**Working Group
"Harmonization of Consumer Price Indices"
to be held in Luxembourg**

<u>**Item 17 of the Agenda**</u>

Games of chance and HICP

Paper by INE, ISTAT and Statistics Finland

Contents

1. Introduction

Games of chance are currently excluded from the HICP. In this paper we would like to bring up the possibility of including games of chance in the HICP and give an overview of some ideas on the subject. The paper also defines most aspects of this possible inclusion and the problems that could arise. We are aware that the exclusion of games of chance from the HICP is one of the main discrepancies between the coverage of the national and harmonized CPI. The introduction of games of chance is an important step in improving the coverage of the HICP.

A game of chance is a game whose outcome is strongly influenced by some randomizing device, and upon which contestants may or may not wager money or anything of monetary value. A game of chance is also a game where you have to forecast something, e.g. the winner of horse races or football tournament or the sex of the baby of the King. Common devices used include dice, spinning tops, playing cards, roulette wheels or numbered balls drawn from a container. Any game of chance that involves anything of monetary value is gambling. Thus, every gamble is a game of chance, but not every game of chance is a gamble.

Some games of chance may also involve a certain degree of skill. This is especially true where the player or players have decisions to make based upon previous or incomplete knowledge, such as poker and blackjack. The distinction between 'chance' and 'skill' is relevant as in some countries chance games are illegal or at least regulated, where skill games are not.

This study is restricted into the games of chance where the consumer uses money to take part into the game as a main purpose. So for example sales promotional gambling is excluded from this study as the main purpose is to buy a product and the gambling part can be considered to be free of charge.

The short questionnaire on national CPI practices and views on the inclusion into the HICP was sent to countries in the beginning of March 2009. The inquiry was responded by 29 countries. The games of chance are included in the national CPI in 12 countries (DE, EE, IT, LV, LT, HU, AT, PL, PT, FI, SE and IS) and excluded in 17 countries (BE, BG, CZ, DK, EL, ES, IE, FR, LU, MT, NO, RO, NL, SI, SK, CH and UK), only one country did not respond (CY).

Most countries collect prices for different types of games of chance. Two countries (EE and AT) follow only lotteries. When calculating prices, 8 countries out of 12 take into account the change in distribution ratios. Most countries use net weights, only two countries (EE and PL) use gross weights.

In the countries where the games of chance are excluded from the national CPI the main reason is the difficulty of its measurement. In some countries the weight is under the threshold of entering them into the index.

16 countries are in favour of including the games of chance into the HICP, 8 countries are against and 5 countries abstain, their opinion depends on some matters or they did not answer the question (see table 1.1 and Annex 1).

Table 1.1: Tentative opinions on including the games of chance into the HICP (March 2009).

Opinion	Countries
In favour	DE, IT, LV, LT, HU, PL, PT, FI, CZ, SE, IS, DK, EL, ES, LU, MT
Against	EE (more than in favour), BG, IE, FR, SK, CH, NL, UK
Abstain	AT, BE, RO, NO, SI

2. Market description

In countries where the games of chance are included in the index, the market situation varies. In some countries the market is strictly governmentally controlled, in some it is private market business. In most of the countries the market is governmentally controlled but operated by private sector. The weight of the games of chance in national CPIs varies from 0.06 % (PL) to 2.0 % (FI) (see Annex 1).

The commercial and government owned gaming industries of the European Union are organized under a wide variety of ownership regimes and market structures. Ownership and market structures are affected by numerous factors, including Member State laws and regulations; restrictions on product types, characteristics or points of sale, availability and marketing effort; economies of scale; network effects; and impacts of new technologies. Generally speaking, most EU commercial gaming industries are significantly constrained by law and regulation, as well as by ownership structures and statutory objectives. As a result, they operate in ways that – in comparison to what unrestricted free markets in gambling services with reasonable allocations of property rights and provision of legal protections would bring about – adversely affect the quality, quantity, price, and availability of gambling services.[1]

Gross Gaming Revenues (gross winnings after payment of prizes, GGRs) generated in each EU Member State during at least the years 2000 to 2004 inclusive, in so far as the relevant data is available, are individually presented for each of the following sectors of the gambling industry: lotteries, casino gaming, machine gambling outside casinos, betting and bingo. Those figures have in turn been consolidated into EU-wide aggregates, which reveal the following highly pertinent proportions of the total GGRs that are attributable to each sector:
- Lotteries 44.6 %
- Casino Gaming 14.6 %
- Machine Gambling outside casinos 18.8 %
- Betting 17.2 %
- Bingo 4.8 %

Although these figures are almost certainly not exact, they do indicate the relative importance of the various sectors of the industry.[1]

Based on the study by Swiss Institute of Comparative Law[1] best estimates of the size of the commercial gaming industries among the 25 Member States of the European Union, the combined sectors of lottery, casinos, gaming machines, betting services, and bingo generated GGRs of €51.5 billion in 2003. According to the study the total gaming spend as a percentage of Gross Domestic Product for all EU Member States was estimated to be approximately 0.52 % in 2003. From the private consumption (€5,743.97 billion in 2003 according to the national accounts) the share would be 0.90 % of total consumption. As the private consumption in the HICP is smaller than that of the GDP, the share from the HICP consumption is higher than 0.9% of total consumption.

