The case for State Lotteries

A report for the
European Lotteries
and Toto Association

FINAL REPORT

London Economics

September 2006

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Glossary

The terminology used to describe the economic aspects of gambling activities is not standardised. This glossary provides the definition of the gaming terms used in this report.

The gaming market

All forms of recorded gambling activities. For the purposes of this report, we classify the gaming market into four broad categories: State lotteries, betting and bingo (including small lotteries), casinos, and slot machines.

State lotteries

These are enterprises that have a licence from the State to provide lottery games. In some countries, the State lottery operator may also have the rights to provide other gaming activities, such as pools betting. A distinguishing feature of state lotteries is that they are required to give a certain share of their revenues to good causes.

For-profit operators

In contrast to State lotteries, these gaming service providers do not have to give a mandated share of their revenues to good causes. However, they do contribute tax revenues out of their gross gaming revenue. They also generally face lighter regulation than the State lottery operators. The type of games provided by for-profit operators varies across countries, but can include betting, casinos and slot machines.

Expenditure/Turnover

The value of stakes placed by consumers on games, before any prizes have been paid out.

Gross Gaming Revenue (GGR)/Gross Gaming Expenditure (GGE)

The income received by gaming enterprises, after prize payouts have been made.

Contributions to good causes

These are payments which are made to recipients for the benefit of society. These include direct contributions, and indirect contributions made via the State. Taxes paid to the State are also included.

Executive Summary

- This report documents the special place occupied by State lotteries and totos in the European gaming market. It highlights the negative impact full liberalisation of the European gaming sector would have, by allowing for unfettered cross-border provision of gaming services.

- In the first section, the report reminds the reader that the European Court has repeatedly recognised the right of Member States to restrict the supply of gaming for social reasons, provided the measures are proportionate to the objectives pursued.

- State control of gaming activities typically aims to satisfy the demand for gaming in a measured and controlled manner while avoiding or limiting to the greatest extent possible the negative economic and social consequences typically associated with gaming, including fraud, crime and corruption.

- The common view nowadays is that, on balance, gaming can make a positive contribution to economic development provided proper government regulations are in place to ensure that the gaming industry is run responsibly and social harms are minimised.

- In the report, we focus on gaming expenditures, or the total amount staked by players. This is equal to the gross gaming revenues accruing to the gaming service providers and the winnings paid out to players.

- Our review of the EU25 gaming market suggests that, in 2004, total expenditures on gaming stood at €290 billion or 2.8% of EU25-wide GDP. The five largest markets (UK, France, Germany, Spain and Italy) account for about 75% of the EU25 gaming expenditures. It is important to note that these estimates do not take into account any grey or illegal gaming.

- Per-capita spending on gaming varies greatly across the EU25, ranging from €20 in 2004 in Lithuania to €1,900 in Austria. The average across the EU was €630 in 2004.

- A statistical analysis of the key determinants of the differences in per-capita expenditures on gaming shows that the level of such spending is both a function of income and societal attitudes towards gaming.

- A 1% increase in GDP per capita is associated with an increase of 1.1% in gaming expenditures, while an increase in the share of non-lottery expenditures in total gaming expenditures (a proxy for societal attitudes towards gaming) is associated with an increase of 3.3% in total gaming expenditures.

- The review of the type of non-lottery gaming allowed in each Member State and the regulatory regime of such gaming shows a great deal of

diversity in the EU25, with no particular approach or pattern emerging as clearly dominant.

- The total expenditure on lotteries in the EU25 (excluding Malta) was €63 billion in 2004. This represents a 22% share of the gaming market. The market share of lotteries varies markedly across Member States in the EU25, ranging from a low of less than 1% in Latvia to a high of 58% in Italy in 2004.

- The level of spending, on a per capita basis, on lotteries also varies markedly across the EU25, from €260 in Spain in 2004 to €2 in Latvia.

- The differences in per-capita expenditures on lotteries across the EU can largely be explained by differences in income levels and societal attitudes towards gaming.

- A 1% increase in GDP per capita is associated with an increase of 1.5% in lottery expenditures while an increase in the share of non-lottery expenditures in total gaming expenditures is associated with a decrease of 1.9% in lottery expenditures.

- Lotteries differ from for-profit operators in many respects:

  o First, their broad objectives are very different. Lotteries typically have a mandate to meet the demand for gaming of all the population in a responsible and controlled manner. This implies that lotteries make their products accessible throughout the national territory, even in remote or sparsely populated areas and avoid over-stimulating the demand for gaming. In contrast, the objective of for-profit operators is to maximise profits, which is a constant stimulation of the demand for gaming.

  o A second difference is that State lotteries pay out a lower share of their turnover in prize monies than for-profit operators. In 2004, 53% of EU-wide expenditures on lotteries were paid in prize monies, while a selection of for-profit operators paid back 91% of their turnover to players.

  o In contrast, State lotteries channelled about 33% of their EU-wide turnover to good causes and the government in the form of taxes, while for-profit gaming operators paid less than 3% of their turnover in taxes to the government.

- The good causes funded by State lotteries cover a wide range of sectors such science and health, education and youth, sport and culture, national heritage and charities, many of which are supportive of the Lisbon Strategy.

- In terms of employment, lotteries are generally medium-size enterprises with only a few employing few more than 1,000 employees. However, the distribution networks of the lotteries employ many more people. For example, in France, for every person

employed directly by the lottery, 24 people are employed in the distribution network.

▪ In general, the turnover per employee does not differ markedly between the lotteries and the for-profit operators. However, some of the remote gaming operators post significantly higher turnover-per-employee figures, suggesting that, if the liberalisation of the gaming sector results in a marked substitution towards such forms of gaming and away from lotteries, the gaming sector as a whole, and the lotteries in particular, could experience serious employment losses.

▪ In terms of socio-economic characteristics, a review of both academic studies and market research data shows that there are no particular differences between the socio-economic characteristics of those playing lottery games and the population at large. This clearly shows that the frequently-held view that lotteries are mainly played by people with lower incomes is a myth.

▪ A review of academic studies on the substitution between lotteries and other forms of gaming strongly suggests that lotteries are substitutes to other forms of gaming. Thus, the growth in non-lottery gaming in a liberalised gaming sector is likely to come at the expense of lotteries, a fact confirmed by the actual developments observed in Australia following the recent liberalisation of the gaming sector.

▪ Liberalisation of the gaming sector could entail very large losses to good causes. One observes that losses could be as high as 70 to 95% in countries where lotteries have currently a very high market share.

▪ For the EU25 as a whole (excluding Italy and Malta, countries for which data are not available), funds provided to good causes would fall by as much as 35%, from an original figure of €15.9 billion.

▪ In 12 of the 23 countries in our sample, the decline in the funding provided to good causes could be 20% or greater.

▪ In absolute terms, the loss to good causes could total €5.5 billion, with a few countries experiencing very significant losses of €500 million or more (France, Germany,and Spain).

▪ Of note is the fact those New Member States with very small lotteries would be relatively unaffected by such liberalisation.

▪ The results reported above suggest that the losses to the good causes following a liberalisation of the gaming sector could be very significant indeed.

▪ Unfortunately, the winners from the liberalisation of the gaming sector, namely the for-profit operators, pay no or very low taxes. Thus, unless their taxes are raised, the increase in their activity will not provide sources of income that would offset the losses of the good causes.

- Thus, liberalisation of the gaming sector is likely to involve a significant redistribution from good causes to players and the owners of the for-profit operators.

- Finally, gambling-related social and economic costs will increase significantly as developments in other jurisdictions have shown. Unfortunately however, at the present time no robust data exist that would allow one to quantify these social costs for the EU25.

1   Introduction

In many EU Member States, the gaming sector comprised of lotteries, totos and other sports betting, casinos and slot machines, is tightly regulated and, in many cases, the various game operators are State monopolies.

The main rational for tight State control over gaming activities is that, while the population's desire for gaming should be accommodated, States want to ensure that the actual take-up by the population of gaming is controlled and channelled, and the typical social and economic problems associated with gaming, such as gambling addictions, fraud, money laundering and other types of criminal activities, are minimised.

A strong illustration of States' desire to control and properly channel the desire for gaming is provided by the fact that, in most States, open acceptance and development of lotteries and other forms of gaming only materialised well into the 20th century. For example, France only introduced a national lottery in 1933, Belgium in 1934, Australia in the 1930s and the United Kingdom in 1994.

Historically, gaming was not perceived as yielding any economic benefits, and governments felt a strong moral and public responsibility to restrict gambling to prevent any negative outcomes.

Modern attitudes towards gaming remain ambivalent in many jurisdictions. While some view gaming as an opportunity to 'purchase' entertainment or enjoyment (given that from a purely mathematical viewpoint it would not qualify as an efficient investment), others are more critical, viewing gaming as a definitive path to increasing gambling-related social problems such as personality disorders, addiction, criminal activities, and being in conflict with religious or philosophical beliefs according to which income is the reward for one's work and should not accrue effortlessly.

Overall, the majority view is that gaming could yield economic benefits such as increased GDP and employment. The use of funds raised for 'good causes' by lotteries has been another important reason for supporting gaming activities.

However, this is typically tempered by recognition that some forms of gaming may have serious consequences in terms of gambling addictions, crime, fraud and corruption.

In light of the many negative externalities, few people would view an unfettered free market in gaming as an ideal world to strive for. Indeed, because of the significant negative externalities, many States believe that control and proper channelling of the population's gaming desire is a critical public policy. Government control is viewed as necessary to ensure that the gaming sector is run responsibly and social harms are minimised.

As a result, the legalised gambling industry has evolved based on the principle that gambling is generally prohibited apart from some explicit exceptions.

In Europe, national restrictions and controls are still generally considered as very important from a public policy point of view, although the social consensus about the appropriate degree of control and restrictiveness varies markedly across the Member States.

In the EU, gaming activities are supplied by two types of operators, namely State appointed or controlled operators, and for-profit operators.

In this report we focus on total expenditures on gaming, e.g. the total amount spent by players on lotteries, betting, casinos and slot machines; and on the special role played by State lotteries.

For the purposes of this report, we define total gaming expenditures as the sum across all of the gaming sub-sectors of the gross revenues accruing to the gaming operators, including the winnings paid out.[1] Such a definition allows us to compare the lottery sector against the other sub-sectors in the gaming market.

The share of the gaming sector held by the two types of gaming supplier varies markedly across Member States, reflecting differences in national approaches to the control of gaming.

However, a few common characteristics distinguish the two types of gaming suppliers across most Member States (see Table 1 overleaf).

- First, State lotteries and regulated betting operators are subject to a tight regulatory framework, while for-profit operators are not at all or only very lightly regulated.

- Second, the beneficiaries of the gaming activities are different. Lotteries and regulated betting operators pay out a much higher proportion of their revenues to a variety of good causes, either directly or via the State budget, and a much smaller share of their revenues to players than for-profit operators. They operate typically on relatively narrow margins and pay little tax in relation to their gross revenues.

- Thirdly, the business objectives differ. One of the main functions of State lotteries is to control and channel the gaming desire while for-profit operators aim to maximise their profits.

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[1] This approach was used in the 1991 report to the European Commission *Gambling in the Single Market – A Study of the the Current Legal and Market Situation*, and also in Comisión Nacional del Juego (2004) *Memoria 2004*, (http://www.mir.es/juego).

Table 1: Typical key differences between State lotteries and for profit operators		
Differentiating factors	**State lotteries and regulated betting operators**	**For profit operators**
Legal framework	Regulated activity	Unregulated activity
Main beneficiaries	Stakeholders	Shareholders
Main business objective	Social responsibility	Maximisation of profit

Source: London Economics

As noted earlier, this report provides an overview of the special place State lotteries and totos occupy in the gaming sector and discusses the likely impact of full liberalisation of gaming on these State lotteries and totos.

The information used in this report comes from the European Lotteries and Toto Association and its members, and publicly available information. This includes the annual reports of publicly-listed gaming service providers, market research studies and academic studies.

Overall, we were able to gather information on the gaming sector for all EU25 Member States with the exception of Malta, for which no information is available.

The structure of the report is as follows.

- Section 2 provides as background information a brief overview of the EU jurisprudence regarding Member States' right to restrict the supply of gaming activities;

- Section 3 describes the different arguments put forward by various Member States for restricting the supply of gaming;

- Section 4 gives an overview of the gaming sector in Europe;

- Section 5 presents key facts about lotteries in Member States;

- Section 6 addresses the issue of whether lotteries and other forms of gaming are substitutes, at least to some extent;

- Section 7 identifies the likely impact of full liberalisation of the gaming market on State lotteries and totos.

2   EU jurisprudence regarding Member States' right to restrict the supply of gaming

2.1.1 Overview

EU policy[2] and jurisprudence has long recognised the right of Member States to control and restrict the supply of gaming for social reasons.

As will be seen in Sections 4 and 5, EU Member States differ markedly in their attitude towards gaming and the "desired" level of gaming activities.

National gaming restrictions and controls reflect such differences, and the jurisprudence from the European Court has long recognised the right of Member States to control and restrict for social reasons the supply of gaming. The court's key decisions related to gaming highlight the continued preponderance given by the court to State sovereignty in the matter of gaming.

This section does not discuss each Member State's specific gaming legislation or regulations, nor does it undertake a comparative analysis of such national legislations and regulations. These topics are the focus of the study undertaken by the Swiss Institute of Comparative Law. However, it provides below a very brief overview of key European Court decisions.

2.1.2 Key European Court decisions

The State's legitimate interest in retaining a very tight control over gaming activities has been recognised explicitly in a number of European Court cases such as *Schindler*,[3] *Läärä*[4] and *Zenatti*[5].

Indeed, the court noted in one of the most recent gaming cases, namely the *Gambelli*[6] case, the following with regards to its ruling in the three cases above:

> "67   *First of all, whilst in Schindler, Läärä and Zenatti the Court accepted that restrictions on gaming activities may be justified by imperative requirements in the general interest, such as consumer protection and the prevention of both fraud and incitement to squander on gaming, restrictions based on such grounds and on the need to preserve public order must also be suitable for achieving those objectives, inasmuch as*

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[2] The Council of Edinburgh and the European Commission recognised explicitly in 1992 that gaming was subject to the principle of subsidiarity.

[3] Case C-275/92 *Schindler* 1994] ECR I-1039

[4] Case C-124/97 *Läärä* [1999] ECR I-6067

[5] Case C-67/98 *Zenatti* [1999] ECR I-7289

[6] Case C-243/01 *Piergiorgi Gambelli* [2003]

> *they must serve to limit betting activities in a consistent and systematic manner*"[7]

Thus, the European Court jurisprudence clearly recognises the Member States' right to restrict the supply of gaming activities for public purposes.

However, the European Court also noted that the restrictions should be fit for purpose and commensurate with the intended policy objective.

Indeed, in the *Gambelli* case, the European Court ruled that:

> "*National legislation which prohibits on pain of criminal penalties the pursuit of the activities of collecting, taking, booking and forwarding offers of bets, in particular bets on sporting events without a licence or authorisation from the Member States concerned constitutes a restriction on the freedom of establishment and the freedom to provide services for in Article 43 and 49 EC respectively. It is for the national court to determine whether such legislation, taking account of the detailed rules for its application, actually serves the aims which might justify it, and whether the restrictions it imposes are disproportionate in light of those objectives.*"

In short, the European Court has repeatedly recognised the right of Member States to restrict the supply of gaming for social reasons provided the measures are proportionate to the objectives pursued.

A similar line was taken recently by the appeals instance of the WTO[8] which examined US legislation prohibiting cross-border provision of gaming. In its decision the appeals body noted that the US legislation is aimed at protecting public morals and maintaining public order and that, therefore, the restrictions were justified.

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[7] Case C-243/01 *Piergiorgi Gambelli* [2003] p.10.

[8] Decision of 7th April 2005.

3   Economic and social reasons for restricting the supply of gaming

In defining their policies towards gaming, national authorities typically face two fundamental issues:

- On one hand, people like to play games of chance and skills. There is something fundamentally pleasurable about undertaking such activities. *Homo ludens*, as players are sometimes referred to, is not only considering expected winnings when playing, but seeks the thrill, pleasure, and the dream of what a win would imply. While this report does not aim to provide an in-depth analysis of the sociology of gaming, it suffices to note here that players seek a variety of experiences when gaming, of which winning is one, but not the only, factor affecting the demand for gaming. People will want to gamble, whether gaming is legal or not.

- On the other hand, gaming activities can lead to gambling addictions, with their dire social and economic consequences[9], crime[10] and corruption[11].

Thus, the fundamental policy challenge is to channel the demand for gaming away from grey or illegal channels so as to ensure that the demand for gaming is satisfied legally while minimising the negative effects of gaming.

A review of the arguments put forward by various Member States in the recent *Placanica*[12] and the *Gambelli* cases in support of State control of gaming supply, shows that all such States, namely Belgium, Denmark, Finland, France, Greece, Italy, Luxembourg, Netherlands, Portugal, Spain and Sweden, strongly expressed the view that gaming supply needed to be channelled and restricted in the name of the public interest, to protect society from the negative effects of gambling and to prevent players from harming themselves.

