave consistently regarding the implementation of his or her economic transactions. In my research - besides the examination of abnormal behavior patterns related to gambling - I have focused on trust and the role of emotions, in respect of gambling game and the formation of problem gambling.

1.2. Justification of the topic

If we would like to understand what kind of problematic phenomena are related to the organization and activity of gambling, the first and most fundamental question is the number of gambling addicts. After the introduction of the *earlier theories*, of experiments and models examining gambling, I have undertaken the exposition of *questions* concerning *emotions*, *responsibility*, *externalities* and *prevention*. Into the scope of my investigation the question of *trust* also got included, and during the processing of earlier research results I drew the conclusion that Internet sales and gambling market increased less than expected, and it is due - among others - to the lack of trust towards the sales channel. I do not agree with the standpoint that the *corporate social responsibility* is difficult to attune with the requirement of profit orientation, but unfortunately we frequently meet with the PR (marketing) approach of the question in practice. I have elaborated and I introduce a concrete method which can be applied in practice as well in the predictive analytical chapter to recognize *prevention* and problem gambling in time.

Nowadays, problem gambling are spreading more and more in Hungary and in other parts of the world as well. As a consequence, the number of people struggling with gambling is growing dynamically, too. In my paper, I study the number of involved persons, and the measurement methods, which offer possibility to accurately

determine this. The detection of emotions' role has been only addressed by economists recently (Mérő, 2010) but it greatly helps to understand the motivation of addictions. Similarly, *attitude investigations* are important elements for the recognition of players' gambling addicts, my examinations referring to this are also contained by the paper.

I studied the connection between crime and problem gambling¹ as well, on the basis of a data survey performed between December 2009 and March 2010 in three penal institutions (in Tököl, Kecskemét and Szeged) in which I examined the gaming habits, demographic characteristics and the relations of these regarding 140 inmates right before going into prison.² According to my best knowledge a statistical investigation of this nature has not been prepared in Hungarian penal institutions yet.

The phenomenon of problem gambling can be taken a look from a social context as well and we can find a number of such consequences which I classified into the topic of *externalities* (Chapter 7). Some of the budget items discussed here cannot be strictly considered as an externality (e.g. taxation) but the logical process of the discussion justified its examination within this subchapter. "Gambling is the source of negative externalities³" (Grinols, 2004; pp. 25) according to the well-known American economist. Due to his established model, the accounted costs and benefits lead to a different result in case of the Hungarian adaptation. While in America the casino industry and the gambling game organization are being realized⁴ within completely different industry regulation frames, in our case we calculate with the consequences less conceptually.

The significant differences measured in the given countries regarding the number of game addicts can be traced back to several factors. For example prevention measures or the inclusion of research results to the given health policy. A fundamentally

1 We can talk about addiction in the case if besides the inability to control, withdrawal symptoms appear (Zacher, 2012), and the individual's behavior is influenced in its normal way of life.

2 We performed the examination analysis together with Péter Kovács, M.D. And published it within the Statistical Review.

3 The negative externality is such a damaging externality which is caused by a company or a household to other companies or households and in which transaction the market prices do not compensate the caused damage (Grinols, 2004; Page 25).

4 Nowadays, tax-free gambling game is the most important or sometimes the only income source for several Native American tribes. Reservations, however, do not enjoy an offshore status on the Internet: the maintenance of virtual gaming houses in the territory of the United States is forbidden for now.

determining factor however is *legal frame system*, which specifies the conditions for organizing gambling and the authorization procedure. From the perspective of my investigations, the introduction and brief study of legal environment and condition system was inevitable. In most EU member states the excessive spread of gambling was limited - or at least it was not supported - with that they strictly regulated the types and accessibility of these services.

This was true for casinos as well and for gaming machines in bars and gaming arcades, as for betting and for gambling. The authorities and the legislators were aware of that gambling could have a number of further harmful social effects as well, for example organized crime, money laundering, usury, the appearance of counterfeiting and tax evasion, so they created such regulations which would help to force these to transparent operation and easy verifiability, and would only authorize the operation of such companies in a limited number. In the spirit of this, the authorities usually strictly limit who can work to such companies, where the activity can be performed and what kind of services can be offered. In the future, the question of problem gambling will become a central question more and more in the regulation⁵ of the sector. In order to ensure their efficient operation, the laws and the market limiting measures' necessity will have to be reinforced by investigations, but unfortunately this territory has not received proper attention from the scientific society yet, and relatively a small number of investigations were performed in the topic despite that a growing amount of literature (prepared mostly in Anglo-Saxon language territories (in the United States, in Canada, in Australia, in New Zealand and in the United Kingdom) is at disposal.