3. Description of games of chance

According to the current HICP regulation the COICOP class 09.4.1 includes pin-ball machines and other games for adults and excludes the games of chance. In the common COICOP classification there exists a class 09.4.3 Games of chance including service charges for lotteries, bookmakers, totalizators, casinos and other gambling establishments, gaming machines, bingo halls, scratch cards, sweepstakes, etc. Service charge is defined as the difference between the amounts paid for lottery tickets or placed in bets and the amounts paid out to winners.

This classification can easily be divided into the 'skill' games and 'chance' games components the prior having more volatile payouts and the later more likely to have fixed outcome in a long-term that can be calculated.

In this chapter we have studied the both type of games - how they are played and how the outcome, and accordingly price and weights, can be measured.

3.1 'Chance' games

Chance games do not involve any particular skill or knowledge and the winning probability is the same for every player. Also in most cases the long-term fixed payout can be calculated.

3.1.1 Lotto

A lotto game is a semi-active lottery game, in which the player selects a set of numbers in order to match the numbers drawn on a predefined moment. The most popular lotto game is the 6/49, where players choose 6 numbers out of 49. Another popular lotto game is the Euromillions, where players choose 5 numbers out of 50 and two stars out of 9. For those games, the prize depends on how many correct numbers the player

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[1] Study of Gambling Services in the Internal Market of the European Union, Final Report 14 June 2006, Swiss Institute of Comparative Law.
http://ec.europa.eu/internal_market/services/docs/gambling/study1_en.pdf

has chosen and the prizes are predefined and represent usually a percentage of the overall bets.

Table 3A. Payout percentages of national Lotto Games.

BE	46 %	IE	50 %	RO	40 %
BG	50 %	IT	34.648 %	SI	51 %
CZ	50 % (?)	LU	50 %	SK	50 %
DK	45 %	HU	46 %	FI	40 %
DE	50 %	MT	30 - 70 %	SE	45 %
EE	50 %	NL	fixed value in €	UK	45 %
ES	55 %	AT	50 %	NO	50 %
FR	53 %	PT	50 %		

In Euromillions for all participating countries the prizes are defined to be 50 % of the overall bets.

In most countries, the percentage is fixed and the inclusion in the HICP seems to be quite straightforward, as the price of the bet can be used as a proxy to measure the cost of the betting service. It is necessary to point out that, although the prizes may not reach, for example, the 50% determined by law every week, as prizes get reported to the following week, the overall net value of a game will always be 50%. If the payout percentage changes this should be taken into account as a price change.

For weights, the same reasoning applies, and it is safe to assume that the net weight for a game will be 50% of the bets for that game, which seems easier to determine by knowing how much each family spent in such games (instead of asking directly for the net values).

In the countries where the percentage is not fixed, the price of the bet cannot be used to measure net price changes. In this case, the net price has to be calculated as the ratio between the total bets that were paid and the total prizes that were rewarded in every round of the game.

For weights, the difference between the total annual bets and the total annual prizes should be used.

3.1.2 Instant lotteries / Instant and other draw games

An instant lottery is a game where the player knows instantly the value of the prize, by scratching part of the ticket. Each series of tickets has a predefined number of winners and prizes. In fact, the outcome of the game only depends on the choice of the ticket, no other factors are involved. The net value corresponds to the ratio between the total prize values and the total value of the tickets (see table 3B and example).

For weights, we simply need to know the total value spent on instant lotteries, and correct this value according to the prize distribution within a year.

Table 3B. An example from payouts of a scratch game "Bingo" in France

Number of tickets	Prize	Total
10	5000€	50000
200	400€	80000
1865	44€	82060
5800	40€	232000
48000	8€	384000
288000	4€	1152000
1156125	0€	0

Ticket cost: 2€; Total value: 3,000,000€; Total prizes: 1,980,060;

Net value per ticket: 2 * 1,980,060 / 3,000,000 = 1.32€;

Service charge: 0.68€ per ticket

3.1.3 Traditional lotteries

A traditional lottery is a lottery where someone buys a numbered ticket to enter the lottery and then, on a predefined date, a number is drawn and the person that has the ticket with that number wins the prize. Usually, there are also smaller prizes for ticket that have the same ending as the winner or the correct numbers on right places. For example, if the winning number is 1234567, a person with a ticket numbered xxx567 will win a smaller prize or in the latter case a person with a ticket numbered 1x34x6x. It is called traditional in opposition with instant because in instant lotteries the player knows immediately if he has won and the prize that he will get.