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[9] Gambling addictions cause a number of direct costs such the treatment costs, the reduced productivity and social contribution of those addicted to gambling, social costs such as marriage break-ups, etc and costs associated with criminal activity undertaken to finance the addiction. In this regard it is interesting to note that a recent survey found that about 10% of frauds at the workplace were explained by gambling troubles (Financial Times, 14th March 2006).

[10] As vast sums of money are turned over by the gaming sector, it is highly attractive to money launderers.

[11] The football match fixing scandals in Italy and Germany and horse racing scandals in the UK are clear illustrations of the corruptive effects of the activities of unscrupulous gamblers manipulating the outcomes of events to their own personal advantage and which bring the various sports into disrepute. This is a corrosive phenomenon which, if not combated aggressively, erodes society's social trust and social capital.

[12] Cases 3-338/04, C-359/04 and C-360/04, *Procuratore della Repubblica v. Massimiliano Placanica, Christian Palazzese and Angelo Sorricchio*.

This core argument for controlling the supply of gaming activities is reinforced, in the view of a number of Member States, by the need to prevent crime and fraud, including money laundering.

State control over gaming also allows authorities to control players' impulses by limiting the attractiveness of the games through reduced payouts to players and reduced frequency of play opportunity, and avoid the excessive stimulation of the demand for gaming through unbridled advertising. Furthermore, a share of the proceeds, which would have otherwise been split between players and gaming service provider are used to fund socially beneficial activities.

4   Gaming in the European Union

This section presents some key facts about the gaming sector in the EU.

First, we discuss the overall size of the gaming market in each EU Member State.

Next, we present information on the type of betting allowed in each Member State and the relevant regulatory framework.

Thereafter, we report information on the gaming sub-sector of casinos and slot machines and the regulatory framework for such forms of gaming.

Finally, we assess whether any differences in the level of per-capita expenditures on gaming can be explained by differences in incomes and the availability of different types of gaming.

4.1   The size of the gaming sector in the EU

General considerations

Gaming operators tend to focus on different indicators of their activity. State lotteries report total sales or turnover, while the for-profit operators, typically casinos or betting service providers, generally report gross revenues, i.e., the difference between the total amount staked by players and the winnings paid out to players.

In our report, in order to be able to derive an estimate of total gaming expenditures in each Member State (see Table 2), we use estimates of the turnover (sales) including winnings paid out of all gaming operators.

Before reviewing the EU gaming data in detail, it is important to note that there exist no good, comprehensive data about the size of the gaming sector in each country. In many countries, data on legitimate gaming are not collected on a consistent basis.

The problem of data incompleteness is compounded by the fact that, with the ubiquity of the Internet, remote gambling is available to players throughout the world even if in most countries it is illegal to offer such services.

Remote gambling raises many issues because remote gambling service providers typically are based in off-shore jurisdictions and it is no longer possible to use territorial controls to channel the desire to play.

Obviously, it is next to impossible to gauge the level of illegal gaming that is taken place in each Member State.

The data reported overleaf are based on information submitted to London Economics by the members of the European Lotteries and Toto Association complemented by a number of other sources. They represent best efforts to provide an

as reliable picture as possible.

Types of gaming activities allowed in the EU Member States

Information provided by the members of the European Lotteries and Toto Association shows that all EU25 Members except Cyprus and Ireland allow the following forms of gaming: lotteries, betting, casinos, and slot machines. Casinos and slot machines are not allowed in Cyprus and Ireland.

Largest gaming markets in the EU

The largest gaming markets are the United Kingdom, France, Germany, Spain and Italy (see Figure 1).

Together, these five countries accounted for three-quarters of total EU25 expenditures on gaming in 2004. The total turnover in the EU gaming market is estimated to have been €290 billion (or 2.8% of EU25-wide GDP) in 2004 (see Table 2).

The UK gaming market is by far the largest. It is almost three times the size of each of the next two largest gaming markets in the EU25, namely France and Germany.

Figure 1: Member State's shares of total EU gaming market, by turnover, 2004
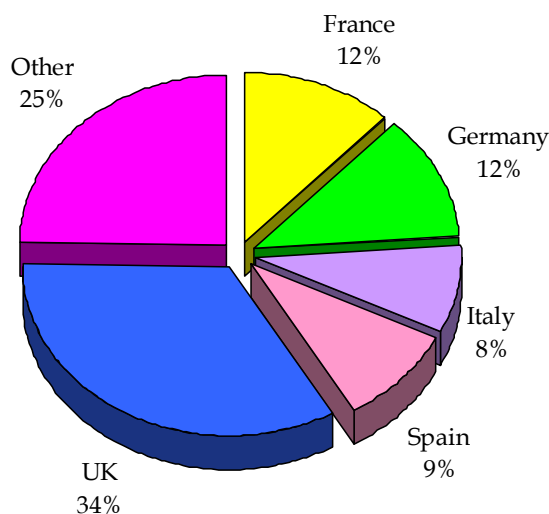
NOTE: All other EU Member States have market shares of less than 5%. Excludes Malta.
Source: London Economics' calculations, based on the replies from the members of the European Lotteries and Toto Association

Table 2: Gaming expenditures		
Country	**Total gaming expenditures (million €)**	**Gaming expenditures per habitant (€)**
Austria	15,630	1,900
Belgium	4,460	430
Cyprus	100	140
Czech Republic	2,660	260
Denmark	3,600	670
Estonia	980	720
Finland	8,140	1,550
France	34,770	570
Germany	34,610	420
Greece	6,210	560
Hungary	2,710	270
Ireland	3,080	750
Italy	24,270	420
Latvia	630	270
Lithuania	60	20
Luxembourg	300	670
Netherlands	10,660	650
Poland	1,160	30
Portugal	2,440	230
Slovakia	740	140
Slovenia	620	310
Spain	27,290	620
Sweden	3,900	430
United Kingdom	98,340	1,640
EU25 (excl. MT)	**287,340**	**630**

NOTE: Malta is not listed in the table because we have no information on the size of the gaming sector.

Sources: London Economics' calculations and estimates, based on the replies from the members of the European Lotteries and Toto Association, European Casino Association statistics for Belgium and Luxembourg, Report from Italian Senate (2003), SISAL, European Gaming and Amusement Federation (EUROMAT) report on Lithuania, Snapshot International (2004) report on Spain, and Global Betting and Gaming Consultants for the UK

Per capita expenditures on gaming in 2004

Differences in the size of the gaming sector, together with differences in income levels and States' attitudes towards gaming are resulting in large differences in per-capita expenditures on gaming.

The figures for annual per-capita expenditures on gaming in 2004 range from a high of €1,900 in Austria to a low of €20 in Lithuania.

The average across the EU25 stands at €630. However, the median gaming expenditure on a per-capita basis stands at only €430, reflecting the fact that the average is pulled upwards by a few countries with high per-capita gaming expenditures.

Level of gaming spend and economic development

The data in Table 2 show a great deal of variation in the level of expenditures on gaming activities per inhabitant across the EU Member States.

Our statistical analysis reported in Annex 1 shows that, on average, gaming expenditures increase by 1.1% with each 1% increase in GDP per capita.[13]

This relationship between the level of expenditures on gaming and GDP is illustrated in Figure 2.

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[13] The statistical analysis is based on 2004 data. See Annex 1 for details.

Figure 2: Gaming expenditures and GDP per capita
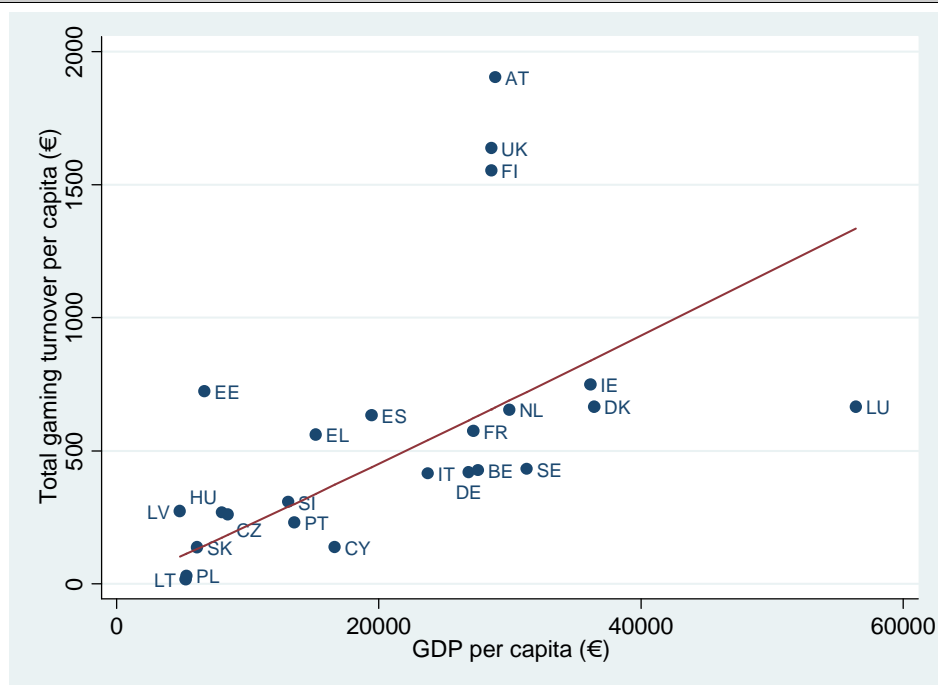
Source: London Economics' calculations, based on data from the members of the European Lotteries and Toto Association, and Eurostat

However, as shown by Figure 2, it is not necessarily the only factor explaining the wide dispersion in per-capita expenditures on gaming.

Indeed, the inhabitants of countries with different social and cultural attitudes towards gaming such as Austria, Finland and the United Kingdom spend considerably larger amounts on gaming than can be explained by their income level.

On the other hand, inhabitants of some other countries spend less on gaming than one would expect on the basis of their country's income level, reflecting possibly different attitudes of the respective States with regards to the "desired" gaming level.

To further explore the effect of different State policies vis-à-vis gaming on the level of gaming expenditures on a per-capita basis, we have broadened our statistical analysis to allow differences in attitudes towards gaming to affect the level of gaming expenditures as well.

We use as a proxy for differences in attitudes towards gaming, the share of non-lottery gaming expenditures in total gaming expenditures, on the assumption that such expenditures are likely to grow more or less in line with a more liberal attitude towards gaming.

The statistical analysis reported in Annex 1 shows that it is indeed important to take into account the different attitudes towards gaming when explaining the observed cross-country variation in gaming expenditures.

- First, we find that gaming expenditures (on a per capita basis) still increase by 1.1% for each one percentage point increase in per capita GDP.

- Furthermore, the estimation results show that residents of countries with a more liberal attitude towards gaming spend more overall on gaming. A one percentage point increase in the share of non-lottery gaming expenditures in total gaming expenditures causes the total level of expenditures on gaming to increase by 3.3%.

These results are consistent with the high levels of gaming expenditures on a per-capita basis observed in a number of countries in Figure 2.

4.2   Responsibility for gaming law

In most EU countries, the responsibility for setting and enforcing gaming laws lies with the national government.

The only exception is Germany where regional governments are responsible for the gaming laws.

In Austria, the central government is responsible for casinos and lotteries while sports betting is under the responsibility of regional governments.

In the Netherlands, slot machines and smaller lotteries are regulated by local authorities.

In Spain, gaming is generally the responsibility of the central government. However, the provinces have the right to pass laws for gaming specific to the province, such as provincial lotteries.

4.3   Betting, casinos and slot machines in the EU

In the subsequent subsections more detailed information is provided about the betting, casino and slot machine sub-segments of the gaming sector. The report examines the lottery segment more extensively in Section 5.

4.3.1 Type of betting in the EU and betting regulations

Among the 22 jurisdictions in Europe for which we have detailed information[14], the most prevalent form of legal betting is betting via ODDSET and Totalisator (see Figure 3).[15]

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[14] We have no information on Italy, Lithuania and Malta, other than the number of casinos in Italy.

[15] Detailed information on the type of betting allowed in each jurisdiction is provided in Annex 4 at Table 10.

Such betting is offered in some countries by the State Lottery whereas in other countries this type of gaming is operated by different companies.

Betting via bookmakers is available in a much more limited number of countries. The more commonly allowed forms, sports betting or horse racing betting via bookmakers, are each legal in fewer than half of the 22 countries in our sample.

Figure 3: Number of jurisdictions allowing various forms of sports betting
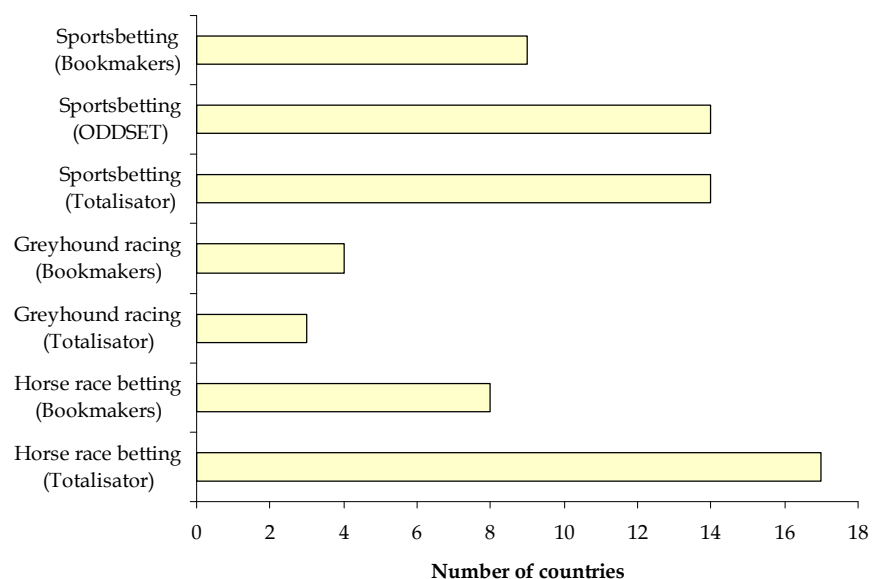
Source: Replies from the members of the European Lotteries and Toto Association

The regulation of betting in the EU provides for some form of competition in many cases.

Indeed, of the 22 licence cases documented in the replies from the members of the European Lotteries and Toto Association, only 11 are regulated as exclusive right models while the limited operator licence model is used in a further four cases. An unlimited operator licence model is used in seven cases.[16]

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[16] Detailed country-by-country information is provided in Table 11 in Annex 4.

Figure 4: Regulatory model of sports betting
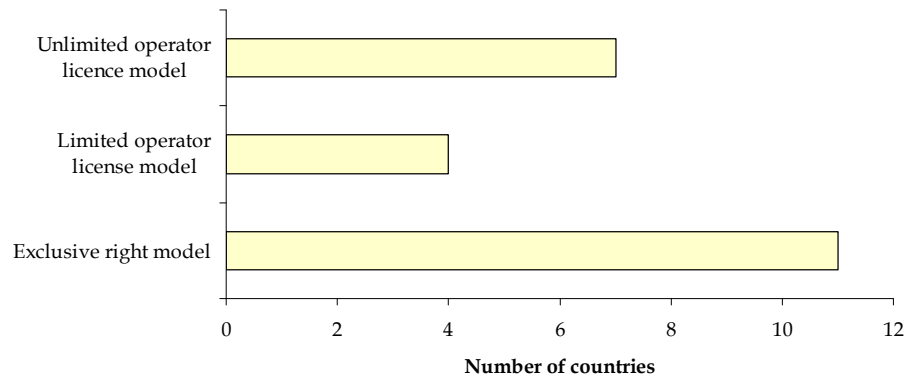
Source: Replies from the members of the European Lotteries and Toto Association

4.3.2 Casinos and slot machines in the EU and regulatory models

The number of casinos authorised in each country varies greatly across EU Member States, with a concentration of casinos in France, Estonia, the Czech Republic and the United Kingdom, and to a lesser extent in Germany (see Figure 5).[17]

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[17] In Cyprus and Ireland, neither casinos nor slot machines are allowed. The precise number of casinos in each Member State is provided in Table 12 in Annex 4

Figure 5: Number of casinos in EU Member States
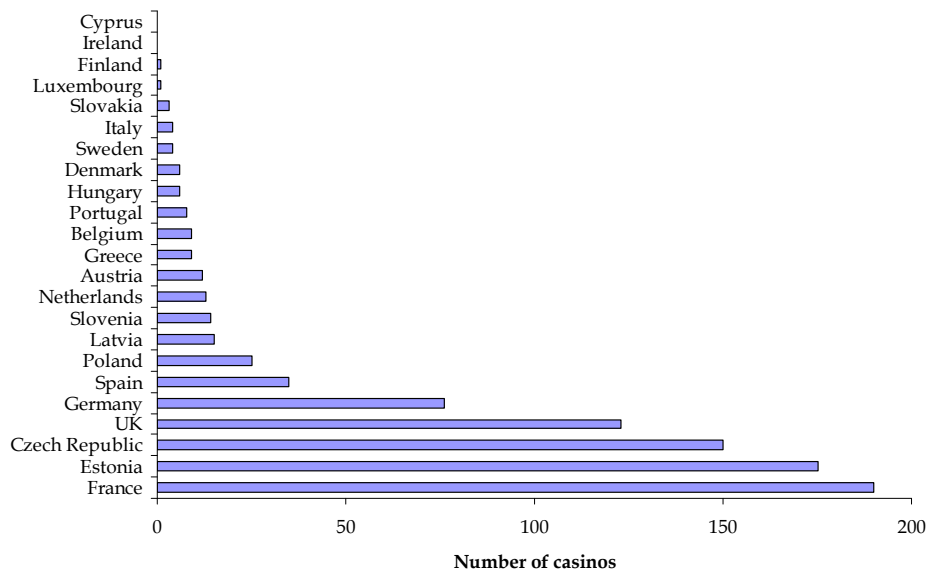
Source: Replies from the members of the European Lotteries and Toto Association

Obviously, the concept of a casino may vary from one country to another, and casinos in Estonia are likely to be much smaller in size than in other countries such as France for example.