The majority of addicted people know that they would need to refrain from the immoderate consumption of the subject of the addiction and which activity is appropriate or not. Because of something however, they are still unable to act accordingly to their personal preferences which they confessed openly. "Habit is the entrance to addiction." although habit can be an expedient thing until it helps people in everyday life, it can facilitate routine decisions and it does not do harm (Zacher, 2012).

5 The concrete manifestations of this in Hungary can be already experienced at the end of 2012, with the prohibition of gaming machines and with the regulation of on-line gambling.

2. Introduction

Since I have been working for Szerencsejáték ZRT for 16 years, I faced the problem in the lotteries. During my observations I faced the dissimilarities regarding the danger of certain kinds of games and with the role of emotions in the formation⁶ of problem gambling. I would have liked to support with personal research results the size and the nature of the problem, for which first I had to study the measurement tools.

Besides this, I was a member in the project called upon to gain the title of Responsible Game Organizer of my employer, which highlighted the responsibility and possibilities of the gambling game organizer (I write about this in detail in Chapter 8). In my paper, I attempt to introduce the question, why are the problematics of problem gambling actual and why is it worth to examine this topic a joint psychological and economic basis.

In the Hungarian literature, Zsolt Demetrovics and his co-authors, and prior to him, Attila Németh, M.D. published - with regards to psychological context - about problem gambling. To this day a number of papers and dissertations were created, mostly from the science territory of psychology. The problem and the increase of involved persons' number arose the interest of researchers as well and on different kinds of professional conferences we can frequently meet problem gambling. If we take a look on the international literature, we can meet publications of earlier dates both regarding the reference of segmentation and measurement, but in these questions, psychologists are at the forefront as well. We may consider Grinols' American efficiency study (2004) a piece with an economic aspect as well, since due to its result the author came to the conclusion that in total, gambling causes more damage and higher budget expenditure in the USA than the amount of profit gained through taxes. The rational decision theoretical works explain the causes of certain addictions - of gambling addiction as well - with predilection (Tahler, 1981, Varian, 2005, Becker and Murphy, 1988), while

⁶ Among the products of Szerencsejáték ZRT we may find such (lottery ticket, tippmix, Puttó) which cause the formation of problem gambling in case of sensitive customers. It is without doubt that the characteristics of the game (for example the speed, winning chance, the size of the prize, visual impulses, etc) influence the probability of becoming addicted to a great extent.

as the example of dynamic inconsistencies, Loewenstein and Prelec (2003) dealt with gambling players for the first time. Regarding the joining of the two science disciplines, the work of Matthew Rabin and Botond Kőszegi was prominent (2008). In a given sub chapter, I processed and referenced those scientific articles which were closely connected with my concrete research question. Among them I would like to underline Andrade and Iyer's 2007 experiments, and Oh and Hsu's attitude investigation results (2001), which I have dealt with in detail.

I tried to expand Wildman's and Chevalier's model (2002) with the introduction of danger level according to the dimension of time and the game. For the latter I tried to introduce two examination methods (Chapter 9.7.) which I have compared with each other as well.

3. Experimental and computational methods

"Becker and Murphy's "rational addiction" (rational addiction) model is an elegant example of what depth can the creative application of neoclassical inventory can grasp the above problem. According to our later detailed point of view, this approach is logical and consistent, empirical evidences support it as well, but it is only able to render a narrow territory of the phenomenon. (Lippai, 2008)

For the examination of the emotions' role, first, I applied GA's⁷ 20 test. Out of the occurring questions (20), 8 are related to emotions. I studied the answers referring to the emotions of characters categorized into the endangered and the problematic, one by one. For another sample - for more than 500 person, I managed to apply the test elaborated by the Harvard Medical School. I completed this survey with the applicants and training participants visiting my company, investigating if in other countries or in Hungary, the occurrence frequency measured by other organizations is to what extent correct.