Example "Jokeri" in Finland: The return percentage is predefined and depends on how many numbers the player gets correctly placed. The total sum of the prizes is usually defined by turnover of the round and by the number of winnings. For example if the payout percentage is 52 percent, the number of winning numbers is 7 and the lowest winning class is 2 numbers correctly on the right places, the prizes can be divided so that the lowest winning class (2 correct) has fixed win (2.50€) and the highest winning class (all 7 correct) gets 10 % of the turnover. After this the rest of the payout sum is divided into the winning classes 3, 4, 5 and 6 correct in proportions 31.5%, 25%, 24.5% and 19%.

The price collection in these games should take into account the change in the payout percentage. For example if the payout percentage rises from 40 percent to 52 percent, the net price of the game drops 20%, i.e. if the price is 1.50€ with 40 percent payout the net price would be 0.9€ and with 52 percent payout the net price is 0.72€ and (1 - 0.72/0.9)*100 = 20.

For weights, we simply need to know the total value spent on lotteries, and correct this value according to the prize distribution within a year.

3.1.4 Bingo

Bingo is a game of chance played with randomly drawn numbers which players match against numbers that have been pre-printed on 5x5, or 5x3 (or other) matrices. The matrices may be printed on paper, card stock or electronically represented and are referred to as cards. Generally the game is concluded when the first person to achieve a specified pattern from the drawn numbers. The game is played utilizing 75 or 90 numbers. Bingo is mostly played in Bingo Halls.

The elementary price is the cost of the single matrices taking into account the payout percentage. For weights the net weights should be used.

3.1.5 Slot machines and similar (expected outcome can be calculated)

A slot machine, fruit machine, poker machine or simply slot is a casino gambling machine with three or more reels which spin when a button is pushed. Slot machines are also known as one-armed bandits because slot machines were originally operated by a lever on the side of the machine (the one arm) instead of a button on the front panel, and because of their ability to leave the gamer penniless. Slot machines include a currency detector that validates the coin or money inserted to play. The machine pays off based on patterns of symbols visible on the front of the machine when it stops. Modern computer technology has resulted in many variations on the slot machine concept.

Slot machines are the most popular gambling method in casinos and constitute about 70 percent of the average casino's income. Slot machines are typically programmed to pay out as winnings 82% to 98% of the money that is wagered by players. This is known as the "theoretical payout percentage" or RTP, "return to player" (see table 3C).

For slot machines the elementary price is the net price of a single game and the weights should be the net weights.

Table 3C. For example in Finland there is a slot machine called "Mansikka" with the total RTP of 91 % on average and stake 0.20€ - 1.00€. The RTP depends on figures received.[2]

Returns to player, %				
Winning combination	Win x stake	Probability, %	Occures in every____ deal	Proportion from the payout percentage, %
	50	0.04168	2,400	2.08377
	30	0.21619	463	6.48573
	10	1.08356	92	10.83559
	10	0.82309	121	8.23088
	6	1.37529	73	8.25172
	3	3.37570	30	10.12711
	3	3.37570	30	10.12711
	2	17.46023	6	34.92047
Nothing	0	72.24856	1.38411	0.00000
Total				91.06237

3.1.6 Casino games for which expected outcome can be calculated (roulette, dice games etc.)

In casinos, some games are purely based on luck, because there is nothing the player can do to influence the outcome of the game. Roulette and dice games are good examples of these kinds of games. In order to win, the player has to bet on a number or a combination of numbers, and he wins if the drawn number(s) match his choice.

The expected value of the outcome of the game may be calculated, as the probabilities of winning and payouts are well defined (see table 3D). Since in these games the outcome relies on betting, it is not possible to collect the price of a single game. One way to follow the price of these games is to calculate the expected cost (service charge) of betting 1€ on the game. As long as this value doesn't change, the index for this particular game will not change. The weights are obtained by multiplying the service charge by the total amount spent on these games, in order to have the total service charge.

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[2] Translated from the guide to games of chance: http://www.rahapeliopas.fi

Table 3D. An example of roulette bets and payouts in Portugal.

Bet	Probability of winning	Payout	Expected return per € betted[3]
Straight up (1 number)	1/37	35 to 1	0.973€
Split (2 numbers)	2/37	17 to 1	0.973€
Street (3 numbers)	3/37	11 to 1	0.973€
Corner (4 numbers)	4/37	8 to 1	0.973€
Line (6 numbers)	6/37	5 to 1	0.973€
Dozen / Column (12 numbers)	12/37	2 to 1	0.973€
18 numbers	18/37	1 to 1	0.973€
Red or black	18/37	1 to 1	0.973€
Odd or even	18/37	1 to 1	0.973€
24 numbers	24/37	0.5 to 1	0.973€

The service charge for this game is $1 - 0.973 = 0.027$€ per Euro betted

3.2 'Skill' games

In skill games skill or knowledge may improve winning chances and thus the winning probability varies between players.