Most casinos operate under an exclusive right model or a limited operator licence model (see Table 12 in Annex 4).

Slot machines are allowed in all EU Member States except Cyprus and Ireland. However, they are confined to casinos in 10 Member States. Of these 10, five make exceptions for certain types of slot machines, most commonly low-stakes machines. Five Member States allow slot machines outside casinos without restrictions according to the type of machine (see Table 3, and Table 13 in Annex 4).

The regulatory model for slot machines varies markedly, with a predominance of the unlimited licence model (see Table 14 in Annex 4).

Table 3: Slot machines in EU Member States inside and outside casinos	
Forbidden	Cyprus, Ireland
Only allowed in casinos	Austria (high stakes machines), Belgium (high stakes machines), Estonia, France, Germany (high stakes machines), Greece, Luxembourg, Poland (high stakes machines), Portugal, Sweden (except VLTs)
Allowed outside casinos	Austria (low stakes machines), Belgium (low stakes machines), Czech Republic, Denmark, Finland (exclusive rights model), Hungary, Germany (low stakes machines), Latvia, Netherlands, Poland (low stakes machines), Slovakia, Slovenia, Spain, Sweden (VLTs), United Kingdom

Source: Replies from the members of the European Lotteries and Toto Association

Following this brief overview of the gaming sub-sectors other than lotteries, the next section provides a detailed picture of the lotteries sub-sector of the gaming market in the EU.

5   Key Facts about State Lotteries

This section first provides some background information on the size of the lottery market in each of the EU Member States.

Next, the section highlights key differences between State lotteries and for-profit operators, both in terms of their overall objectives and their contributions to good causes.

Thereafter, this section presents some key facts about employment by State lotteries and the size of their distribution networks.

Finally, it concludes with a review of the type of games offered by State lotteries and the regulatory regimes under which State lotteries operate.

5.1   The size of the lottery market

The total expenditure on lotteries in the EU25 (excluding Malta) was €63 billion in 2004, 22% of the total gaming market.

The information available suggests that the market share of lotteries in the total gaming market varies markedly across Member States:

- As in the case of per-capita gaming expenditures, per-capita lottery expenditures in 2004 varied markedly across the EU25, ranging from a high of €260 in Spain to a low of €2 in Latvia.

- The average expenditure across the EU25 in 2004 was €140 while the median stood at €100, reflecting the fact that there exists a relatively large cluster of countries with low per-capita expenditures on lotteries.

Not only do the per-capita expenditures on lotteries vary across Member States, but so too do the shares of the lotteries in total gaming sector turnover. The latter range from a low of less than 1% in Latvia to a high of 58% in Italy (see Table 4 for further details).

Table 4: Expenditures on lotteries		
Country	**Expenditures on lotteries per inhabitant (to the nearest €10)**	**Share of expenditures on lotteries in total gaming expenditures**
Austria	190	10%
Belgium	100	24%
Cyprus	80	57%
Czech Republic	20	7%
Denmark	150	23%
Estonia	10	2%
Finland	180	11%
France	140	24%
Germany	120	30%
Greece	170	30%
Hungary	40	15%
Ireland	140	19%
Italy	240	58%
Latvia	2	1%
Lithuania	10	47%
Luxembourg	110	17%
Netherlands	100	15%
Poland	10	48%
Portugal	100	42%
Slovakia	10	8%
Slovenia	40	15%
Spain	260	41%
Sweden	100	23%
United Kingdom	120	7%
EU25 (excl. MT)	**140**	**22**%

Source: London Economics' calculations, based on the replies from the members of the European Lotteries and Toto Association

5.2 Explaining differences in per-capita expenditures on lotteries across the EU25

As noted above, one observes a great deal of variation in per capita expenditures on lotteries. To assess whether differences in income levels account for the observed variation in spending on lotteries, we have assessed the statistical relationship between the level of per-capita expenditures on lotteries and the level of per-capita GDP.

The results of such a statistical analysis (reported in Annex 2) show that lottery expenditures on a per-capita basis increase by 1.5% when GDP per capita increases by 1%.

Figure 6: Lotteries expenditures and GDP per capita
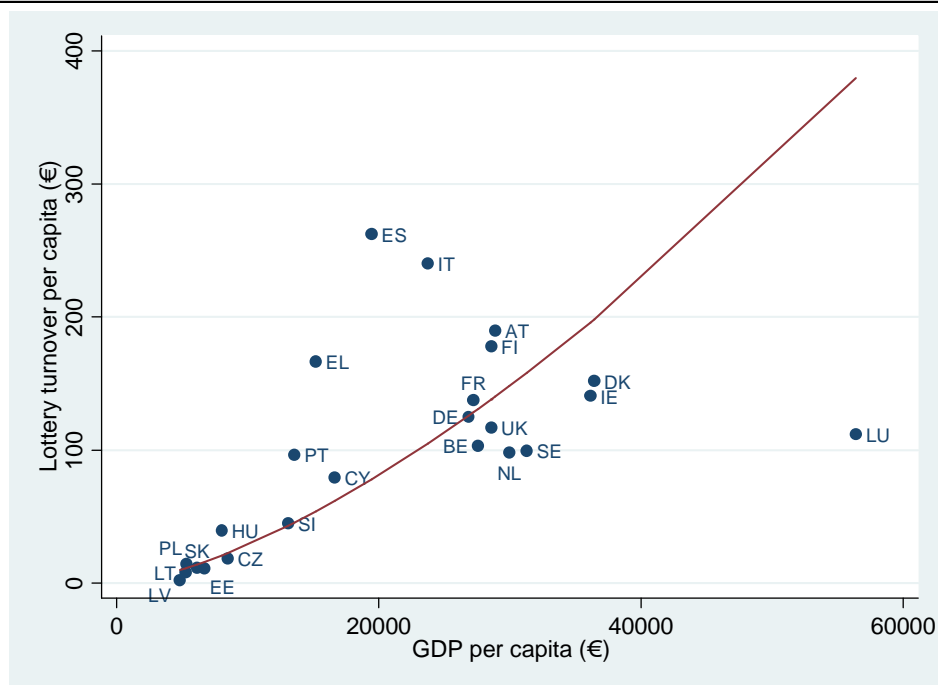
Source: London Economics' calculations, based on data from the members of the European Lotteries and Toto Association, and Eurostat

The level of expenditures on lotteries per inhabitant is clearly related to the level of economic development of the Member States as shown by Figure 6 above.

However, GDP per capita is not necessarily the only factor explaining the wide dispersion on per capita expenditures on lotteries. At issue is whether the inhabitants of countries with a more liberal attitude towards gaming such

as the United Kingdom spend less on lotteries than one would have expected on the basis of their income level.

To further explore the effect of different State policies vis-à-vis gaming on the level of lottery expenditures on a per-capita basis, we have added in our statistical analysis an additional variable reflecting the share of non-lottery gaming expenditures in total gaming expenditures as a driver of per-capita expenditures on lotteries (see Annex 2 for details).

In the extended model, lottery expenditures (on a per-capita basis) are still found to increase by 1.5% for each 1% increase in GDP per capita.

Strikingly, however, we find that an increase in the share of non-lottery expenditures in total gaming expenditures is associated with a significant drop in the level of expenditures on lotteries. In other words, expenditures on lotteries in countries with a more liberal attitude towards gaming tend to get crowded out by other forms of gaming.

We find that an increase of one percentage point in the share of non-lottery expenditures in total gaming expenditures is associated with a reduction in the absolute level of per-capita spending on lotteries of 1.9%, a very significant crowding-out effect indeed.

5.3 The special mandate of State lotteries

A key difference between State lotteries and for-profit operators is that the latter have the sole objective of profit maximisation. To do so, they aim to stimulate the demand for gaming as much as possible.

In contrast, State lotteries are generally given the mandate by governments to meet the demand for gaming of all the population in a responsible and controlled manner.

For example, the legislated mandate of La Française des Jeux (La FdJ) stipulates that it is possible to offer lottery games to the public that respect the following objectives:

> *"assure the integrity, security and trustworthiness of gaming operations and the transparency of their operation,*
>
> *channel the demand for games to a circuit controlled by the public authority, to prevent the risk of exploitation of money games for fraudulent or criminal purposes and to fight against money laundering,*
>
> *control the consumption of gaming to prevent the development of dependency phenomena*
>
> *guard against enticing under 16-year olds to play"*

Reflecting its mission to provide access to its offerings, La Française des Jeux has developed a very dense distribution network. Of the many points of sales, about 4,400 account for only 0.5% of total turnover. These less profitable points of sales are kept open because of the public service mission

of La Française des Jeux, in contrast to a private undertaking with stricter financial objectives.

Similarly, the two key objectives of the Belgian lottery are to:

> "*channel in a targeted manner the gaming behaviour in Belgium and thus offer gaming pleasures to a large group of people through entertaining games. This channelling obligation implies that it attracts the amateurs of lotteries and games of chance through a modern and attractive offer without increasing the market;*

> *ensure that through its gaming policy it does not create dependencies. To that end, it has to contribute actively and autonomously to the prevention and treatment of gaming dependency through relevant initiatives.*".

In response to the mandate to give the whole population an opportunity to satisfy its gaming desire, State lotteries typically have very large distribution networks reaching into the most remote regions where for-profit operators are absent or only thinly present.

Complementing this outreach mandate, is an obligation to avoid over-stimulating the demand for gaming by abstaining from massive advertising campaigns and bringing new products to market in a prudent and measured manner.

5.4   Funding of good causes by lotteries

In this sub-section, a second difference between State lotteries and for-profit gaming operators is reviewed.

Next, a more detailed analysis of variations in the funding of good causes among the various State lottery operators is undertaken.

Finally, the sub-section provides information on the types of good causes funded by lotteries.

5.4.1 State lotteries versus for-profit gaming operators

For the gaming products to remain attractive to prospective players, a certain share of gaming revenues has to be repaid in the form of the prizes to players. However, State lotteries and for-profit gaming operators differ markedly in terms of both the proportion of gaming revenues flowing back to players and the share of gaming revenues flowing to a variety of good causes.

It is well known that the proportion of gambling revenue allocated to broader societal priorities is greater in the case of State lotteries than in the case of for-profit operators.   Conversely, the prize payout ratio (winnings as a percentage of gross expenditures) of for-profit operators is much higher than that of State lotteries.

What is perhaps not always as well known is the actual magnitude of the difference in the payout ratio.

Information from the European Lotteries and Toto Association indicates that the average prize payout in 2004 to customers of State lotteries was 53% of the lotteries' turnover. In contrast, a review of the annual reports of a number of the major for-profit gaming operators shows that, on average, such firms paid their customers prize monies worth about 90% of turnover (see Figure 7).

Figure 7: Prize payouts to customers as a percentage of gaming turnover, 2004
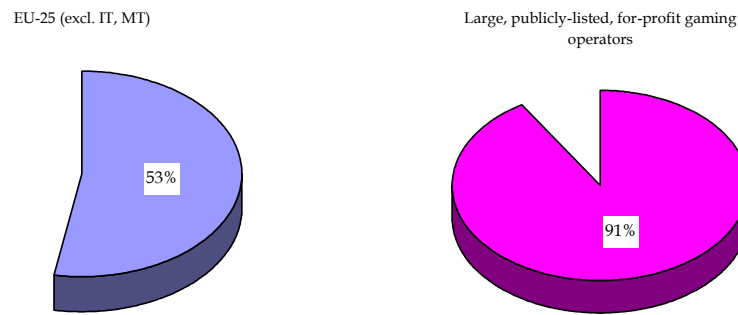
EU-25 (excl. IT, MT)   Large, publicly-listed, for-profit gaming operators

NOTE: IT = Italy, MT = Malta.
Source: London Economics' calculations, based on the replies from the members of the European Lotteries and Toto Association, and annual reports of large, publicly-listed, for-profit gaming operators

A corollary of the smaller share of gaming turnover paid back to players is a much larger revenue stream accruing to good causes. For the purposes of the present analysis all taxes and special gaming levies paid by State lotteries are included in the funds accruing to good causes.

The contrast between State lotteries and for-profit operators is very stark. The proportion of gaming turnover allocated to good causes is more than ten times higher for State lotteries (33%) than for gaming firms (3%) (see Figure 8).

Figure 8: Payouts to good causes by State lotteries, and tax paid by private gaming operators as a percentage of gaming turnover, 2004

NOTE: IT = Italy, MT = Malta.
Source: London Economics' calculations, based on the replies from the members of the European Lotteries and Toto Association, and annual reports of large, publicly-listed, for-profit gaming operators

5.4.2 Level of funding of good causes by the various State lotteries

The payout to good causes (including taxes) from all the lotteries across the EU, excluding Italy and Malta (for which no data are available), was €15.9 billion in 2004.

This amounted to about one-third of the turnover generated by these lotteries, or €35 on a per-capita basis (see Table 5).

This average figure, however, hides a great deal of variation across Member States, both in terms of the level of the share of revenues distributed to good causes and on a per-capita basis.

Payments to good causes close to or over €50 per person are noted in seven EU Member States (Austria, Denmark, Finland, Germany, Ireland, Spain and the UK). The percentage of expenditure on lotteries paid out to good causes is greater than 40% in three Member States (Finland, Poland and the UK).

At the other end of the scale, there are five Member States with lotteries that pay out less than €5 per person to good causes (Czech Republic, Estonia, Latvia, Lithuania and Slovakia).

No lotteries post a payout to good causes of less than 10% of turnover.

Table 5: Payout to good causes and government[1]		
Country	**Per capita payout to good causes (€)**	**Percentage of expenditures on lotteries paid out to good causes**
Austria	61	32%
Belgium	29	28%
Cyprus	29	37%
Czech Republic	3	18%
Denmark	44	29%
Estonia	1	12%
Finland[2]	70	40%
France	38	27%
Germany	49	39%
Greece	27	16%
Hungary	13	33%
Ireland	47	33%
Latvia	0.5	20%
Lithuania	1	13%
Luxembourg	21	19%
Netherlands	38	39%
Poland	7	50%
Portugal	32	33%
Slovakia	2	22%
Slovenia	10	21%
Spain	73	28%
Sweden	24	24%
United Kingdom	48	41%
EU25 (excl. IT, MT)	**35**	**33%**

NOTE: (1) Data for payouts to good causes are for lottery games only where such data are available. If this information is not available, it is assumed that the payment to good causes as a percentage of turnover is the same as at the enterprise level, which covers all games that the State lottery operator provides. This assumption was used for the Czech Republic and Sweden. (2) Data for Finland exclude data on RAY (national monopoly of gaming machines and casinos) and Fintoto (national monopoly on horse race betting). Including RAY and Fintoto, the per-capita payout to good causes (including taxes) is €178. This is 11% of the total expenditure on these activities.
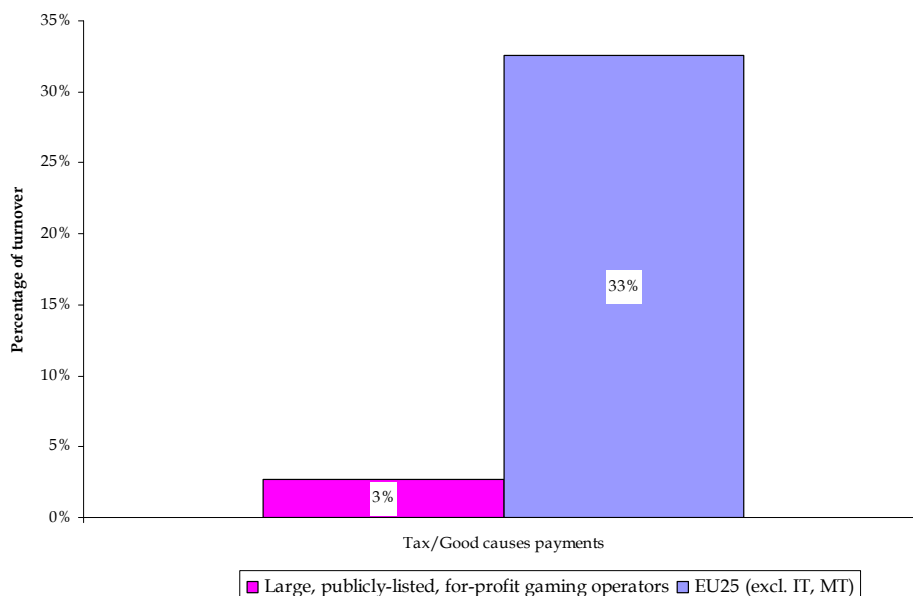*Source: London Economics' calculations, based on the replies from the members of the European Lotteries and Toto Association*

5.4.3 What kind of good causes are funded by State lotteries?

'Good causes' is a general term covering a wide range of activities. Contributions from State lottery revenues are made directly and indirectly, via the government or special agencies. The various taxes, fees and duties paid by State lotteries are also included in the figures of the transfers from the State lotteries to the good causes.