I studied the attitudes of players with the application of the Attitudes Towards Gambling Scale (Orford and partners, 2007). To achieve this, I have asked customers entering lotteries. I compared my examined sample with the earlier (2007 and 2010) British research results. I determined that the attitudes of gambling - at least besides the

⁷ Gamblers Anonymous

use of this measurement tool - are positive and a significant difference can be measured between the certain age groups.

Before the formulation of the concept referring to prevention - with expert interviews - I was curious about the opinion of the profession's most well-known and most outstanding addiction experts and psychologists. In 2012, on behalf of Szerencsejáték ZRT, Kutatópont (Research Institute) performed expert interviews as well, regarding which I executed the content analysis of the uncut protocols in Chapter 9.6.2.. For a more thorough recognition of responsible game organization and legal environment I collected data from the experts of Szerencsejáték Zrt. (Beatrix Zelei, Hajnalka Rásó).

4. Results

According to my hopes, as regards to the synthesis, and to the exposition of the problem area's certain partial questions, I managed to highlight several aspects of problem gambling, and support the given hypothesis with concrete data.

I tried to get to social influences by expanding the economic-psychological references of problem gambling addiction, from individual consequences towards environmental effects. I expanded the base model with the time factor and the given gambling type's level of danger and with the introduction of their differences.

Following this, I presented the social level impact and the possibility and necessity of prevention and prediction. According to my starting hypothesis, emotions have a determining significance regarding the formation of problem gambling.

We may summarize the main questions of my investigation, with taking the above into consideration, in the following hypotheses:

*H1: **Excitement** essentially influences the pursue of gambling, it plays a rule in the formation of problem gambling.*

H2: The underage and the elder generation are increasingly exposed to the danger of problem gambling.

*H3: A significant relation can be found between problem gambling and the causes of committing certain **criminal acts**.*

It was also my research question during the examination performed within the prisons, if one is motivated to committing crimes by problem gambling and does family environment have a role regarding the formation of problem gambling? I have also examined if the gambler knows about him or herself that he or she is addicted?

H4: In case of gambling addicts their emotions show a greater difference compared to normal players that is the emotional attitude towards gambling helps to draw a conclusion to the behaviour of the problematic gambling player (or its expected formation).

H5: The gambling player attitude is positive and it is different according to age groups.

H6: According to my assumption, the sum spent in a single transaction is higher in the case of addicted people and a relation can be shown between the type of the game and the frequency of returns.

It is a further hypothesis of mine (H7) is that family relations and sociological circumstances have a role in the formation of problem gambling.

5. Theses

Problem gambling is an ideal theme for the interpretation, introduction of inter temporal consumer decisions. The dynamic inconsistent decisions - in our case the excessive gambling - may represent by what other preference organization does a limited rationally acting man work, even in a way that is destructive to him or herself or to his or her environment. This can be modelled in several ways.

The research - besides the nascent social damage - is justified by the salience of responsible company behavior. My measurement results related to the frequency of problem gambling show a somewhat higher prevalence than the earlier Hungarian investigations. I examined the manifestation of problem gambling's given stages with two well-known and frequently applied measurement techniques on a 506 and a 511 person large sample, and I found, the results of my investigation differ from the result of earlier national surveys.

Although gambling is frequently accompanied by other psychiatric diseases (e.g. depression) or other addictive diseases (e.g. drinking addiction) it usually does not

accompany violence. In the last few years problem gambling and the sum spent on it increased simultaneously. If money runs out from legal sources and players still proceed to play compulsively, then they may start to use less desirable instruments, which could include the application of violent methods as well.

With the investigation performed in the prison (N=140 persons) my goal was to call attention to one of the possible consequence of problem gambling: that is pathological gambling may lead to imprisonment as well - as *the root cause of criminal offenses* committed against the economy and life. I assume - within the knowledge of international prison investigation results - that *gambling addiction manifestation of pathological amount is higher among the imprisoned than in a normal population.*

Among my initial hypotheses it was included that other addictive problems (drug, drinking) were increasingly present among the imprisoned.