3.2.1 Machines for entertainment with winnings of money (e.g. video poker etc.)

Video poker is a casino game based on five-card draw poker. It is played on a computerized console similar in size to a slot machine. After inserting money into the machine, play begins by placing a bet of one or more credits and pressing the "deal" button. The player is then given cards and has the opportunity to discard one or more of them in exchange for new ones drawn from the same virtual deck. After the draw, the machine pays out if the hand or hands played match one of the winning combinations, which are posted in the pay table. Pay tables allocate the payouts for hands and are based on how rare they are, the game variation, and the decision of the game operator. A typical pay table starts with a minimum hand of a pair of jacks, and pays even money.

There are many variations of video poker. They include Deuces Wild, where a two serves as a wild card, pay schedule modification, where four aces with a five or smaller kicker pays an enhanced amount (these games usually have some adjective in the title such as "bonus", "double", or "triple"); and multi-play poker, where the player starts with a base hand, and each additional played hand draws from a different set of cards with the base hand. (Multi-play games are offered in "Triple Play", "Five Play", "Ten Play", "Fifty Play" and "One Hundred Play" versions.)

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[3] Example of calculation of the expected return, for a straight up bet of 1€:
E = bet + (payout * prob. of winning – bet * prob. of losing) = 1 + (35 * (1/37) – 1 * (36/37)) = 0.973€

The elementary price of the game should in these games be also the net price as the average payout percentage can be calculated usually being a little bit over 90%. The weight should also be net weight.

3.2.2 Forecast competitions (sport games etc.) and bets

Forecast competitions based mainly on sports are generally known as Toto competitions (football pool). While the principle of requiring entrants to predict the results of football matches in advance remains the same, the details are fundamentally different. The name toto derives from totalizator machines which are used to process the pari-mutuel betting involved. As there still is a chance of losing the game, these games are considered as gambling. The sports involved can be football, horse races, car races etc.

Generally, a list of 13 matches for the coming week will be given. Pools entrants have to select the result of each one, whether it will be a home win, an away win or neither of these, typically by marking each match with either a 1, a 2 or an N (sometimes X or 0). It is possible to enter two or three results for one or more matches, in which case the entry is treated as a number of separate entries for all possible combinations given; marking two possible results for each of five matches and all three possible results for each of four matches will result in submitting $2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3 \times 3 = 32 \times 81 = 2592$ different entries. All entries submitting 13 correct predictions will be declared to have won the top prize; sometimes, prizes for fewer correct predictions are also awarded.

The elementary price is the cost of the minimum entry (generally for two entries) taking into account the payouts, as the probability of winning is not fixed.

Fixed-odds betting and Pari-mutuel betting frequently occur at many types of sporting events, and political elections. In addition many bookmakers offer fixed odds on a number of non-sports related outcomes, for example the direction and extent of movement of various financial indices, the winner of television competitions and election results.

Pari-mutuel betting: One of the most widespread forms of gambling involves betting on horse or greyhound racing. Wagering may take place through pari-mutuel pools, or bookmakers may take bets personally. Pari-mutuel wagers pay off at prices determined by support in the wagering pools, while bookmakers pay off either at the odds offered at the time of accepting the bet; or at the median odds offered by track bookmakers at the time the race started.

The elementary price is the cost of the minimum bet you can do taking into account the payouts, as the probability of winning is not fixed.

3.2.3 Casino games for which expected outcome cannot be calculated (e.g. poker, blackjack and other card games etc.)

Some casino games, such as poker and blackjack, have an expected outcome that cannot be calculated, as those games involve more than pure chance. For those cases, the casinos should be asked to give us a monthly

indicator, such as the amount won per Euro betted: (total bets - total prizes)/total bets, which can also be defined as the service charge for betting 1€ in the game. This approach should be well studied, as it can lead to a high volatility of the index (imagine a very unlucky month, where prizes were low, followed by a month where a higher amount of money was redistributed: the cost of the service would be high in the first month and low on the following month).

Weights can be compiled in a similar manner, by computing the difference between the total bets and the total payouts.

3.3 Entrance fees to casinos

Normally the entrance fees to casinos are quite small and their weigh in HICP does not exceed the threshold of one per mill of all consumption. The normal fee seems to be 1 to 3 Euros depending on the game you wish to play and/or casino.

On the other hand, in some casinos it is possible to buy a ticket including dinner and show. These bundles should be included in the COICOP class 09.4.2 Cultural services on the basis of the main target that would be the show.