Across the EU, in 2004, these contributions were used to support activities in a variety of areas including culture, science and health, sport, education and youth, national heritage, and charity.

On average across the EU, over half of the payouts to good causes went toward State budgets in 2004 (Figure 9). However, some of these payouts will have been ear-marked for expenditure on the good causes categories herein described.

The next biggest allocations went to sport and to culture, at about 10% of the total funding of good causes each.

Each of science and health, education and youth, national heritage, and charity received between 2% and 5% of the total funding, leaving 13% for miscellaneous other causes.

As is well known, the European Council set out, in March 2000, a strategy for the future development of the European Union, known as the Lisbon Strategy. The Lisbon Strategy aims to create a stronger economy, which will drive job creation in the EU. Alongside this general policy thrust, social and environmental policies are to promote sustainable development and social inclusion, to driving economic growth even further.

The funding of the good causes identified above clearly supports the Lisbon Strategy. Spending on science and health, and education and youth, in particular, help EU Member States pursue the innovation and growth objectives of the Lisbon Strategy.

Furthermore, some of the additional revenues provided to the State budget would be available to government policies focused on achieving the aims of the Lisbon Strategy.

In a wider context, the funds provided to sport and culture, and national heritage help promote social inclusion, which were also part of the original strategy, though are now not its main focus.

Thus, State lotteries, through their funding of good causes, contribute to the achievement of the Lisbon Strategy. In contrast, for-profit gaming operators make no noticeable contribution as their tax payments are miniscule in comparison to the substantial funding provided by State lotteries.

Figure 9: Distribution, by cause, of payouts to good causes by EU State lotteries, 2004

State budget (some of which is marked for good causes) 56%

Culture 9%

Science & Health 1%

Sport 10%

Education & Youth 5%

National heritage 2%

Charity 4%

Other 13%
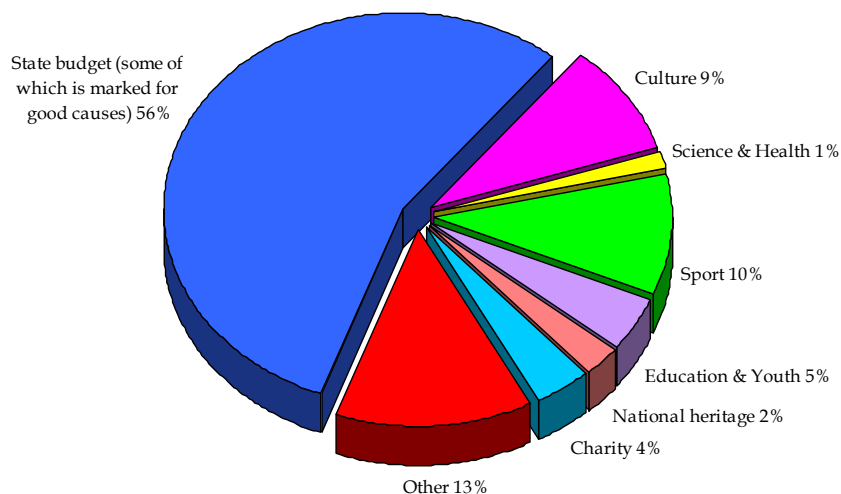
Source: London Economics' calculations, based on information from the European Lotteries and Toto Association

5.5   Employment by State lotteries

State lotteries are generally medium-sized companies in terms of employment, with only a few directly employing more than 1,000 people (see Table 6).

However, it is important to note that the employment figures reported in Table 6 do not take into account the employment that is supported by the sales of lottery products at the points of sale.

This indirect employment is considerably larger than the number of people employed directly by the lotteries.

For example, La Française des Jeux estimates that about 21,500 people are employed in the sales of lottery games while direct employment is only 900. Thus, the employment multiplier is 24. That is, for every person employed directly by the French lottery, 24 people are employed indirectly in the sales of lottery games.

The Belgium National Lottery estimates that each point of sales terminal in the country indirectly creates employment for one person. There are 6,565 point of sales terminals in Belgium, implying indirect employment of approximately 6,500. This suggests an employment multiplier of about 20.

Data from Süddeutsche Klassenlotterie suggests a multiplier of about 11. It has almost 500 full-time equivalent direct employees, and associated indirect employment of almost 5,500.

The direct employment data reported in Table 6 show that, in the EU overall, about 13,000 people were employed directly by the lotteries. Indirect employment is estimated at about 195,000, using a conservative multiplier of 15.

The income earned by sellers of lottery products is certainly a useful adjunct revenue source, especially in more remote or high unemployment areas.

As already noted earlier in this report, lotteries have wide distribution networks reaching into all parts of each Member State.

Lottery activities also create employment indirectly at the suppliers of products and services to the lotteries. However, in the absence of very detailed input-output data it is impossible to quantify this type of indirect employment.

Moreover, the funding of good causes by State Lotteries also sustains employment at a wide range organisations and institutions. Unfortunately, no detailed information exists on the precise level of such employment.

Table 6: Employment by State lotteries, 2004	
Member State	**Average number of employees during 2004**
Austria	415
Belgium	321
Cyprus	20
Czech Republic	500*
Denmark	321
Estonia	50
Finland[1]	377
France	895
Germany	3,338
Greece	301*
Hungary	1,269
Ireland	81
Italy	628*
Lithuania	103*
Luxembourg	19*
Netherlands	465
Poland	690*
Portugal	393
Slovakia	84
Slovenia	90
Spain	1,000
Sweden	610
United Kingdom	902*
EU25 (excluding Malta)	12,962

NOTE: (1) Data for Finland are for Veikkaus only.
Source: Replies from the members of the European Lotteries and Toto Association, except where marked with an *. The remaining data are from AELTE (2002 data for Lithuania and Luxembourg), annual reports of companies and the Amadeus company databank.

Of particular interest in the context of an assessment of the likely impact of liberalisation of the gaming sector on lotteries is a comparison of the turnover per employee in the lottery sector with the turnover per employee of likely entrants into the market such as remote gaming service providers.

To that end, we provide in Figure 10 the turnover per lottery employee and in Figure 11 similar information for a number of for-profit gaming operators.

The majority of State lotteries and also the majority of gambling firms for which we have information post a turnover per employee of up to €5 million.

Only the lotteries in Italy, Spain, France, the United Kingdom, Ireland and Greece show higher turnover-per-employee figures.

**Figure 10: Turnover per employee for State lotteries[1], 2004
(€ million per employee)**
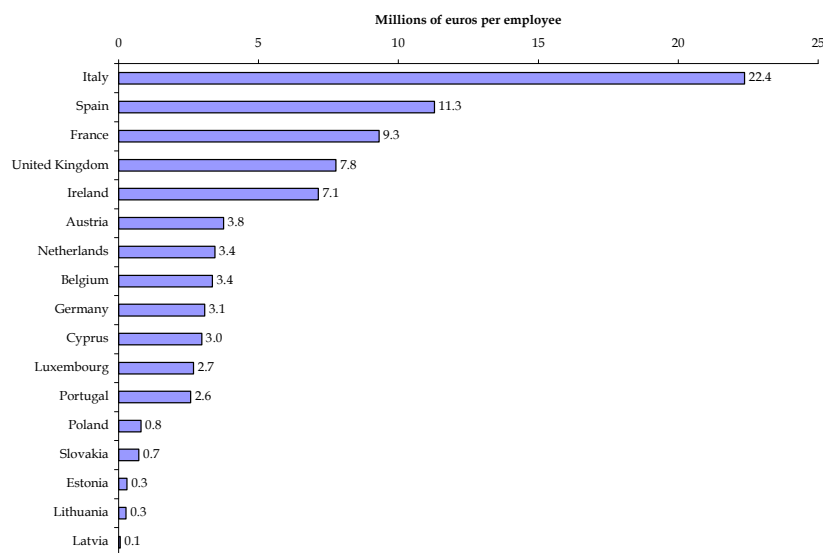
NOTE: (1) Figure displays State lottery operators whose product ranges do not include fixed-odds betting, casinos or slot machines.
Source: London Economics' calculations, based on the replies from the members of the European Lotteries and Toto Association

A comparison with the figures of per-employee turnover of a number of for-profit gaming operators (see Figure 11) suggests that, in the case of liberalisation of the gaming sector and growth of the profit operators at the expense of lotteries, the gaming sector will likely sustain employment losses as several of the for-profit operators report markedly higher turnover per employee figures than many, albeit not all, of the State lotteries.

The additional indirect employment associated with State lotteries would exacerbate this disparity.

Because of the marked differences in turnover per employee between the two types of gaming operators, the employment gains at the for-profit gaming

operators are likely to be vastly outnumbered by the employment losses at lotteries.[18]

Figure 11: Turnover per employee for selected for-profit gaming operators, 2004 (€ million per employee)
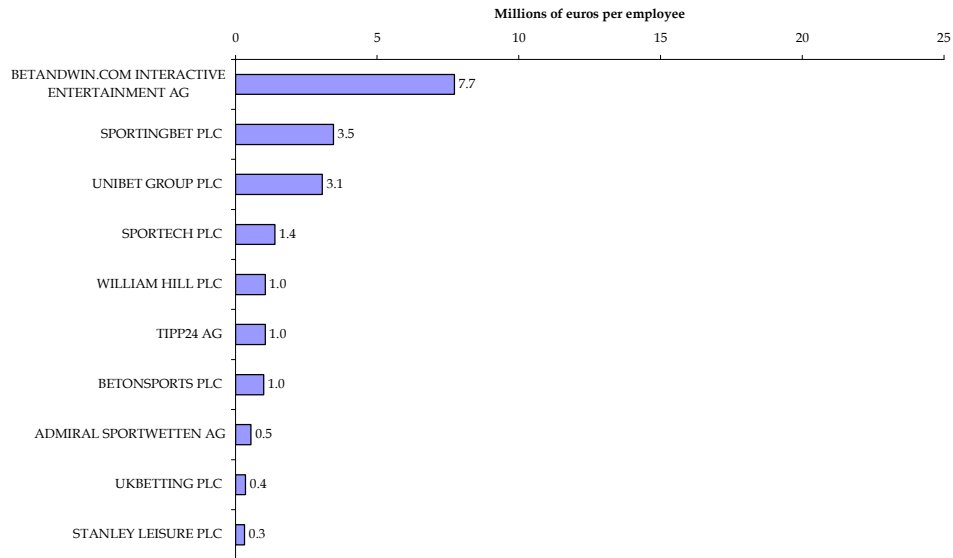
Source: London Economics' calculations, based on companies' annual reports 2004-2005

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[18] Because for-profit operators do not have to provide a share of their turnover to good causes, employment at organisations and institutions benefiting from the good cause funding by State lotteries and totos will also fall.

5.6   Type of games offered by State lotteries

A review of the games offered by State lotteries in the EU shows a great deal of diversity of product offerings across the European Union.

All the State lotteries from the 23 Member States (for which we have detailed information) offer lotto games and instant games (Figure 12).[19] Instants, number lotteries and sports betting are offered also by almost all of the State lotteries.

However, daily Kenos are offered by State lotteries in only 14 Member States and draw lotteries in only 12 Member States.

Finally, the less common games offered by State lotteries are high-speed Keno games and the running of Bingo halls, with such offerings by State lotteries in fewer than half of our sample of Member States.

Figure 12: Lottery games sold by State lotteries in EU Member States - 2004
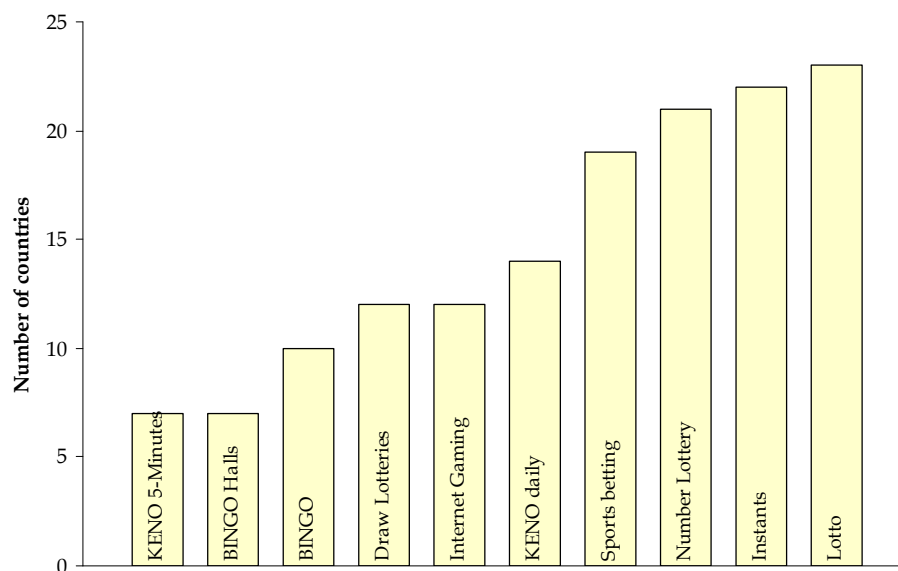
Source: London Economics' calculations, based on the replies from the members of the European Lotteries and Toto Association

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[19] A detailed country-by-country snapshot of the type of games sold by State lotteries is provided in Table 15 in Annex 4.

5.7 Number of lottery operators and number of outlets

Solitary lottery operators are active in 12 Member States (Austria, Belgium, Cyprus, Finland, France, Hungary, Ireland, Latvia, Luxembourg, Portugal, Slovakia and United Kingdom).

In the other Member States, the number of large lottery operators ranges from two in Denmark, Poland, Slovenia and Sweden to five in Germany[20]. Further country details are provided in Table 7 overleaf.

The number of outlets or points of sale also varies greatly, from a low of 39 in Cyprus to a high of more than 40,000 in France. Obviously, differences in the size of the population and the land area explain much of the variation in the number of points of sale.

An estimation of a simple equation relating the number of points of sale to the population size and the land area shows that both variables together explain more than 80% of the variation in the number of points of sale across the EU25.

Every additional 100,000 in population adds, on average, 34 sales points to the distribution network, and an increase of 1,000 km^2 in the land area adds, on average, 23 sales points to the distribution network.[21]

As noted earlier, State lotteries typically have a mandate to offer gaming opportunities to all the population irrespective of location. To meet this requirement, many State lotteries therefore maintain points of sale in remote or low-population-density areas that would not always be justified on strict business considerations.

For example, La Française des Jeux has informed us that, within its distribution network, there are about 500 points of sale that are kept for such reasons despite being unprofitable.

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[20] In Germany, we have counted the 16 Members of the Lotto and Toto bloc as one operator.

[21] The estimation results are the following:

Number of outlets = -65.6 (-0.04) + 34.2 (5.40) * Population in 100,000 + 23.4 (2.56) * Land area in 1,000 of km^2. The figures in parentheses are the t-statistics. The sample size was 23 (EU25 excluding Lithuania and Malta). The adj. R^2 = 0.84.

Table 7: Number of lottery operators and number of outlets		
Country	**Number of Lottery operators**	**Number of outlets**
Austria	1	7,557
Belgium	1	6,665
Cyprus	1	39
Czech Republic	3	6,872
Denmark	2	4,219
Estonia	3	1,355
Finland[1]	1	3,748
France	1	40,129
Germany	5[2]	25,389
Greece	2	5,320
Hungary	1	7,044
Ireland	1	3,500
Italy	2	33,000
Latvia	1	1,433
Luxembourg	1	600
Netherlands	3[3]	6,500
Poland	2	10,808
Portugal	1	4,540
Slovakia	1	1,795
Slovenia	2	2,828
Spain	3[4]	36,076
Sweden	2	6,200
United Kingdom	1	28,515

NOTE: (1) Data are only for Veikkaus. (2) We have counted the 16 Members of the Lotto and Toto bloc as one operator, the other operators being two class lotteries and 2 private charity lotteries operating at the national level. (3) There are three national operators in the Netherlands, whose operations cover eight licences. (4) Two of these lotteries operate at the national level and one at the regional level.
Source: Replies from the members of the European Lotteries and Toto Association

6 Who plays the lottery?

It is sometimes argued that lotteries are a form of regressive tax. According to such a line of reasoning, people with lower incomes play proportionally more the lottery than better off citizens. Therefore, it would be bad public policy to rely on lotteries to finance good causes.

However, the reality is much different from the assumption that lotteries are mainly played by people from low income groups.

In this section, we first review some academic studies of lottery participation and next present detailed market research information from a few European State lotteries.

Both types of sources show that lotteries are essentially played by the population at large with no significant socio-economic differences between the overall population and lottery-playing population.