I have also examined if regarding the committing of determined types of criminal offenses, problem gambling plays a role or not. In the sample examined within the prison research, 36% of the questioned people proved to be a pathological gamblers and another 31.2% proved to be endangered. These results on one part were in harmony with the results measured by international investigations in prisons, on the other hand they pose the question, to what measure are the answers of imprisoned are reliable or attributable to the “extra attention” (“they finally got some attention from someone”)⁸?

I have determined that a significant connection can be found between problem gambling and the causes of committing certain criminal acts, and that family relations and sociological circumstances have a role in the formation of problem gambling. From the investigation of the relation between robbery and problem gambling, it was discovered that those who were not imprisoned because of robbery, the individuals were rather not addicts, that is the proportion of imprisonment for robbery is significantly higher among gambling addicts.

8 The problem with similar surveys is usually that when people are asked about their habits a significant part of them does not reply accordingly to reality. The cause of this can be shame or that they themselves are not aware of their habits and of the influence to their lives. For example according to an Australian survey, 30% of former problem gambling patients told that if they would have been asked about game during their “disease” they would have lied about their habits related to it.

86.4% were aware of their problem in the above sample (the person is aware and there is an addiction). 35.7% declared that they are not addicts while they were actually yes.

The generations of the under aged and the elder are increasingly exposed to the danger of the formation of problem gambling, they are primarily over-represented in the “transitional” *endangered category*.

Games by and large are a distinguished way of entertainment, ritual, utilizing free time and freely spendable incomes for most of the players. However, in case of a measurable layer it *causes significant damage* (suicide, commission of crime, existential come-down, other addictions – e.g. drinking addiction -, etc.). This kind of damage can be accounted on an individual, environmental (family) and on social level as well – I summarized the externalities into a model in Chapter 7. During the formation of this on one part I synthesized Grinold’s cost-profit model, on the other hand the „Socio-Economic Impact of Gambling (SEIG) Framework”⁹ (Anielski and Braaten, 2008) standard. Since the former one concentrates on the American (USA) casino market, the latter one on the Canadian gambling industry, only following a significant adaptation can we conclude about the social and economic effects of Hungarian gambling. On the Hungarian gambling market, the casinos are only present in a limited number, so the number of regular visitors is much more moderate, so in respect of social effects the arising addiction problem does not mean any essential (although it has to be treated on an organizational level). The same must be told about the national significance of sweepstakes, too. The situation with illegal games (e.g. poker) is completely different and in respect of Internet games and betting. I limited our investigation scope because of the above reasons to *traditional gambling*¹⁰ and to their effects.

9 The SEIG Framework is a measurement and evaluation method. It can be applied widely for the evaluation of gambling industry’s influence and in respect of the individual and the society. The SEIG frame is interdisciplinary and complex, is of wide range and it is an integrated systematic approach to measure the effect of gambling game. It applies relevant analytical tools, starting from quantitative and qualitative research methods to traditional economic analytical tools. Besides this, it applies such new (social welfare economic) analytical tools, which could help the objective understanding of legalized gambling game (Anielski and Braaten, 2008).

10 Regarding this, I consider the product portfolio of the state game organizer (Szerencsejáték ZRT) and the world of gaming machines.

The question of state protection considering endangered social groups in case of gambling gains a greater emphasis in parallel with the development of technology. The possibility for the formation of problem, gambling is a growing problem nowadays due to the spreading of games pursued on the Internet, through mobile phones or an interactive television. Since these game modes are continuously accessible and can be pursued in a relatively comfortable way, in certain cases they tempt on an extreme game, mostly if they can be played with big bets and for great prizes.

Among the emotions, I have undertaken *the demonstration of the role of excitement* - in the Gambler Anonymus test containing 20 questions, the number of positive answers referring to emotions are four times more frequent in case of an addicted, like in the case of non-problematic players.

I have demonstrated with the identification of players and *the ongoing evaluation of their behavior*: the increase of the frequency of return, the played game types and the sum spent during a purchase are three such parameters, whose connection would offer us a conclusion about the player's becoming endangered or addicted, and we can identify the key clients as well, that is the core players (Chapter 9).