4. Geographical coverage

There is a Council Regulation (EC) No 1688/98 of 20 July 1998 concerning the geographic and population coverage of the HICP. We think that Council Regulation (EC) No 1688/98 should be clarified as these new forms of purchase are getting more relevant to buyers. According to the regulation the HICP covers all private consumption within the territory of the country. As the markets have developed and more and more purchases are done via Internet it is no longer obvious which part of the consumption is done in the territory of one country. For example the purchase of books from amazon.com, or even more difficult case of loading music from the web are cases where the buyer is in one country but does not know from which country he is buying from. As this is problematic in the price collection - which websites to follow in each country etc. - more studies should be done. Meanwhile these purchases are mostly excluded from the HICPs at the moment. Accordingly, the internet games or gaming outside the national territory should not be included.

5. Weights

The calculation of the weights should exclude the amount of the winnings i.e. net principle should be used.

Possible sources for weights are national accounts (NA) and household budget survey (HBS).

NA uses net principle and they cover all the consumption. This though causes a problem as the illegal gaming should also be included in the NA figures. The better source for weights could be therefore NA excluding the illegal gaming. We should also refer illegal gaming mainly as a concern for the quality of the weights. We have to be certain that illegal gaming is not accounted in the weights of games of chance.

HBS uses the gross principle, but the problematic part is the source as the household tend to inform smaller amount spent in games of chance than they do in real life and HBS does not correct this information on basis of other sources.

In some cases for the weights of games such as Lotto, the same reasoning as for pricing can be used, and it is safe to assume that the net weight for a game will be 50% of the bets for that game, which seems easier to determine by knowing how much each family spent in such games (instead of asking directly for the net values). In Portugal for example this is also applicable to slot machines, as their return ratio is 80% of the betted values, defined by law. For both kinds of casino games, the weight can also be compiled as the total amount spent on them, and then corrected to account for the prize distribution.

6. Pricing and data collection

The definition of the elementary price collected is the most important phase because for some of the previous categories finding the correct (net) price is very difficult. The general idea is to collect the net price of the game and take care that the change in payout percentage is taken into account as change in price.

It is important to have at disposal the distribution of the value of the expenditures of the families for the different games: maybe for some countries bets and gambling have not a great importance, so that the criterion of prevalence can be used and it is correct to collect prices only for the representative games.

6.1 'Chance' games

Prices should be collected as the minimum allowed stake or bet for games classified as 'chance' games (used as a proxy for the service charge, as long as the expected value of the game remains unchanged).

For games such as Lotto, where the prizes may be defined by law and represent a percentage of the overall bets, the inclusion in the HICP seems to be quite straightforward, as the price of the bet can be used as a

proxy to measure the cost of the betting service. It is necessary to point out that, although the prizes may not reach, for example, the 50% determined by law every week, as prizes get reported to the following week, the overall net value of a game will always be 50%.

For 'chance' games in casinos, such as the roulette, the expected value of the outcome of the game can be calculated, as the probabilities and prizes are well defined (in Portugal, for example, a bet on a single number, which has a probability of 1/36, has a return of 35 times the betted value). This means that the expected cost can be calculated, and as long as this value doesn't change the index for this particular game will not change (in practice, this is equivalent to following the service charge for betting 1€ in the game).

6.2 'Skill' games

For bets and gambling we should find a compromise to arrive to a definition of the (net) price. For games classified as 'skill' games we should calculate the service charge for a fixed amount of betting, using data from casinos and other gambling/betting houses.

Price collection of "skill" games needs cooperation with the operators in this field, like casinos and sport game operators. As said already in chapter 3.2.3, more study on volatility is needed. The difficulties could appear in casino games if the payout percentage differs from month to month. In sport or other betting the difficulty arises if the payout percentage depends on the overall bets. This should be taken into account as price change.

6.3 Entrance fees to casinos

If the price of entrance fee to a casino is collected then the price should not include any other major part of consumption like dinner and show. The cost would be only the cost of entrance into a casino building giving a right to play.

7. Index calculation

In order to compile the index, two different approaches should be used. For games where no betting is involved and the prize distribution is pre-defined, we can simply collect the price of each game as a proxy of the service charge, and corrections for changes in the prize distribution should be taken into account.

As an example, if the minimum bet for a lotto bet changed from 0.4€ to 0.5€ (1) while the percentage of winnings increased from 50% to 55% (2), the resulting index will increase by 12.5% (5):

Month	Bet (1)	Winnings ratio (2)	Expected winning (3) = (1) * (2)	Net cost (service charge) (4) = (1) – (3)	Index (5)
t-1	0.4	0.5	0.2000	0.2000	100.0
t	0.5	0.55	0.2750	0.2250	112.5

If no correction was made, the resulting index would have increased by 25%, which would be correct if the percentage of winnings remained at 50%:

Month	Bet (1)	Winnings ratio (2)	Expected winning (3) = (1) * (2)	Net cost (service charge) (4) = (1) – (3)	Index (5)
t-1	0.4	0.5	0.2000	0.2000	100.0
t	0.5	0.5	0.2500	0.2500	125.0

For games where the prize distribution is not fixed, the compilation of the index is more difficult. The most straightforward way to deal with this problem would be to ask the games organizers to provide a monthly indicator: (total bets - total prizes)/total bets. This will allow us to have an indicator of the service charge each month. There can be some problems with this approach, and it needs to be well studied because it may be difficult to request this data from casinos.