6.1 Academic research into the lottery playing population

A profile of Australian gamblers, constructed by the country's Productivity Commission (1999), shows that 82% of adults participate in gambling. Despite this being a large majority of the population, some groups showed a higher tendency for participation in certain games. However, players of lotteries, which had the highest participation rate, most closely resemble the general population.

In the United States, it seems that the participation rate in the lottery of those with higher socioeconomic status is no different to other groups', but the frequency with which they play and their individual extent of involvement are lower (Welte et al., 2002).

6.2 Market research data of European lotteries

The market research presented below shows that, in terms of participation rates, the lottery is quite a universal form of gambling. The socio-economic distribution of lottery players is very similar to that of the wider population, based on evidence from four Member States (Denmark, France, Germany and Hungary).

For these four countries, we report the distribution of the population and of lottery players by gender, age, the highest level of education achieved, income, and employment status.

If the proportion of any given socio-economic group is higher within the group of lottery players than in the wider population, this implies that this group plays the lottery disproportionately more than other groups.

Only the gender split of lottery players appears at times to be different from that of the underlying population, with a higher proportion of males playing the lottery than females in some, but not all, countries.

Beyond this occasional gender difference, no other socio-economic characteristics appear to distinguish lottery players from the population at large.

In Denmark (Figure 13), older people participate in the lottery more than younger people, as do those of middle-incomes and middle levels of educational attainment but this essentially reflects the underlying population characteristics.

Figure 13: Socio-demographic distribution of population and lottery players in Denmark, 2004
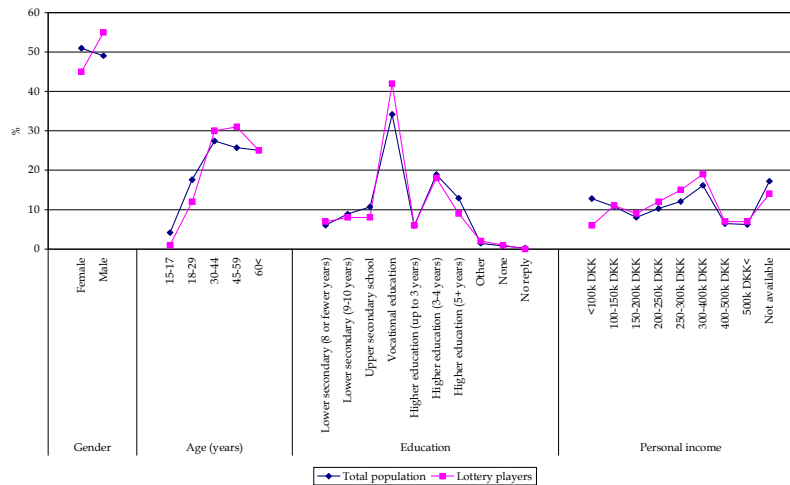
Source: Danske Spil (formerly Dansk Tipstjeneste)

In contrast, young people play the lottery disproportionately more than older people in France (Figure 14), with the exception of persons over 60 years old. Like Denmark, it seems that those employed in middle paying jobs participate in the lottery in a slightly greater proportion to their share of the population, but the differences are very small.

Figure 14: Socio-demographic distribution of population and lottery players in France, 2005
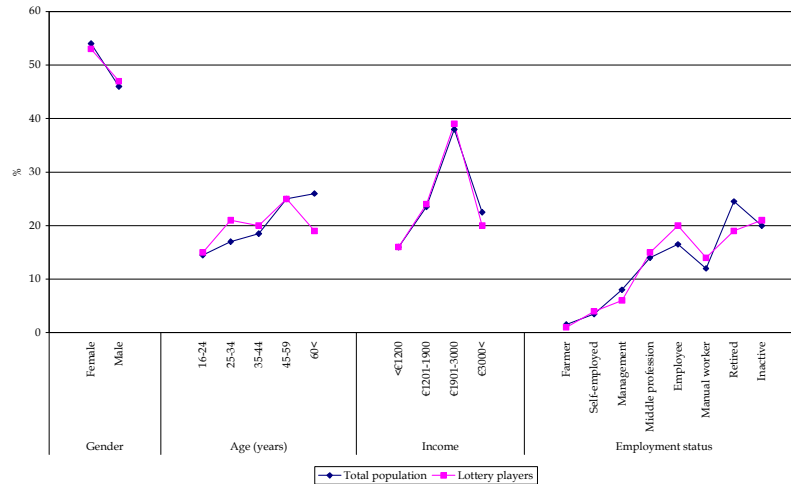
Source: La Française des Jeux

There are very few differences in the distributions of lottery players and the wider population in Germany (Figure 15). The few exceptions are that individuals under 29 years old do not participate in the lottery as much as individuals in other age groups. This is also true for students; it is likely that there is considerable overlap between these two groups.

Figure 15: Socio-demographic distribution of population and lottery players in Germany, 2004
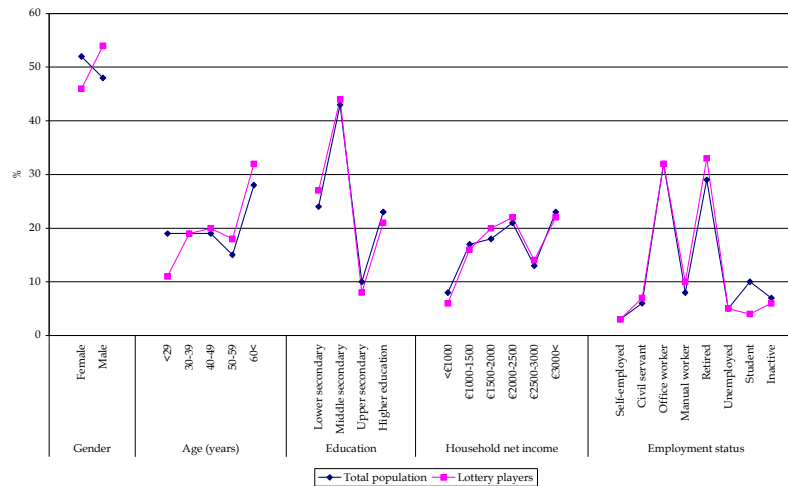
Source: GfK Panel Services Consumer Research GmbH

In Hungary (Figure 16), there is very little difference in the socio-economic characteristics of lottery players and the population at large.

Figure 16: Socio-demographic distribution of population and lottery players for Hungary, 2002
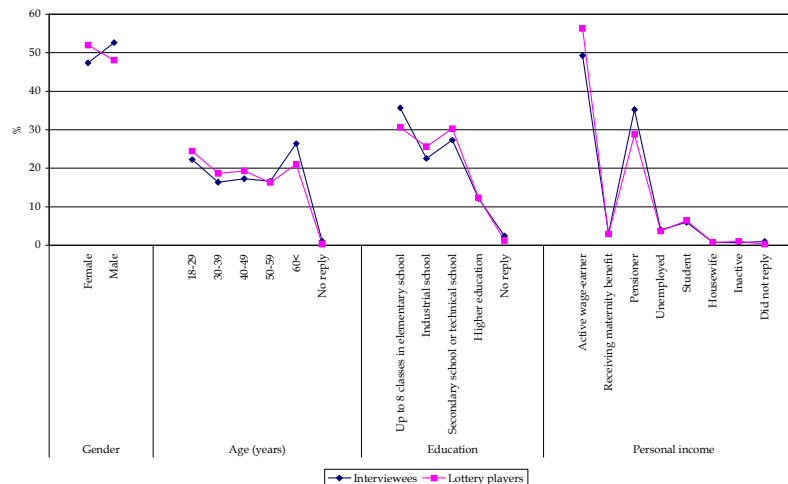
Source: Survey by Szonda Ipsos, on behalf of Szerencsejáték Zrt.

6.3   Average expenditures on lotteries

Not only are the socio-economic characteristics of the lottery players very similar to those of the population at large, but the actual amount played is typically relatively small.

For example, La Française des Jeux estimates that the average weekly spend per lottery player was €5.2 in 2005.

7   Lotteries and other types of gambling – one market?

7.1   Introduction

In this section, we show that lotteries and other forms of gambling are substitutes. In economic theory, two goods A and B are said to be substitutes if, when the price of A increases and that of B remains unchanged, the quantity demanded of B increases.

On the other hand, if the quantity demanded of good B decreases together with the quantity demanded of good A when the price of good A increases, the two goods are said to be complements.

As will be shown later in this section, the findings from the empirical literature is that lotteries and other forms of gaming are substitutes.

Economists measure the substitutability between two goods by the cross price elasticity between these two goods which is defined as follows:

Cross price elasticity of demand = $\dfrac{\text{\% change in demand for good B}}{\text{\% change in price of good A}}$

The cross price elasticity is therefore positive when two goods are substitutes and negative when the two goods are complements.

An alternative form used in the literature to investigate the potential substitution between lotteries and other forms of gaming is to estimate statistically a model relating the value or volume of lottery sales to the presence of other forms of gaming. A statistically significant and negative relationship between the level of lottery sales and the existence of other forms of gaming suggests the lotteries and these of other forms of gaming are substitutes.

Below, we review a number of findings from the literature.

Then, we review in greater detail the assessment of the liberalisation of the gaming market in Australia undertaken by the Australian Productivity Commission.

7.2   Findings on substitutability between different types of gambling from economic literature

Lotteries and slot machines - Arizona

Siegel and Anders (2001) investigated the substitution between different forms of gaming in the state of Arizona, USA. They found a statistically significant substitution effect between lotteries and Indian casino slot machines. Their estimate of cross-elasticity between lottery revenues and the

number of slot machines in Indian casinos is -0.375[22]. In other words, an increase in the number of slot machines reduces lottery revenues. The authors also examined various types of lottery games and concluded that a 10% increase in the number of slot machines resulted in a 3.8% decrease in lottery revenues and a 4.2% fall in Lotto revenues.

The authors also note that Steinnes (1998) found a small negative impact of Indian casinos on the Minnesota lottery.

Lotteries and betting - UK

Paton, Siegel, and Vaughan Williams (2004) (PSV) estimate that the cross-price elasticity of betting with respect to the National Lottery ranges from 0.355 to 0.396, in line with the result of Siegel and Anders (2001) who had also found the National Lottery and other forms of gambling were substitutes. Interestingly, Paton et al. (2004) found no evidence of substitution between slot machines or casinos on one hand and betting on the other.

Betting and lotteries - UK

Forrest, Gulley and Simmons (2005) find that some, but not all, forms of betting are sensitive to the amount of prize money available in the lotto game. However, the existence of significant substitution effects is found to depend critically on the timing of betting in relation to an anticipated rollover.[23] Lotto and certain forms of wagering are demonstrated to be substitutes, dependent on time of betting.

Lotteries and other forms of gaming

Forrest and Gulley (2005) investigate the extent to which there is a common clientele for the UK National Lottery and other forms of gambling.

Data on the amount spent on six 'other' forms of gambling (namely: football pools, 'other lotteries', bingo, scratch-cards, bookmaker betting and the Irish Lottery) show a positive and statistically significant correlation to lotto spending – suggesting that participation in any particular type of gambling promotes spending on others.

However, this correlation was of the form where participation in gambling influences the decision to play rather than the level of lotto play.

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[22] They adopt the following model: $\text{Log LOTT}_t = \alpha + \delta_S \text{Log NUMSLOTS}_t + \delta_H \text{Log HORSE}_t + \delta_D \text{Log DOG}_t + \delta_Y \text{YEAR}_t + u_t$, where LOTT denotes lottery revenues, NUMSLOTS is the number of slot machines in Indian casinos, HORSE represents the racetrack handle, DOG is the greyhound track handle, the t subscript indexes month t, YEAR is a dummy variable denoting the year, and u is a classical disturbance term. "δ_S can be interpreted as the elasticity of lottery revenues with respect to slot machines. The substitution hypothesis implies that $\delta_S < 0$." (p. 142) The R^2 values are reasonably high, indicating that the model fits well.

[23] For each product type, the authors built the following model:

$\text{TURNOVER}_{it} = F(\text{constant, TURNOVER}_{i, \text{lagged}}, \text{WEDNESDAY BONUS, WEDNESDAY BONUS}_{t+1}, \text{WEDNESDAY BONUS}_{t+2}, \text{SATURDAY BONUS, SATURDAY BONUS}_{t+1}, \text{SATURDAY BONUS}_{t+2}, \text{CONTROLS}_{it})$ Where TURNOVER_{it} refers to sales in sector i on date t. $\text{TURNOVER}_{i, \text{lagged}}$ is a vector of one or more lagged values of turnover in sector i. CONTROLS is a vector of control variables specific to the particular bookmaker product.

In the cases of bingo and pools, significant increases in lotto expenditure were seen per extra pound spent on bingo and pools.

The case was similar for betting at bookmakers, while for scratch-cards, the results were mixed depending on the level of purchase. However, the overall trend was in line with the rest.

Forrest and Gulley infer from these results that lotto and other forms of gambling present substitution possibilities (as opposed to being complements) since a price variation, such as a price fall in one, influenced sales levels in other gambling markets, a rise in sales in this example.

National Lottery and Lucky Numbers - Ireland

A study on the relationship between the Irish National Lottery and Lucky Numbers – fixed-odd betting on the Irish lottery (Purfield & Waldron, 1999), revealed that the two are complements rather than substitutes.

Larger lotto sales, as well as rollovers, which increased the expected value of the ticket and thus increased lotto sales, also increased Lucky Numbers sales. Purfield and Waldron suggest that customer interest in diversifying risk/lowering the variance of returns and increasing the expected return on a 'portfolio' of bets is a primary cause of this correlation.

The balance of evidence from research suggests that the lottery, though distinct in its features from most other forms of gambling, is nevertheless a substitute for these other forms.

National lottery - UK

A review of the gambling market for the UK government (Department of Culture, Media and Sport, 2001) reports that an Office of National Statistics survey (ONS, 2001) suggests that people do regard the National Lottery as gambling. The report's authors believe that the National Lottery competes with other forms of gambling. However, they also believe that the primary reason for playing the lottery is the attraction of winning a large ("life-transforming") prize, which is different from many other forms of gambling. They quote a statistic from the Prevalence Survey (Sproston, Erens & Orford, 2000), which found that 85% of those who participated in the National Lottery Draw in the past year did not participate in any other gambling activity.

The positive association observed in the United Kingdom between lotto and almost all other forms of gambling suggest gambling sectors cater to substantially the same audience as each other (Forest & Gulley, 2005). It is feasible that those with a propensity to gamble will shift between competing games. Therefore, say Forest and Gulley, a case for common regulation of lotto and other gambling and relationships with lotto should be taken into account when the competition authorities investigate the operation of other gambling markets.

Lotteries and horse betting

A study of the demand for pari-mutuel horse race wagering in the Ohio-Kentucky area of the United States (Thalheimer & Ali, 1995) looks at the substitutes to betting on horse races. The authors find that the Ohio State Lottery had a statistically significant negative impact on the demand for wagering at all three pari-mutuel horse racetracks analysed. Between 1974 and 1987, write the authors, "the presence of the Ohio State Lottery was estimated to have resulted in a decrease in attendance of 17.2%, loss in attendance-related revenue, and a 24.0% loss in handle-related revenue". The losses borne by the three racetracks were evenly distributed, but the governments of the two states also lost revenue. The Ohio state government recouped more revenue from its State Lottery than it lost from the decrease in demand for horse racing.

Effects of liberalisation within the Australian gambling market

According to the Australian Productivity Commission (1999), expenditure on gambling in Australia has grown from over $4 billion in 1987/88 to $11 billion in 1997/98 in 1997-98 prices.

The gambling share of household expenditure has grown from 2% to 3.3% over the same period. The increase has been largely due to the growth of expenditure on electronic gaming machines (EGMs) and casinos.

Expenditure on other forms of gambling has been flat.

Traditional forms of gambling, such as lotteries and racing have halved their share of the gambling market during the 1990s, in the face of the increase in EGMs and casino gambling.

The increase in expenditure largely reflects strong rises in those States that have allowed the introduction of EGMs (and in some cases casinos).

Levels of gambling expenditure in the liberalising states have begun to approach those in the states where EGMs have been widespread for many years.

7.3   Conclusions

The potential substitution between lotteries and other forms of gaming has not so far attracted much attention in the economic literature. This may be due to the fact that most markets are still heavily regulated and the scope for substitution between lotteries and other forms of gaming is so far relatively limited.

Nevertheless, the evidence from different countries presented above strongly suggests that lotteries and other forms of gaming are substitutes.

Any increase in the availability in other forms of gaming will reduce on the sales of lottery operators. Moreover, in some countries, the legal restrictions

on the offerings of lottery operators restricts their ability to make their offerings more attractive.

8   Net economic impact of liberalisation of gambling activities

8.1   Introduction

What would be the direct impact of increased liberalisation of the gambling sector on State-owned lotteries and totos?

By liberalisation we mean the elimination of the various measures put in place by Member States to restrict or prohibit for public good reasons the unfettered supply of gaming services, including cross-border gaming services.

For analysis, however, we restrict ourselves to looking at the impact of liberalising the gaming market within each Member State, but with the current State lotteries maintaining their role as the providers of national lottery games. We assume that the gaming markets in other EU25 Member States will become like that of one of the most liberalised markets in the EU, namely the United Kingdom.