Predictive analytics means such statistic models and other empirical methods which aim at the creation of empirical predictions, and strive to achieve the quality evaluation of methods, the practical applicability of predictions, that is on predicitive ability (Shmueli and Koppius, 2011). Regardless of the base criterium of the practical utility, predictive analytics play an important role in scientific theory, in the testing of hypotheses and the examination of relevance. Because of this they are indispensable parts of scientific research (Kaplan, 1964, Dubin, 1969).

We perform¹¹ a client value calculation with RFM analysis. With the help of the procedure, one can conclude for example, about who can be the key clients of the given company, who can form the dropping out clients, or one can gain extra information about the reaction of certain clients to a purchase or promotion campaign (Chang and

11 Jointly with Klára Kazár

colleagues, 2011). The method orders an RFM point for each customer, it is able to manage transaction based data table or to generate a client based table from it. The first digit of the RFM point relates to the actuality of the client (R - Recency), the second to frequency (F - Frequency) and the third to the monetary value of the client (M – Monetary) (Bose and Chen, 2009).

6. Application opportunity

In my paper I have taken some concrete - internationally applied- measurement tools, which in Hungarian language so far were not - or only partially were - accessible.

By calling attention to the committing of crimes, I would have liked to highlight the possibility of treatment in penal institutions and the necessity of preventive measures. By the exposition of the topic of trust-distrust (Chapter 8), I could offer explanation and a solution possibility primarily for the game organizer in planning the marketing communication of on-line gambling and traditional product sales.

It is an important step for the responsible organization of gambling game to elaborate joint direction guidelines and programs, and that the government and the experts could perform efficient consumer protection initiatives. These initiatives aim the minimizing of negative consequences. The three sides (regulation institutions, research institutions, gambling game organizers) must co-operate in order to achieve that the “fourth side” - the player would not be exposed to the danger to the smallest proportion that the simple entertainment would maim and cripple him or her and his or her family for a lifetime.

Further investigation opportunity is hidden within the more detailed study of differences between genders and in the introduction of relations found in this. Similarly, the study of the connection between Internet addiction and problem gambling, like the examination of occasional addictions related to Internet games, requires an independent work. According to my opinion the limits between Internet addiction and problem gambling are more and more obscure, due to that a significant proportion of Internet addicts show an abnormal behavior within its game on the computer.

In respect of the prevention programs, their efficiency could be examined, along with the performance evaluation of certain applied methods. Today, the majority of experts judges that there is no unified prevention program and due to this the recess of this would be the best way to start the work prior to the evaluation.

With the prohibition of gaming machines, at the end of 2012, the reactions of gambling game addicts, the financial implications and the realignment of gambling game market offer new research directions.

Main publications in the topic of the dissertation

where	when	with	title
Statisztikai Szemle 2011. 89.évf. 4. szám	2011	dr. Kovács Péter	Szerencsejáték- függőség és bűnözés
Vezetéstudomány 42. kötet 2011.	2011		Dinamikus következetlenségek és az érzelmek szerepe a szerencsejátékokban
konferencia kötet SZTE (Taylor)	2011		Felelős vállalati magatartás a Szerencsejáték ZRT-nél
MOK konferencia kötet	2011 Pécs		Felelős játékszervezés, mint a felelős vállalati magatartás specifikuma
Társadalomkutatás	2012		A szerencsejáték externális hatásai
Statisztikai Szemle 2012. 90.évf. 7-8.sz.	2012	Kazár Klára	Szerencsejáték vásárlási szokások vizsgálata prediktív analitika segítségével Felelős vállalati magatartás a
Köz-Gazdaság 2013/2. 183- 191. oldal	2012		Szerencsejáték ZRT-nél Az érzelmek
rekreacio.eu	2012		szerepe a szerencsejátékokban

Önálló kötet: Szabaduljon meg a játékszenvedélytől – kézikönyv az önálló felépüléshez (2011)

Society and Economy: Measuring and Filtering of the Gambling Problems

13 th Research Forum on Economic Psychology: Slot Machines and online gambling, legal and illegal gambling actors in Hungary

Addiktológia: A játékszenvedély prevenciójának nemzetközi gyakorlata és a magyar szakértői vélemények szintézise

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