For both approaches, some future problems can be foreseen, as the value spent on internet bets (sports betting) and games of chance or skill (poker) is increasing, and it can be very difficult to follow those prices.

For entrance fees in casinos, the index is the result of collecting the price of those entrance fees.

The main source that should be accounted for quality adjustment is the change in distribution ratio.

8. Minimum coverage / Proposals and questions to HICP Working Group

- If the total private consumption on games of chance (net value) exceeds the threshold of 1 per mil, they should be included into the index of the country.
- Should the net-net principle be used? Our opinion is yes, it must be used.
- Game variants should be the most representative ones and more than one variant should be followed as the development differs from one game type to the other.
- Quality adjustments should be done if there is a change in the pay-out percentage.
- In the first step we propose to include 'chance' games (as defined in chapter 3.1) into the HICP, as it was shown that it is quite straightforward to include them.
- 'Skill' games (chapter 3.2) and casino entrance fees (chapter 3.3) need to be more thoroughly analyzed, and their share from the total consumption is assumingly small. These games may be entered at a later stage, if we reach practical solutions to the problems shown earlier.

9. References

http://www.rahapeliopas.fi (The guide to games of chance)

Study of Gambling Services in the Internal Market of the European Union, Final Report 14 June

Portuguese legislation on games of chance and gambling

European State Lottery and Toto Association (https://www.european-lotteries.org/)

Jogos Santa Casa (https://www.jogossantacasa.pt/)

Statistics Finland, Mari Ylä-Jarkko and Anita Heinonen
ISTAT, Mauro Politi
INE, Vitor Mendonça   24.9.2010

Annex 1. Summary of responses to short inquiry on games of chance (12 countries)

A. Countries covering games of chance in CPI

Country	Weight in CPI	National market situation	Price measurement and data collection	Changes in distribution ratios taken into account when calculating prices	Gross or net weights	Special problems/ treatments/features as compared to other products in CPI	Tentative opinion in including games of chance in HICP	Other comments
DE	0.6 %	For pricing purposes, we cover official games of chance that are ruled and controlled by the government. In detail, we cover Lotto, Toto, casinos and a lottery that is dedicated to the support of charitable, cultural and social projects and measures.	Prices are measured by using service charges (monthly compiled), processing fees (if relevant), and resp. the entrance fees for casinos. Distribution ratios are officially published and therefore accessible to everyone.	Yes	Net	We do not see any substantial problems. What can be seen as an additional burden is that there exist various official rules that are not ruled by the federal government, but by the Länder-governments.	**In favour**	
EE	?	Total turnover is decreasing rapidly.	Only lotteries included.	No	Gross	No	More against than in favour.	Further analyses needed.
IT	?	It is an increasing market, but we have statistical information only concerning national games Lotto, Football, Horses etc.	We consider the prices of 5 different games. The price of the minimum amount that you pay is public.	?	Net	No	**In favour**	
LV	≈ 1 %	There are two major parts included in the CPI sample. Approximately 5% of that takes lotteries, sport and instant draw games organised by state company "Latvijas Loto". The remaining part is slot machines, casino tale games and video games. For this type of games the license is granted to several private companies.	For lotteries we follow the price changes for three most popular games. The smallest stake serves as initial price. For slot machines we have selected few major companies for price collection. The smallest stake serves as initial price, which, additionally, has been adjusted for inflation rate quarterly	Yes for lotteries. For slot machines price is adjusted only for inflation rate.	Net	The major problem is that available information on the distribution rates is rather highly aggregated both over time and over different games. This is useful for weights derivation but not so good for price measurement. Companies are not willing to provide that kind of information on the regular (monthly) basis and for every type of games, regarding this information as confidential.	**In general we can agree**	The harmonised approach of the treatment of games of chance would imply different problems for one or other country, depending on the national market conditions and all available information (especially information on the distribution rates) in terms of quality and level of details.