We do not analyse the impact of liberalising the provision of State lottery products or the impact of liberalising the provision of gaming products across borders.

To assess the likely effects of such a liberalisation, it is important to recall that the available empirical evidence suggests that lotteries and other forms of gaming are substitutes.

What are then the likely effects of liberalisation?

First, like in the case of any market liberalisation, an opening of national gaming markets to either a wider diffusion of existing alternative gaming types to lotteries or the introduction of new gaming types, or both, is likely to expand the overall size of the market for gaming.

With unlimited supply of gaming opportunities, gambling addictions will rise unavoidably, imposing a substantial social and economic cost on society. We discuss this point in greater detail in Section 8.4.

The risk of criminal infiltration of the gaming sector will become also much more acute.

Finally, fraudulent manipulations of outcomes of various betting events could grow substantially.

The effects listed above are not purely hypothetical as shown by the consequences of recent liberalisation policies in Australia, the U.S.A. and elsewhere.

Moreover, as a result of the substitutability between lotteries and other types of gaming, the wider gaming choice offered to consumers will reduce the demand for the products of State-owned lotteries and totos. Thus, the sales

of State-owned lotteries and totos are likely to decline from the levels they would attain in the absence of liberalisation.

As a result of such a negative market development, State regulators defining the regulatory environment[24] under which State lotteries and totos operate will be faced with accepting a lower market share or responding to the competitive pressures from for-profit operators by raising the payouts to players to the level offered by private operators.

In either case, the net result will be lower revenues for good causes, because either the turnover of State lottery and toto operators will fall, or the payout to players will increase significantly, or both.[25]

To illustrate this critical point, we provide below a quantitative estimate of the likely losses to good causes that would arise as a result of the liberalisation of the gaming sector. But, first, we review the findings of a recent study on the effects of gaming liberalisation in the State of Victoria in Australia are particularly illuminating in this regard. These are summarised below.

8.2 Economic Effect of liberalising the gambling market in the State of Victoria

A study by Arthur Andersen (1997)[26] investigated the economic effects of liberalising the gambling market.

Its key finding at the microeconomic level is that some sectors of the economy that supply the gaming industry have expanded while others have contracted. Between 1992 and 1996, total employment in gaming venues (including hotels and clubs) has increased by more than 5,000; particularly amongst young people in metropolitan areas, and the overall trading position of gaming venues has improved significantly.

Within suppliers to the gaming industry, approximately 8,500 jobs have been created in the supply of goods and services and 10,200 jobs were created in construction (particularly in the construction of a permanent casino in the period 1995 to 1997).

At the same time, non-gaming clubs and hotels have experienced a decline in their trading positions.

Most importantly, traditional gambling activities such as racing, bingo, lotteries and lucky envelopes have contracted by $158 million since the introduction of EGMs.

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[24] State regulators typically set the allowable winnings payout ratio and the share of lottery revenues that is to be transferred to good causes, including the State.

[25] Österreichische Lotterien (2004) contains further discussion of the qualitative issues surrounding liberalisation, with specific reference to the Austrian gaming market.

[26] Arthur Andersen (1997).

Thus, liberalisation of the gaming market has shifted activity away from non-gaming clubs and hotels and traditional gambling activities towards venues with EGMs which are operated on a for-profit basis by private interests.

Unfortunately, the study does not report what happened to the funding of good causes, a key issue of interest. However, it is safe to venture that the funding of good causes by lotteries declined.

In the following section we quantify the likely impact on good causes of an opening of the gaming market in the various EU Member States.

8.3 Effect on good causes of an opening of the gaming sector

8.3.1 Introduction

As will be shown below, the impact on good causes of a liberalisation of the gaming sector depends on the following factors:

- The effect of liberalisation on the overall size of the gaming sector;

- The market share of the State lotteries and totos in the expanded gaming sector;

- The price response of the State lotteries and totos to any decline in market share.

- The payout ratio to good causes in the new market conditions.

For economic modelling purposes, the effect of liberalisation of the gaming sector on the payout to good causes can be assessed using the statistical results reported earlier, which show that per-capita expenditures on lotteries fall by 1.9% for each one percentage point increase in the share of non-lottery expenditures in total gaming expenditures. The details of the model are described in Annex 3.

8.3.2 Underlying assumptions

At issue for the simulation of the likely impact of liberalisation of the gaming sector on State lotteries is the level to which the share of expenditures on non-lotteries gaming in total gaming expenditures will eventually rise.

For the purpose of highlighting the likely impact of liberalisation on the funding of good causes, we have assumed that, following full liberalisation of the gaming sector, the share of expenditures on non-lotteries gaming in total gaming expenditures will eventually rise to the current level in the United Kingdom, a country with one of the most liberal gaming sector.

As already indicated above, the level of that share is estimated at 93% in 2004 in the United Kingdom.

The percentage change in payouts to good causes will be equal to the percentage change in the turnover of the lotteries provided the share of the turnover that is paid out remains the same.

In essence, the simulation assumes that, as a result of liberalisation, State lotteries will lose market share and therefore payouts to good causes will fall.

An alternative scenario that one could have envisaged is one in which State lottery regulators respond to the competitive threat of for-profit gaming operators in a liberalised gaming market by increasing the payout to players sufficiently so as to avoid losing any market share.

The impact on good causes will be identical to the one in the previous scenario as, in this second case, the turnover of lotteries is unaffected but only a much smaller share of the turnover can be channelled to the good causes.

8.3.3 Estimates of the impact of the gaming sector liberalisation on the funding of good causes

The results of the simulation of the impact of the liberalisation of the gaming sector in each Member State are reported in Figure 17 and in Figure 18.

First, in terms of change in the funding of good causes, expressed in percentage terms, one observes that losses could be as high as 70 to 95% in countries where lotteries have currently a very high market share.

For the EU25 excluding Italy and Malta, for which data are not available, funds provided to good causes would fall by more than a third (35%). In half of the countries, the decline in the funding provided to good causes would be greater than 20%.

In absolute terms, the loss to good causes would total €5.5 billion with a number of countries experiencing very significant losses of €500 million or more (France, Germany and Spain).

Of note is the fact that those New Member States with very small lotteries would be relatively unaffected by such liberalisation.

The results reported above suggest that the losses to the good causes following a liberalisation of the gaming sector could be very significant indeed.

Unfortunately, the winners, namely the for-profit gaming operators, pay no or very low taxes and thus the increase in their activity will not provide a source of income that would offset the losses of the good causes.

Figure 17: Change (in %) in funding of good causes following liberalisation of the gaming sector
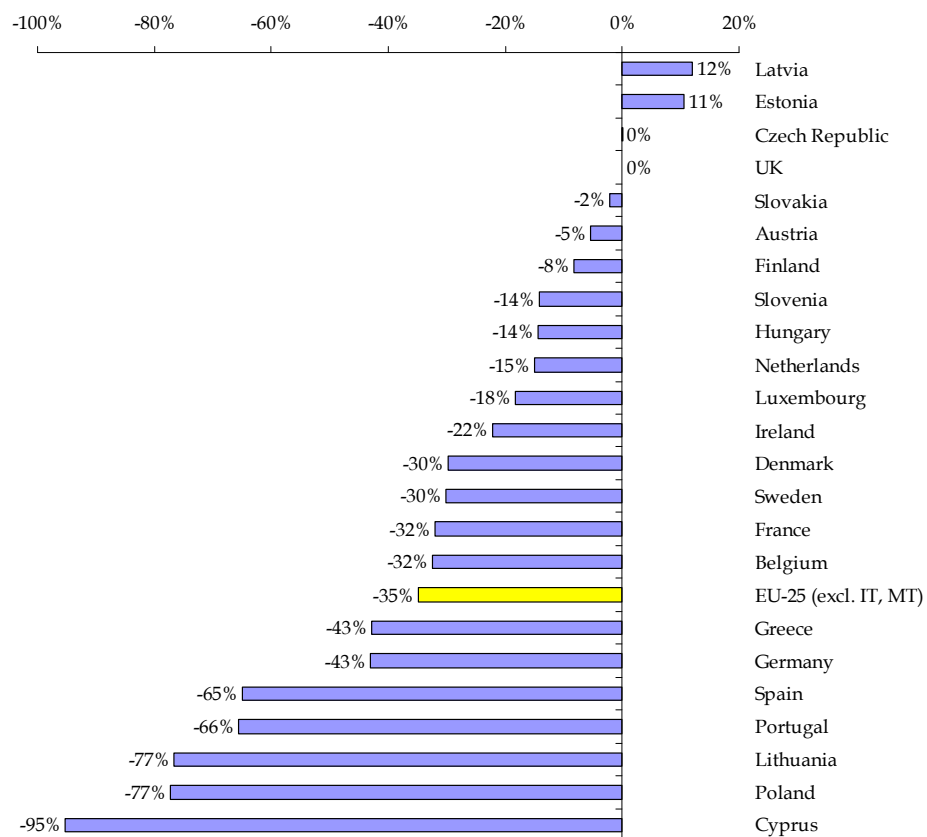
Source: London Economics' calculations, based on the replies from the members of the European Lotteries and Toto Association

Figure 18: Change in levels of funding of good causes following liberalisation of the gaming sector
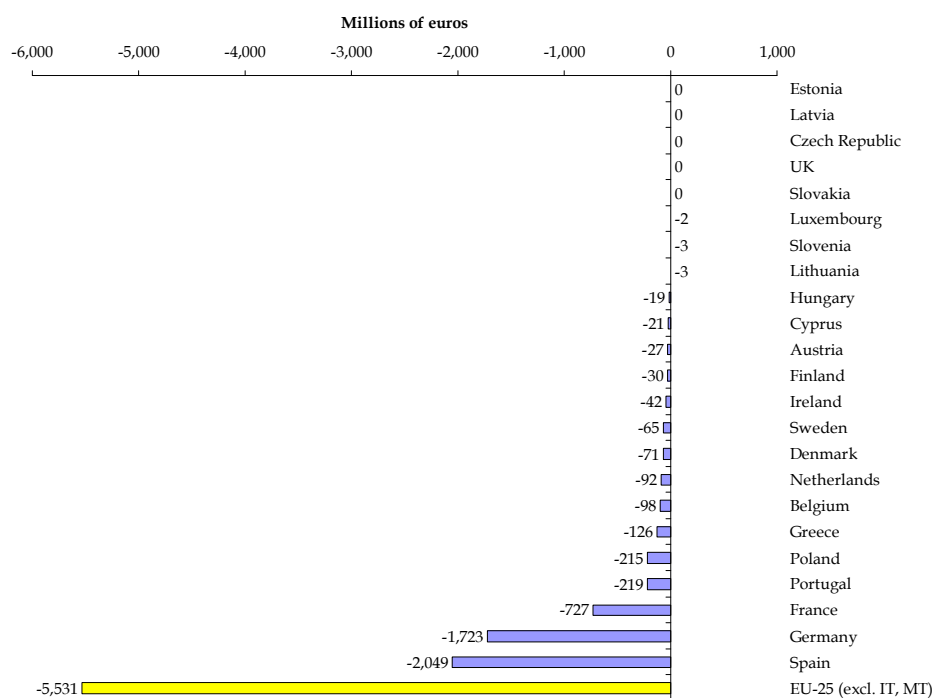
Millions of euros

0	Estonia
0	Latvia
0	Czech Republic
0	UK
0	Slovakia
-2	Luxembourg
-3	Slovenia
-3	Lithuania
-19	Hungary
-21	Cyprus
-27	Austria
-30	Finland
-42	Ireland
-65	Sweden
-71	Denmark
-92	Netherlands
-98	Belgium
-126	Greece
-215	Poland
-219	Portugal
-727	France
-1,723	Germany
-2,049	Spain
-5,531	EU-25 (excl. IT, MT)

Source: London Economics' calculations, based on the replies from the members of the European Lotteries and Toto Association

In our scenario, we have assumed that, in a liberalised market, the share of non-lottery expenditures in total gaming expenditures would rise to the level that prevailed in the United Kingdom in 2004.

Gauging the effect of alternative assumptions is very simple as the model used for the simulation is linear.

For example, if one assumes that instead of closing the gap with the United Kingdom expenditures share completely, liberalisation increases the share of non-lottery expenditures in total expenditures by only half of the difference between the share that prevailed in each Member State and the UK share in 2004, the losses to good causes are simply half of the losses reported in Figure 17 and Figure 18.

Similarly, if one assumes that the gap is closed by three-quarters, then the losses to good causes will be three-quarters the size of those reported in Figure 17 and Figure 18.

Thus, to generate the losses to good causes for the scenario that one views as the most likely it suffices to scale the losses reported in Figure 17 and Figure

18 by the assumed proportion of the gap that will be closed between the current share of non-lottery spend in total gaming expenditures in each Member State and the equivalent UK share.

A liberalisation of the gaming sector will not only impact on lotteries and good causes. As noted at the beginning of this section, it will also create wider economic and social problems in terms of gambling addiction and its nefarious consequences. This point is addressed in greater detail in the next section of the report.

8.4   Gaming and "problem gaming"

8.4.1 Background

Gaming can lead to many economic and social problems. Unfortunately, while there exist many studies focusing on gambling problems for particular segments of the population or for specific gaming activities, there is very little empirical evidence on the overall economic and social cost of gaming.

The following table provides a good overview of all the potential factors that one would need to take into account in assessing the overall economic and social costs of gaming.

Table 8: The economic and social costs of gaming	
Tangible costs	
Production	Reduced on-the-job productivity
	Reduced workforce (absenteeism, unemployability, suicide)
	Reduced unpaid household services
	Resource allocation effects of corruption
Health and counselling	Psychosocial treatment of gamblers
	Treatment of families of gamblers
	Treatment of victims of crime attributable to gambling
Crime	Policing
	Judicial systems
	Penal systems
	Insurance administration
Regulation	Regulation supervision
	Regulatory programs
Research and evaluation	Research
	Development
Welfare	Welfare
	Other programs
Prevention	Prevention programs
	Crime prevention
	Regulation supervision
Intangible costs	
Loss of life	
Suffering and bereavement	
Quality of life	
Cultural impacts	
Stress to crime victims	
Stress to gamblers and others	

Source: Collins and Lapsley (2003)

As noted earlier, with the exception of the work undertaken by the Australian Productivity Commission, no studies exist providing an overall assessment of the economic and social costs of gaming.

Below, we report first some of the more narrowly focused findings from the literature regarding gaming addictions, and then discuss the results of the work by the Australian Productivity Commission.

In a nutshell, the key findings are that:

- Lotteries are not a source of damaging gaming behaviour. In contrast, fast-paced games such as slot machines can lead to gaming addictions.

- The total economic and social cost of gaming is high. It is estimated at between 17% and 52% of the total amount spent on gaming in Australia.

8.4.2 Problem gaming behaviour in Australia

According to a report completed by Access Economics (1999), lotteries are not a source of gambling problems. Rather, continuous forms of gambling seem to give rise to problems of excessive gambling, and even still, the consequences are serious for a very small proportion of the adult population.

Echoing comments by other authors, Access Economics states that the attributes that make lottery tickets attractive are not those which are believed to cause problem gambling behaviour. The authors continue that the lottery draw does not offer a rapid outcome, there is no strong incentive to make another immediate purchase following the draw, and there is no significant element of skill involved in the activity. The purchase of lottery tickets by heavy gamblers stems from their participation in gambling; the lottery is not the cause of their gambling problem.