LT	1.0 %	In 2008, gaming was organised by 16 companies: 5 companies organised gaming only in casinos, 3 companies had both casinos and category B slot machine shops, 4 companies specialised only in gaming with category B slot machines and the other 4 organised betting. Lotteries were organised by 7 companies.	One representative product has been selected to observe prices for games of chance. We observe the price for the lottery ticket, regardless of changes in prizes or the sum of money one can win. Prices are collected from the Internet.	No	Net	Since we measure prices only for lottery ticket and do not take into account changes in prizes, there are no specific problems. We are considering a possibility to extend the coverage and improve price index calculation procedure. The inclusion of more representative products for games of chance can cause difficulties in timely collection of data on winnings and money played from gambling companies.	**In principal could be included.** In case of inclusion of games of chance the procedure to calculate the price index for games of chance should be harmonised between MSs.	However, the approach to calculate the price index for games of chance taking into account changes in distribution ratios is not exactly clear.
HU	0.6 %	The company, (Szerencsejáték Zrt) is the largest gambling service provider in Hungary. It has exclusive rights to distribute number draw games, sports bets and prize draw tickets. It has a more than 50% market share in the gambling market. The company has been fully owned by the state, while owner's rights have been exercised by the Hungarian Privatization and State Holding Company. The lottery company operates an online sales technology with national coverage and extensive retail network. Currently, the lottery company operates 7 types of draw games, 3 types of sports bets and a portfolio of 15–20 prize draw tickets.	We observe the prices of the lottery and Toto tickets in case of four different games (share 77.5 % of sales revenue in 2007)	Yes (from year 2001)	Net	In the last years some new type of games introduced by the company and we plan to increase the number of our representative items (which is currently four under the games of chance). We have to analyse these new games' share in the sales revenue and we will decide it on the next review of representative items.	**In favour**	Nevertheless the treatment of this area is still difficult so further analyses are needed.
AT	?	The market is divided into games of chance and sports betting. The latter one is smaller based on the gross turnover and is liberalized. The games of change can be divided into Online Gambling (19%), slot machines (47%), lottery (16%), casino (18%). Lotteries and casinos are organized in a monopoly with "Casinos Austria" and "Österreichische Lotterien" as monopolists.	Only lottery is included in the national CPI. The gross price of a lottery ticket is observed.	Yes, the corresponding price difference is quality adjusted on base of the net prices.	Net	No, the only special feature is the winning sum which is accounted for. If prices are increasing and the index is decreasing for example it was not a problem to explain this to the public in the past.	It depends on which games are included.	It's not clear how sport bettings or casinos could be included, because the amount is dependent on what an individual wants to spend. For lottery it's much easier. The gross price without adjustment is probably not the best option.

PL	0,06 %	Games of chance are regulated by the government. The market is also regulated by an array of additional resolutions, usually on the ministerial level. The private business entities are not allowed to operate in all segments of the market. The numerical games and monetary lotteries are organised by two state-controlled monopolies (1: numerical games & monetary lotteries; 2: monetary lotteries). In other market segments the private-owned enterprises are allowed operate.	The price collection and indices calculations for this group are carried out in the similar way as for other groups. The prices are collected directly by Central Statistical Office in the scope of the uniform prices survey. I this survey fixed fees determined by state or local administration as well as certain business entities are examined.	No	Gross	No	**In favour**	The market is not well developed. However, there has been growing interest in this kind of activity observed.
PT	0.9 %	The law determines that they are explored by a private non-profit entity through its Department of Games. The weight for Lottery, Lotto, sport, instant and other draw games stands for approximately 99.8% of games of chance. The weight for slot machines and casino table games, is about 0.2% of games of chance.	The observed prices correspond to the value of a bet as a proxy of the service charge Prices are fixed at national level and monthly observed. We obtain them directly from Internet.	If the proportion of the total of the bets to be given out in the form of a prize is kept constant, the change in the bets shall be equivalent to that of the service charge.	Net	We should take care about changes on distribution ratios, in order to take them into account in the right moment.	**In favour**	Service charges include indirect taxes (tax imposed on the game).
FI	2.0 %	The gaming license has been granted to three organisations sharing the market: 1) Slot machines, casino table games and casino (weight 48 % of games of chance); 2) Lotto, sport, instant and other draw games (weight 48 % of games of chance) and 3) On-track horse betting (weight 4 % of games of chance)	1) We follow only one price which covers all these games. The company calculates us monthly an average price per play i.e. ((money played - distributed winnings) / number of games played). 2) We follow prices of 13 different games. The price is typically the smallest stake. In addition, we follow distribution ratios of all different games. The prices and distribution ratios are collected from Internet (in addition income and amount of distributed winnings are received from the company). 3) We follow prices of 2 different games from Internet. The price is the smallest stake that has to be placed. The share of distributed winnings is kept constant between	Yes	Net	No	**In favour**	

			index revisions.					
SE	1.3 %	The market is regulated as the government has decided that only a few market players are allowed to act in this market	We do not measure any prices only proportions of distributed winnings to money played. 16 different games are included and we weight these with the respective turnover. The turnover is collected from The Gaming Board which has an overall responsibility for licensing and supervision within the field of gambling. The distribution ratios are collected from the companies responsible for each game.	Yes, the index of games of chance is simply the product of this ratio and the cpi-total excluding games of chance (i.e everything else in the basket except games of chance)	Net	Not really, but of course in order to calculate an total CPI index you need to first calculate the rest of the products first and then the games of chance index before you can aggregate the main groups and finally the total. It is therefor not as any other product.	**In favour**	
IS	0.3%		Measure ticket prices taking into account the winning probability	Yes	?	No	**In favour**	

B. Countries *not* covering games of chance in CPI (17 countries)

Country	Why aren't games of chance covered by your CPI	Tentative opinion in including games of chance in HICP	If against, why?	Other comments
BE	The inclusion of games of chance in the HICP is considered as no priority.	Not a priority.		
BG	Do not plan to cover the item during next years, because of practical problems - difficulties with the treatment of the prices.	**Against**	Practical problems.	
CZ	Methodological ambiguity, lack of data	**If there is "HICP methodological support", we are ready to start investigations** in this area.		
DK	Difficulties in defining a unit for the service that the consumer receives.	We are **not opposed** and think that this is a good idea.		If this is to be implemented, then resources are needed in order to solve the challenges that face us. Currently this is not something that is a priority for us
EL	Because of the specific nature of prices of games of chance.	In principle we are **in favour**. However are needed guidelines and harmonised approach to be given by Eurostat. Also other countries best practices could be of help.		According to data deriving from the last HBS survey of the year 2008 the games of chance represent around 0.38% of the total expenditure.
ES	Games of chance were never included in our CPI; this exclusion is a practical issue because it is not easy to measure their price changes with an appropriate quality level.	**Not against**, provided the compilation method is harmonised for all Member States.		
IE	The reason we do not measure inflationary levels for "games of chance" is that it is not statistically viable to measure an accurate level of inflation for games of chance.	**Against**		
FR	Games of chance were never included in French CPI. This exclusion is a practical issue since games of chance are theoriticaly in the scope of CPI (with a weight of less than 1 %). We see a lot of problem to compute this index (data sources, definition of price, quality adjustment...).	**Against**	Issue for harmonisation of concept, issue for implementation.	
LU	Our national regulation on CPI states that it strictly follows the HICP regulations, the unique difference is the consumption expenditure coverage. The CPI only covers the expenditure made by the residents on the national territory. Thus, our CPI is a national version of our HICP. So as long as games of chance are excluded from the HICP, they will also be excluded from our CPI	At first sight we are **not opposed** to a possible inclusion according to a harmonised approach.		It would also be important for us to have clear methodological guidance on how to achieve this and to have necessary time to run some tests. Although we should before we pronounce definitively on the issue further analyse the availability of adequate data sources.
MT	Did not feature as representative from the results of the last HBS conducted. Currently a new HBS is carried out and we have reason to believe that they will feature as representative, because the market has grown substantially over the past couple of years. So, most probably games of chance will be included in our HICP/ CPI in the future	**In favour?**		

NO	Not included in CPI as a price survey, but the expenditures are redistributed to the rest of the consumption groups within the main group 09. So we do cover the expenditures. We have not found a good method to measure the price of different lotteries the way they are organised in Norway. Typically some of the prices are very low, but could easily increase 100 %. We have not found a good way to treat the price development of such services. Because of the rather low weight acc. to HBS 0.6 % (main weight source), priority not given to work out a good method. Weight is 1 % acc. NA.	**?**		From January 2011 we will use NA as the main weight source, so we will consider including it in the CPI. However, this is only possible it we find a suitable method to measure the price development.
RO	Taking into account the existing data on the expenditure, games of chance were not representative. For the moment the inclusion of the games of chance in the CPI structure is not a priority, but if we would include it, we will have difficulties because of the lack of information for this item (by this I'm also referring to the collection of the necessary data).	**Against?**	Difficulties because of lack of information.	
NL	There has been some discussion on these issues in the past though. The most important reason for not including them is that in many cases a large share of games of chance revenues are donated to charity. This would imply that a part of expenditure is in fact transfer of income within the household sector and only a small amount is paid for the actual service involved. Only this last share is part of HFMCE. It is not only difficult to get an appropriate weight for this; price collection of the service part of games of chance would be virtually impossible.	**Reluctant** On the other hand we also have casinos that operate on a commercial basis and for which customers also pay for the venue, service etc. As far as I can see now I would have less problems with including casino tickets.		
SI	Does not include games of chance in the CPI. No information what was the reason not to cover this group.	**?** (no response)		
SK	We did not included games of chance into CPI - in HICP it is excluded because of the regulation -and in CPI we also did not consider to include it.	At present I still would **prefer not** to be included.		
CH	Games of chance are not covered by the Swiss CPI (and HICP). The main reason is that we see a lot of problems to compute this index, especially the access to appropriate price collection is very difficult. The other reason is that the HICP doesn't include these products because of its regulation.	**Against**	Has not planned inclusion in CPI/HICP for the reasons explained in the first column.	
UK	The difficulties of measuring the service being purchased and the identification of an unit which can be priced on a consistent basis. The inclusion of 'games of chance' has been discussed during previous annual reviews of the UK HICP basket. It has not yet been possible, though, to reach a satisfactory level of confidence that the known measurement difficulties can be successfully managed and that this expenditure can be measured to the appropriate quality.	**Against**	The issue of comparability of measurement across the EU member states.	