Figure 19: Share of expenditure on gambling by problem gamblers, Australia, 1999 (%)
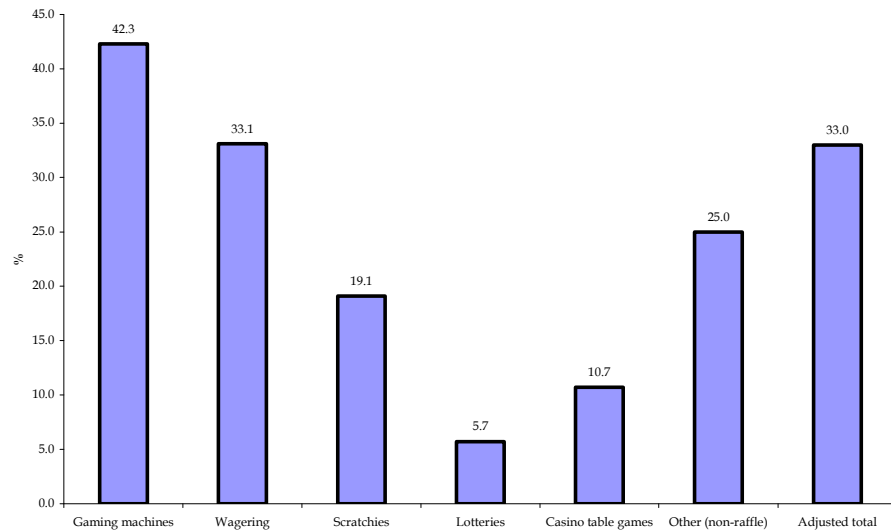
Source: PC National Gambling Survey, and appendix P of Productivity Commission (1999)

Figure 20: Source of problem gambling in Western Australia and Victoria
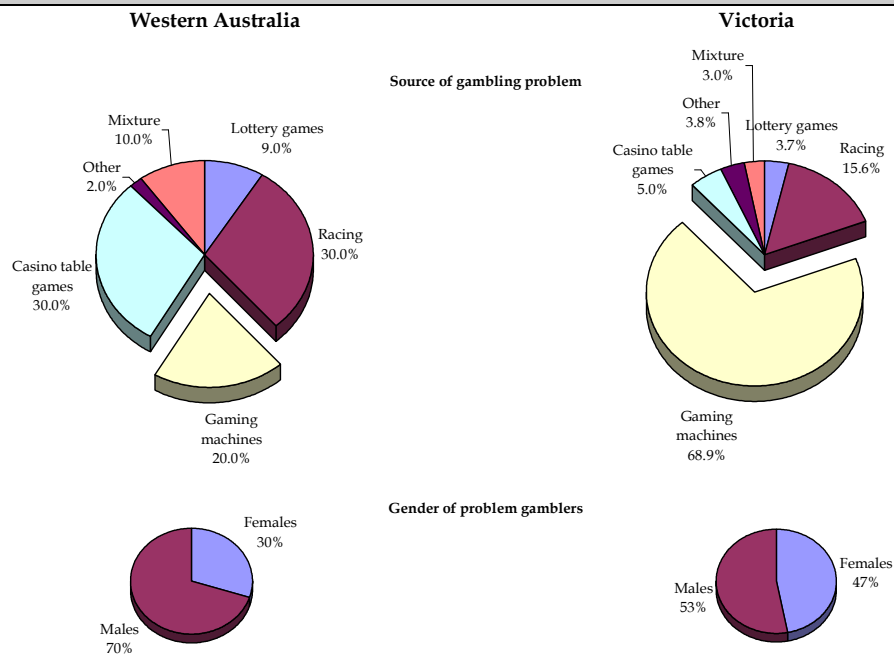
Source: PC Survey of Counselling Agencies

Forrest, Gulley and Simmons (2005) note that betting is regarded as 'hard' gambling because there is often opportunity to chase losses but lotto is almost never regarded as a source of social problems.

Abbott, Volberg and Rönnberg undertook recently a review of the literature on the prevalence of problem gambling.[27] Their key finding is that:

> "*Despite the use of different methodologies and variable technical quality, problem gambling prevalence studies have shown a high degree of consistency in their general findings. Problem gambling is strongly associated with preferences for, frequent involvement in, and high expenditures on forms of gambling that are continuous in nature and involve an element of skill or perceived skill. 'Continuous' gambling activities are those characterised by particularly rapid cycles of stake, play and determination (Dickenson, 1993). Gaming machines, casino gambling, and betting on outcomes of sporting and other events are typically implicated. Particular socio-demographic groups, including youth, males, some ethnic minorities and lower-income and less educated people have also been found to be at high risk for problem gambling (Abbott & Volberg, 1999, National Research Council, 1999, Shaffer, Hall and Vander Bilt, 1997).*"

The bottom line is that the empirical literature strongly suggests that any expansion of the gaming market at the expense of lotteries will result in an increase in the incidence of gambling problem.

Unfortunately, the economic and social consequences of problem gambling in terms of ill health and health care costs, reduced labour force participation, productivity, etc are not well documented.

8.4.3 Problem gambling in New Zealand and Sweden

A study comparing results from gambling surveys in New Zealand and Sweden (Abbot, Volberg and Rönnberg, 2004) found that risk factors may change over time in relation to evolving patterns of gambling participation and attitudes towards gambling.

In both countries, problem gamblers were much more likely to report gambling weekly or more often as well as much higher gambling expenditures. In Sweden, problem gamblers had much higher levels of regular involvement in Swedish sports pools, betting on horse racing and playing instant lottery games than non-problem gamblers. Similarly, in New Zealand, problem gamblers had high or extremely high levels of involvement in several continuous forms of gambling (non-casino gaming machines, track betting, casino gambling, TeleBingo, card games and making money bets with friends or workmates).

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[27] National studies of gambling prevalence have recently been undertaken in New Zealand (Abbott and Volberg, 1991, 1992, 2996, 2000, Volberg and Abbott, 1994), Sweden (Rönberg et al., Volberg et al., 2001a), Switzerland (Bondolli et al., 2000), Australia (Productivity Commission, 1999), the U.S.A. (Gersten et al. 1999, Welte et al., 2001) and Great Britain (Sproston et al. 2000).

8.4.4 Problem gambling in the UK

A summary of the current research (Abbot et al., 2004) suggests that increased access to continuous forms of gambling generates increased incidence of problem gambling. According to the authors, the risk profile of problem gamblers is likely to change in the United Kingdom, towards a more even distribution across socio-economic strata and age groups. This includes gender and ethnicity.

Research suggests that the rise in problem gambling prevalence will eventually reach a plateau, but this may be after substantial rises (three- to four-fold increases) and may yet require active control policies. The extent to which, and speed with which, reduction measures will be effective is not yet known. The authors conclude that more generalist research is needed on the topic of problem gambling, since most of the knowledge on the UK issues comes from studies on problem gambling among youth.

Continuous gambling is more likely to lead to excess, according to research[28] cited by Ward (2004). Ward also presents the findings of the British Gambling Prevalence Survey[29], conducted in 1999. The survey found that the proportion of problem gamblers was more than three times higher for youths (1.7% for 16-24 year-olds) than for adults (0.5% for those aged 25 years or more). The proportion was also found to be higher for men than women (0.9% to 0.3%). Young people were the most likely to develop a gambling problem of those having gambled in the last year, with males aged 16-24 having the highest probability at 4%. Females in the same age group had a probability of 1%.

However, the prevalence of problem gambling overall in Britain (0.6%-0.8%) was not observed to be as high as in other countries where similar survey methods were used. Prevalence rates were found to be between 1.1% and 1.4% in the United States, New Zealand and Spain, and as high as 2.3% in Australia. A statistical analysis of the results showed that being male, reporting a parent with a history of being a problem gambler, and being in the lowest income category all are associated with becoming a problem gambler.

Ward concludes that the weight of the small evidence that exists suggests that liberalisation of gambling laws increases the prevalence of gambling problems. This has been found in studies in the United Kingdom and various jurisdictions in North America. An interesting observation from the North American studies is that in some cases, there was a decrease in the prevalence of problem gambling following an increase in availability. Typically, Ward states, this is associated with strong systems in place to provide services to problem gamblers.

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[28] Walker (1992)

[29] Sproston, Erens and Orford (2000)

8.4.5 Economic and social cost of gambling

The Australian Productivity Commission (1999) estimated that total annual social and economic cost of gaming was in the range of €1.1 to €3.5 billion in the late nineties, or between 17% and 52% of total expenditures on gaming. On a per-capita basis, the cost estimates range from €60 to €186 while gaming expenditures stood at €360.

The table overleaf provides a detailed breakdown of the various costs which were taken into account in the analysis by the Australian Productivity Commission. [30]

The data in the table are clearly indicating that economic and social costs associated with gaming are likely to be significant in a liberalised market.

However, in the absence of more detailed information on the extent of the gambling problem in the various Member States at the present time, it is not feasible to estimate with any degree of precision the likely increase in costs that would result from liberalisation.

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[30] An example of the framework for a social evaluation of the gaming market is given in Grinols (2004).

Table 9: Estimates of the social costs of gambling – Australia (€m)		
Type of social costs	**Low estimate**	**High estimate**
Bankruptcy	1	1
Productivity loss	17	124
Job change	37	37
Police, court and jail	9	9
Distress of family and parents	469	1819
Breakup, divorce and separation	259	694
Violence	2	5
Depression and suicide	311	763
Gambling counselling services	12	12
Total	**1,116**	**3,463**
Total as % of expenditures on gaming	*17%*	*52%*
Total per capita	*€60*	*€186*

Source: Australia Productivity Commission

8.5   Conclusions

The analysis in the present and the previous section has shown that the market share of lotteries in a liberalised gaming market is likely to fall in the absence of a price response by lottery operators to respond to the competitive pressures of for-profit operators. As a result, the funding of good causes could fall sharply.

Liberalisation would in effect result in a redistribution of total gaming from good causes to players and the financial bottom line of for-profit gaming firms.

Gambling-related social problems are also likely to increase substantially, though in the absence of robust figures, it is difficult to quantify the generated costs at this stage. Liberalisation would allow individuals to play games based in other EU Member States. If a particular gaming activity becomes especially popular, this could result in a cross-border separation of the location of the gaming revenues and the gambling problems.

9   Conclusions

Data on the gaming market in Europe are limited, and in, this report, we provide first an as comprehensive overview as possible of the size of the gaming market in the EU25. Overall, we estimate that total legal gaming expenditures amounted to €290 billion in the EU25 or 2.8% of EU25 GDP in 2004.   This aggregate figure, however, hides significant variation across Member States with annual gaming expenditures on a per-capita basis ranging in 2004 from a low of €20 in Lithuania to a high of €1,900 in Austria.

State lotteries and totos occupy a special place in the gaming market in that their fundamental mission is to channel and control the gaming desire of the population.   To achieve this objective, State lotteries and totos typically maintain a network of points of sale that reaches the most remote regions in each country, even if points of sales in such regions are not profitable to maintain. Another key feature of State lotteries and totos is that they are required to channel a significant share of their turnover to various good causes and/or to the government.

In contrast, the other operators in the gaming market are driven by a pure profit business model. They are not required to support good causes and also typically pay much lower taxes to the government. As a result, they can pay back to players as winnings a much higher share their turnover.

Full liberalisation of gaming and the ensuing abolition of all restrictions on gaming offerings will most likely lead to increase in the overall size of the gaming market.

As examples from countries haven adopted such a policy, the society-wide social and economic consequences can be significant.

In addition, such liberalisation will result in a significant decrease in the State lotteries and totos' turnover as players migrate to more attractive games in turns of winnings and, as a result, the funding of good causes by State lotteries and totos will be sharply reduced.

State lotteries and respond to such a market development by increasing the attractiveness of their offerings, but such a course of action will also reduce the funding of good causes.

In the report we show that this drop in funding of good causes could be very substantial, as much as €5.5 billion for the EU25 as a whole. In this respect liberalisation would lead to a redistribution of gaming benefits from the recipients of the "good causes funds" to the players.

Participation in gaming activities would become more and more attractive and addictive. Social problems resulting from this stimulating gaming offer would increase considerably parallel to rising stakes. However, there exist no good comprehensive data on the fill economic and social costs of gaming addiction. It is therefore difficult to quantify such costs at the present time.

10   References

"*Longitudinal Study of Gambling: Methods, Definitions and Measurement*", 8th December 2004, A Record of the RIGT Workshop held at MGM-Grand Las Vegas.

Abbot, M.W., Volberg, R.A. & Rönnberg, S. (2004) "Comparing the New Zealand and Swedish National Surveys of Gambling and Problem Gambling" in *Journal of Gambling Studies*, 20, 3, Fall.

Abbott, M., Volberg, R., Bellringer, M. & Reith, G. (2004) "A Review of Research on Aspects of Problem Gambling – Summary, Conclusions and Recommendations", a report by the Gambling Research Centre for The Responsibility in Gambling Trust, UK.

Access Economics (1999) *Productivity Commission Inquiry into the Australian Gambling Industry – Submission on behalf of Tattersall's*, prepared for Tattersall Sweep Consultation.

Albers, N. & Hübl, L. (1997) "Gambling Market and Individual Patterns of Gambling in Germany" in Journal of Gambling Studies, 13, 2, Summer.

Arnold, G., Collins, P., Eadington, W.R., Remmers, P. & Ricketts, T., March (2003) "*Towards a Strategy for Addressing Problem Gambling in the UK*", A report to the Gambling Industry Charitable Trust.

Australian Medical Association (1999) *AMA Submission to Productivity Commission Inquiry into Australia's Gambling Industries.*

Benjamin, D.J. & Laibson, D.I., (2003) "*Good Policies for Bad Governments : Behavioral Political Economy*", Report prepared for Federal Reserve Bank of Boston Behavioral Economics Conference.

Collins, D. & Lapsley, H. (2003) "The Social Costs and Benefits of Gambling: An Introduction to the Economic Issues" in *Journal of Gambling Studies*, 19, 2, Summer.

DeHaven, J. (2000) State ads will target gamblers.   The Detroit News. http://www.detnews.com/2000/metro/0002/29/02290082.htm.

Diecidue, E., Schmidt, U. & Wakker, P.P., (2004) "The Utility of Gambling Reconsidered", *The Journal of Risks and Uncertainty.*

Europe Economics (2004), "*The Case for a Single European Gambling Market*", Report, March.

Farrell, L. & Walker, I., (1999) "The welfare effects of lotto: evidence from the UK", *Journal of Public Economics*, Vol.72.

Farrell, L., Morgenroth, E. & Walker, I. (1999) "A time series analysis of UK lottery sales: long and short run price elasticities" in *Oxford Bulletin of Economics and Statistics*, 61, 4.

Forrest, D. & Gulley, O.D. (2005) "Participation and Level of Play in the UK National Lottery: Characteristics of Lotto Players and Correlation with Spending on Other 'Vices'", School of Accounting, Economics and Management Science, University of Salford, August.

Forrest, D. (1999) "The past and Future of the British football pools" in *Journal of Gambling Studies*, 15.

Forrest, D., Gulley O.D. & Simmons, R. (2005) "The relationship between betting and lottery play: a high frequency time-series analysis", *Lancaster University Management School Working Paper*, 2005/046.

Forrest, D., Gulley, O.D. & Simmons, R., "Elasticity of Demand for UK National Lottery.

Forrest, D., Simmons, R. & Chesters, N., (2002) "Buying a Dream: Alternative Models of Demand for Lotto", *Economic Inquiry*, Vol.40, No.3, July.

Garrett, T.A. & Nichols, M.W., (2005), "Do Casinos Export Bankruptcy?", *Working Paper Series*, March.

Garrett, T.A. & Sobel, R.S., (2002) "State Lottery Revenue: The Importance of Game Characteristics", *Working Paper Series.*

Grinols, E.L. (2004) *Gambling in America: costs and benefits*, Cambridge University Press: New York.

Gulley, O.D. & Scott Jnr., F.A., "Lottery Effects on Pari-Mutuel Tax Revenues", *National Tax Journal*, Vol. XLII, No.1.

Gullickson, A.R. & Hartman, D. (2001) *A survey of gambling behaviours in Michigan, 2001.* Michigan Department of Community Health. Available at http://www.wmich.edu/evalctr/pubs/gambling01.pdf.

Hing, N. & McMillen, J., "A Conceptual Framework of the Corporate Management of Social Impacts: The Case of Problem Gambling", *Business and Society Review.*

House of Commons (2005) "*Report of the Gaming Board for Great Britain 2004-05*", Report for the House of Commons.

Italian Senate – Senato della Republica XIV Legislatura, *Documento Approvato dalla 6e Commissione Permanente (Finanze e Tesoro), A Conclusione dell'Indagine Conoscitiva, Sul Settore dei Giochi e delle Scommesse*, March 2003.

Keuleers, E., (2005) "From Gambelli to Placanica to…a European framework for remote gaming", *Ulys*, June.

Kingma, S., (2004) "Gambling and the Risk Society: The Liberalisation and Legitimation Crisis of Gambling in the Netherlands", *International Gambling Studies*, Vol.4, No.1, June, Health for Ontario Problem Gambling Research Centre.

Macdonald, J., Turner, N. & Somerset, M. (2003) *Life Skills, Mathematical Reasoning and Critical Thinking: Curriculum for the Prevention of Problem*

Gambling. Centre for Addiction and Mental Tickets", *National Tax Journal*, Vol. LIII, No.4, Part 1.

MacDonald, J., Turner, N. & Somerset, M., "*Life Skills, Mathematical Reasoning and Critical Thinking: Curriculum for the Prevention of Problem Gambling*", Final Report to the Ontario Problem Gambling Research Centre.

MacDonald, M., McMullan, J.L. & Perrier, D.C. (2004) "Gambling Households in Canada" in *Journal of Gambling Studies*, 20, 3, Fall.

Office of National Statistics (2001) *Attitudes to gambling in Great Britain*, January 2001

Orford, J., Sproston, K., Erens, B., White, C. & Mitchell, L., *Gambling and Problem Gambling in Britain*, Brunner-Routledge

Österreichische Lotterien (2004) "The Consequences of Liberalised Gaming, in Particular Lotteries, for Austria", mimeo, 25 February 2004.

Paton, D., Siegel, D.S. & Vaughan Williams, L., (2004), "Productivity Measurement in a Service Industry: Plant-Level Evidence from Gambling Establishments in the United Kingdom", *Working Papers in Economics*, No.0413, June.

People 1st (2005) "The Gambling Industry", *People 1st Industry report*, February.

Productivity Commission (1999) *Australia's Gambling Industries*, Report No. 10, Canberra: AusInfo.

Purfield, C. & Waldron, P. (1999) "Gambling on lotto numbers: testing for substitutability or complementarity using semi-weekly turnover data.

Scott, R., "*Towards the One Stop Gambling Shop in Europe?*", UNI Report on Europe and Casinos: the Dynamics of Global Change

Shaffer, H.J., Hall, M.N. & Vander Bilt, J. (1999) "Estimating the Prevalence of Disordered Gambling Behavior in the United States and Canada: A Research Synthesis" in *American Journal of Public Health*, 89, 9, September.

Siegel, D. & Anders, G. (2001) "The impact of Indian casinos on State lotteries a case study of Arizona" in *Public Finance Review*, 29, 2, March.

Sproston, K., Erens, B. & Orford, J. (2000) *Gambling Behaviour in Britain: Results from the British Gambling Prevalence Survey*, London: National Centre for Social Research.

Snapshots International (2004) *Spain Gambling Industry 2004*, December.

Stinchfield, R. (2002) "Youth Gambling: How big a problem?" in *Psychiatric Annals*, 32, 3.

Thalheimer, R. & Mukhtar, M.A. (1995) "The Demand for Parimutuel Horse Race Wagering and Attendance" in *Management Science*, 41, 1, January.

UK Department of Culture, Media and Sport (2001) *Gambling Review Report*, London.

Verbiest, T. & Keuleers, E., (2003) "Cross-Border Gaming: The European Regulatory Perspective", *Gaming Law Review*, Vol.7, No.3.

Vlaemminck, P. & De Wael, P., (2003) "The European Union Regulatory Approach of Online Gambling and its impact on the Global Gaming Industry", *Gaming Law Review*, Vol.7, No.3.

Volberg, R.A. (1994) "The prevalence and demographics of pathological gamblers: Implications for public health" in *American Journal of Public Health*, 84.

Walker, I., (1998) "Lotteries – Determinants of ticket sales and the optimal payout rate", *Economic Policy.*

Walker, M.B. (1992) *The psychology of gambling*.

Ward, P. (2004) *The Gambling Bill – Bill 163 of 2003-04*, House of Commons Library Research Paper, 04/79, 28 October.

Welte, J.W., Barnes, G.M., Wieczorek, W.F., Tidwell, M.-C. & Parker, J. (2002) "Gambling Participation in the U.S. – Results from a National Survey" in *Journal of Gambling Studies*, 18, 4, Winter.

Annex 1 Statistical analysis of the variation in gaming expenditures across the EU

The data in Table 2 show a great deal of variation in the level of expenditures on gaming activities per inhabitant across the EU Member States. An obvious potential factor explaining such a wide dispersion is the difference in income level across the EU.

Therefore, to quantify the relationship between income, using the level of GDP per capita as a proxy, and gaming expenditures per inhabitant, we estimate the following equation:

(Eq. 1)   Gaming expenditures per capita = α + β * GDP per capita

where ß is the elasticity of gaming expenditures to income when Equation 1 is estimated in logarithmic form.   The statistically estimated ß coefficient indicates by how much gaming expenditures per capita increase, in per cent, when GDP per capita increases by 1%.

The estimation results reported in Box 1 overleaf show that, when Equation 1 is estimated across the 24 EU Member States using 2004 data, gaming expenditures increase by 1.1% with each 1% increase in GDP per capita.

To further explore the effect of different State policies vis-à-vis gaming on the per-capita gaming spend, one would want to re-estimate Equation 1 with an additional explanatory variable reflecting the differences in attitudes towards gaming in each Member State.

In the absence of such a summary index variable, the share of non-lottery gaming expenditures in total gaming expenditures was used, on the assumption that such expenditures are likely to grow more or less in line with a more liberal attitude towards gaming.

Thus, we have re-estimated a modified version of Equation 1 shown as Equation 2 below

(Eq. 2)   Gaming expenditures per capita = α + β * GDP per capita + γ * share of non-lottery gaming expenditures on total gaming expenditures

The estimation results show that is important to take into account differences in attitudes towards gaming when assessing the impact of income levels on gaming expenditures.

The estimated elasticity of gaming expenditures to GDP is found to be marginally higher, but remains at 1.1, rounded to one decimal place.

However, the estimation results show that residents of countries with more liberalised gaming sectors spend more overall on gaming. A one percentage point increase in the share of non-lottery gaming expenditures in total gaming expenditures causes the total level of expenditures on gaming to increase by 3.3%.

Box 1

Relationship between per capita expenditures on gaming and GDP per capita

Model 1: Gaming expenditures per capita = α + β * GDP per capita

Both gaming expenditures per capita and GDP per capita are in logarithmic form

Cross-section estimation results, 24 Member States (see Table 2 for gaming data), 2004

Coefficient	Value	T-statistic
α	-4.25	-1.87
β	1.05	4.50*
Summary statistics	Adj. R² = 0.46 RMSE = 0.81	

Model 2 Gaming expenditures per capita = α + β * GDP per capita + γ share of non-lottery gaming expenditures in total gaming expenditures

Both gaming expenditures per capita and GDP per capita are in logarithmic form

Cross-section estimation results, 24 Member States (see Table 2 for data), 2004

Coefficient	Value	T-statistic
α	-6.81	-3.95*
β	1.05	6.26*
γ	3.33	4.61*
Summary statistics	Adj. R² = 0.72 RMSE = 0.59	

NOTE: * = statistically significant at 5%; RMSE = root mean-squared error.

Annex 2 Statistical analysis of the variation in expenditures on lotteries across the EU

To assess whether differences in income levels account for the observed variation in spending on lotteries, we have estimated a model relating the level of per capita expenditures on lotteries to the level of per capita GDP.

(Eq. 3) Expenditures on lotteries on a capita basis = $\alpha + \beta * $ GDP per capita

where ß is this time the elasticity of expenditures on lotteries to income when Equation 3 is estimated in logarithmic form. The statistically estimated ß coefficient now indicates by how much lottery expenditures on a per-capita basis increase, in per cent, when GDP per capita increases by 1%.

The estimation results reported in Box 2 show per capita expenditures on lotteries increase by 1.5% for each 1 percentage point increase in GDP per capita.

To further explore the effect of different State policies vis-à-vis gaming on the level of lottery expenditures on a per-capita basis, we have re-estimated Equation 3 by including in the equation an additional variable reflecting the share of non-lottery gaming expenditures in total gaming expenditures.

This is to examine whether other forms of gaming crowd out lotteries in a more liberalised gaming sector. To that end the following equation was estimated.

(Eq. 4) Lottery expenditures per capita = $\alpha + \beta * $ GDP per capita $+ \gamma$ share of non-lottery gaming expenditures on total gaming expenditures

The empirical findings are striking.

We find that an increase in the share of non-lottery expenditures in the total gaming expenditures is associated with a significant drop in the level of lottery expenditures. In other words, lottery expenditures in countries with a more liberal attitude towards gaming tend to get crowded out by other forms of gaming.

In terms of specific quantitative impact, we find that an increase of one percentage point in the share on non-lottery expenditures in total gaming expenditures is associated with a reduction in the absolute level of per capita spending on lotteries of 1.9%, a very significant crowding-out effect indeed.

The elasticity of lottery expenditures (on a per-capita basis) with respect to GDP per capita is very slightly reduced, but remains at 1.5 (to one decimal place). This implies that each 1% increase in GDP is associated, on average, with a 1.5% increase in per-capita expenditures on lotteries across the 24 Member States in our sample.

Box 2

Relationship between per capita expenditures on lotteries and GDP per capita

Model 1: lottery expenditures per capita = α + β * GDP per capita

    Both gaming expenditures per capita and GDP per capita are in logarithmic form

    Cross-section estimation results, 24 Member States (see Table 2 for data), 2004

Coefficient	Value	T-statistic
α	-10.33	-5.70*
β	1.49	8.00*
Summary statistics	Adj. R² = 0.73 RMSE = 0.65	

Model 2 lottery expenditures per capita = α + β * GDP per capita + γ share of non-lottery gaming expenditures in total gaming expenditures

    Both gaming expenditures per capita and GDP per capita are in logarithmic form

    Cross-section estimation results, 24 Member States (see Table 2 for data), 2004

Coefficient	Value	T-statistic
α	-8.84	-5.26*
β	1.49	9.12*
γ	-1.94	-2.76*
Summary statistics	Adj. R² = 0.79 RMSE = 0.57	

NOTE: * = statistically significant at 5%; RMSE = root mean-squared error.

Annex 3 The model used to estimate the impact of the liberalisation of the gaming sector on lotteries

The model used to simulate the impact of liberalisation of the gaming sector on payouts to good causes is given by Equations 5 and 6:

(Eq. 5) Payout to good causes = proportion * turnover of lottery

(Eq. 6) Δ Payout to good causes = Δ proportion + Δ turnover of lottery

where Δ is the percentage change operator and proportion is the share of the lottery's turnover which accrues to the good causes.

Now, from Section 5.2 we have that:

(Eq. 4) Lottery expenditures per capita =

> -8.8 + 1.5 * GDP per capita - 1.9 * share of non-lottery gaming expenditures on total gaming expenditures

Moreover,

(Eq. 7) Δ turnover of lottery = Δ lottery expenditures per capita

provided the population remains unchanged as

(Eq. 8) Δ lottery expenditures per capita

> = Δ lottery expenditures (turnover) + Δ population

Liberalisation of the gaming sector will increase the share of non-lottery gaming expenditures in total gaming expenditures. Recall that the gaming market share of lotteries ranges from 1% in Latvia to about 60% in Italy. It stood at 7% in the United Kingdom in 2004.

From Equation 4 above, it is very easy to see that the change in lottery expenditures on per-capita basis is simply equal to the product of -1.9 and the change in the share of non-lottery gaming expenditures in total gaming expenditures. In other words:

(Eq. 9) Δ Lottery expenditures per capita =

> -1.9 * Δ share of non-lottery gaming expenditures on total gaming expenditures

Finally, substituting Equation 9 into Equation 7, and Equation 7 into Equation 6 we obtain Equation 10 which is the one which will be used in the assessment of the impact of the liberalisation of the gaming sector on the funding of good causes:

(Eq. 10) Δ Payout to good causes = Δ proportion + -1.9 * Δ share of non-lottery gaming expenditures on total gaming expenditures

Recall that the variable "Lottery expenditures per capita" was used in logarithmic form in the estimation of Equation 4. Thus the Δ operator is simply the percentage change in that variable.

Underlying assumptions

At issue for the simulation of the likely impact of liberalisation of the gaming sector on State lotteries is the level to which the share of expenditures on non-lotteries gaming in total gaming expenditures will rise eventually.

For the purpose of highlighting the likely impact of liberalisation on the funding of good causes, we have assumed that, following full liberalisation of the gaming sector, the share of expenditures on non-lotteries gaming in total gaming expenditures will eventually rise to the current level in the United Kingdom, a country with one of the most liberal gaming markets.

As already indicated above, the level of that share is estimated at 93% in 2004 in the United Kingdom.

The percentage change in payouts to good causes will be equal to the percentage change in the turnover of the lotteries, provided the share of the turnover that is paid out remains the same.

In essence, the simulation assumes that, as a result of liberalisation, State lotteries will lose market share and therefore payouts to good causes will fall.

An alternative scenario that one could have envisaged is one in which State lotteries respond to the competitive threat of for-profit gaming operators in a liberalised gaming market by increasing payout to players sufficiently so as to avoid losing any market share.

The impact on good causes will be identical to the one in the previous scenario as, in this second case, the turnover of lotteries is unaffected but only a much smaller share of the turnover can be channelled to the good causes.

Annex 4 Detailed information by country

Table 10: Types of betting allowed in various EU jurisdictions							
Country	**Horse race betting (Totalisator)**	**Horse race betting (Bookmakers)**	**Greyhound racing (Totalisator)**	**Greyhound racing (Bookmakers)**	**Sportsbetting (Totalisator)**	**Sportsbetting (ODDSET)**	**Sportsbetting (Bookmakers)**
Austria	√	√		√	√	√	√
Belgium	√	√		√	√	√	√
Cyprus		√					√
Czech Republic	√	√			√	√	√
Denmark	√					√	
Estonia	√				√		
Finland	√				√	√	
France	√				√	√	
Germany	√	√			√	√	
Greece	√				√	√	
Hungary	√				√	√	
Ireland	√	√	√	√			√
Latvia							√
Luxembourg						√	
Netherlands	√				√	√	
Poland	√		√		√		√
Portugal					√		
Slovakia	√	√				√	
Slovenia						√	√
Spain	√		√		√		
Sweden	√				√	√	
United Kingdom	√	√		√			√
Total	**17**	**8**	**3**	**4**	**14**	**14**	**9**

Source: Replies from the members of the European Lotteries and Toto Association

Table 11: Regulatory model for the operation of bets			
Country	**Exclusive right model**	**Limited operator license model**	**Unlimited operator licence model**
Austria			√
Belgium			√
Cyprus		√	
Czech Republic			√
Denmark	√		
Estonia			√
Finland	√		
France	√		
Germany	√		
Greece	√		
Hungary	√		
Ireland		√	
Latvia			√
Luxembourg		√	
Netherlands	√		
Poland		√	
Portugal	√		
Slovakia			√
Slovenia	√		
Spain	√		
Sweden	√		
United Kingdom			√
Total	**11**	**4**	**7**

Source: Replies from the members of the European Lotteries and Toto Association

Table 12: Number of casinos and regulatory model in EU Member States				
	Number of Casinos in the country	**Exclusive right model**	**Limited operator license model**	**Unlimited operator licence model**
Austria	12		√	
Belgium	9		√	
Cyprus	0			
Czech Republic	150			√
Denmark	6		√	
Estonia	175			√
Finland	1	√		
France	190		√	
Germany	76		√	
Greece	9		√	
Hungary	6	√	√	
Ireland	0			
Italy	4		√	
Latvia	15			√
Luxembourg	1	√		
Netherlands	13	√		
Poland	25		√	
Portugal	8		√	
Slovakia	3			√
Slovenia	14			√
Spain	35		√	
Sweden	4	√		
United Kingdom	123		√	

Source: London Economics' calculations, based on the replies from the members of the European Lotteries and Toto Association, except for the Italian figure (from DeSIA) and the UK figure (from BBC News Online)

Table 13: Slot machines in EU Member States inside and outside casinos			
Country	Forbidden	Only allowed in Casinos	Allowed outside casinos
Austria		√ (high stakes)	√ (low stakes)
Belgium		√ (high stakes)	√ (low stakes)
Cyprus	√		
Czech Republic			√
Denmark			√
Estonia		√	
Finland			√
France		√	
Germany		√ (high stakes)	√ (low stakes)
Greece		√	
Hungary			√
Ireland	√		
Latvia			√
Luxembourg		√	
Netherlands			√
Poland		√ (high stakes)	√ (low stakes)
Portugal		√	
Slovakia			√
Slovenia			√
Spain			√
Sweden		√ (except VLTs)	√ (VLTs only)
United Kingdom			√
Total	**2**	**10** **(of which 5 make some exceptions)**	**10** **(+5 with some restrictions)**

NOTE: We have no information on Italy.
Source: Replies from the members of the European Lotteries and Toto Association

Table 14: Regulatory model for slot machines in the EU			
Country	**Exclusive right model**	**Limited operator license model**	**Unlimited operator licence model[1]**
Austria		√ (in casinos)	√ (outside casinos, low stakes)
Belgium		√	
Czech Republic			√
Denmark			√
Estonia			√
Finland	√		
France		√	
Germany		√ (in casinos)	√ (outside casinos, low stakes)
Greece		√	
Hungary			√
Latvia			√
Luxembourg	√		
Netherlands		√	
Poland		√	
Portugal		√	
Slovakia			√
Slovenia	√ (only VLTs)		
Spain			√
Sweden	√		
United Kingdom			√

NOTE: (1) Operators may be limited to a maximum number of machines per site.
Source: Replies from the members of the European Lotteries and Toto Association

Table 15: Types of games offered by State lotteries in EU Member States										
Country	Lotto	Number Lottery	KENO (daily)	KENO (5-Minutes)	BINGO	BINGO Halls	Instants	Draw Lottery	Sports betting	Internet Gaming
Austria	√	√	√		√		√	√	√	√
Belgium	√	√	√				√			
Cyprus	√	√		√	√		√	√	√	
Czech Republic	√	√	√	√		√	√	√	√	
Denmark	√	√	√			√	√	√	√	√
Estonia	√	√	√		√		√		√	√
Finland	√	√	√				√		√	√
France	√		√	√			√	√	√	√
Germany	√	√	√		√		√	√	√	√
Greece	√	√		√				√	√	
Hungary	√	√	√	√	√		√		√	√
Ireland	√	√			√	√	√			
Italy	√	√					√		√	
Latvia	√	√	√		√	√	√		√	√
Luxemburg	√	√		√			√	√	√	
Netherlands	√	√	√				√		√	√
Poland	√		√				√			
Portugal	√	√				√	√		√	
Slovakia	√	√	√	√	√	√	√	√	√	
Slovenia	√	√			√		√	√	√	√
Spain	√	√					√	√	√	√(1)
Sweden	√	√	√		√	√	√	√	√	√
United Kingdom	√	√					√			
Total	**23**	**21**	**14**	**7**	**10**	**7**	**22**	**12**	**19**	**12**

NOTE: (1) Internet gaming planned by Spanish lotteries.
Source: Replies from the members of the European Lotteries and Toto Association