The social value of gambling: surplus estimates by gambling types for France and Belgium

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LEM

LILLE ECONOMICS MANAGEMENT

Outline

Motivation and positioning

Analytical framework

Data

Results for France

Preliminary results for Belgium

Discussion

Prospects

CONTEXT

- Research contract with the French Monitoring Centre for Gambling

- General objective: develop economic indicators on gambling

THE GAMBLING PUZZLE

- a “good” (↗ welfare): satisfaction from recreational consumption; profit for operators; government tax revenue.
- a “bad” (↘ welfare): excessive gambling and gambling disorders; financial, social, family, psychological damage.

In France: 1M moderate-risk gamblers and 370K problem gamblers

METHODOLOGICAL APPROACH

Cost-benefit analysis (CBA)

Measurement of the gains and losses of welfare from the perspective of society as a whole

Microeconomic tools

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SOCIAL SURPLUS FOR STANDARD GOODS

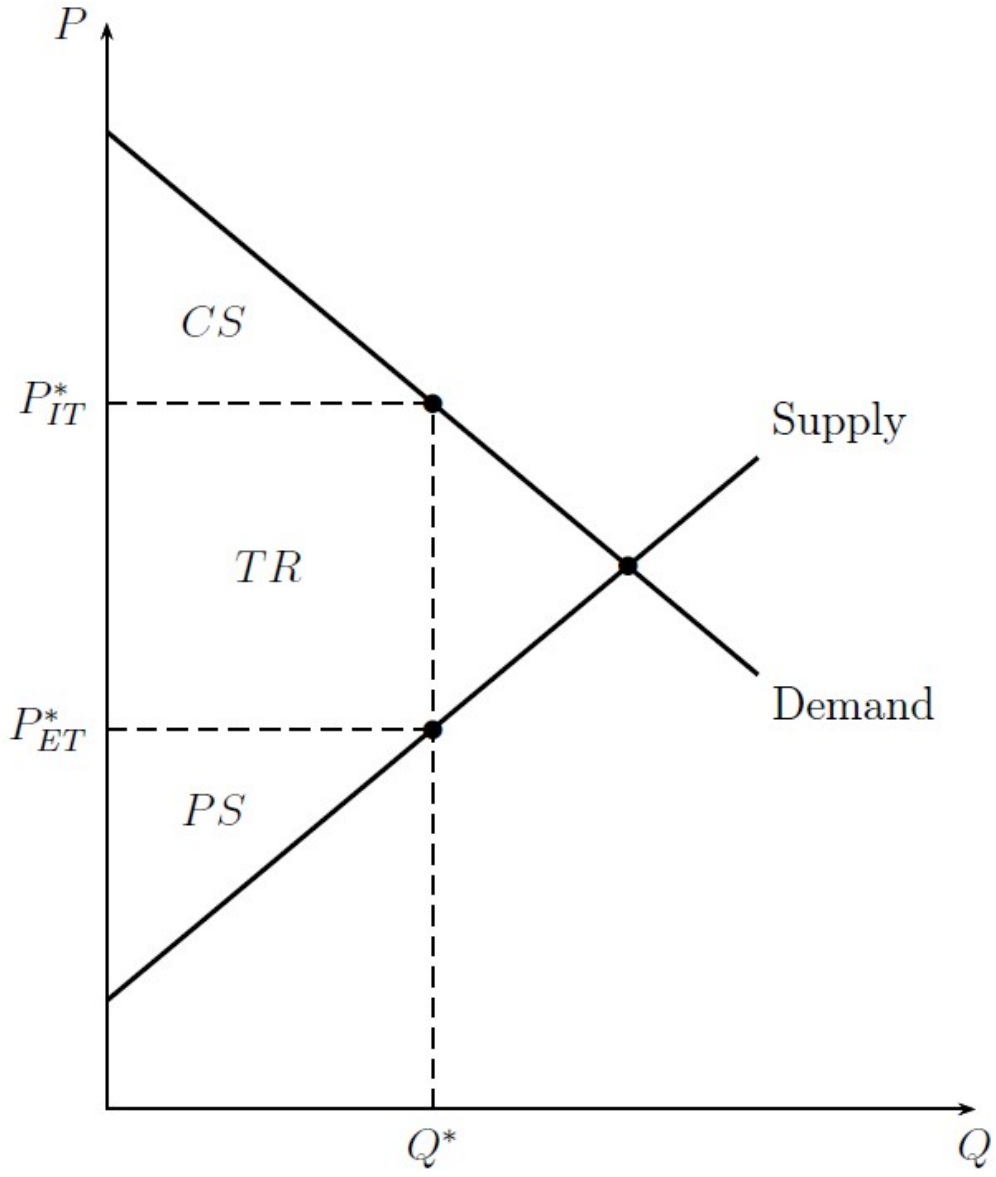
Welfare gain from exchange on a market

SS = CS + PS + TR

Consumer surplus

Producer surplus

Tax revenue



THE CASE OF ADDICTIVE GOODS

- Biases in decision-making (self-control problem)
- Inadequate integration of future damage ('internalities')

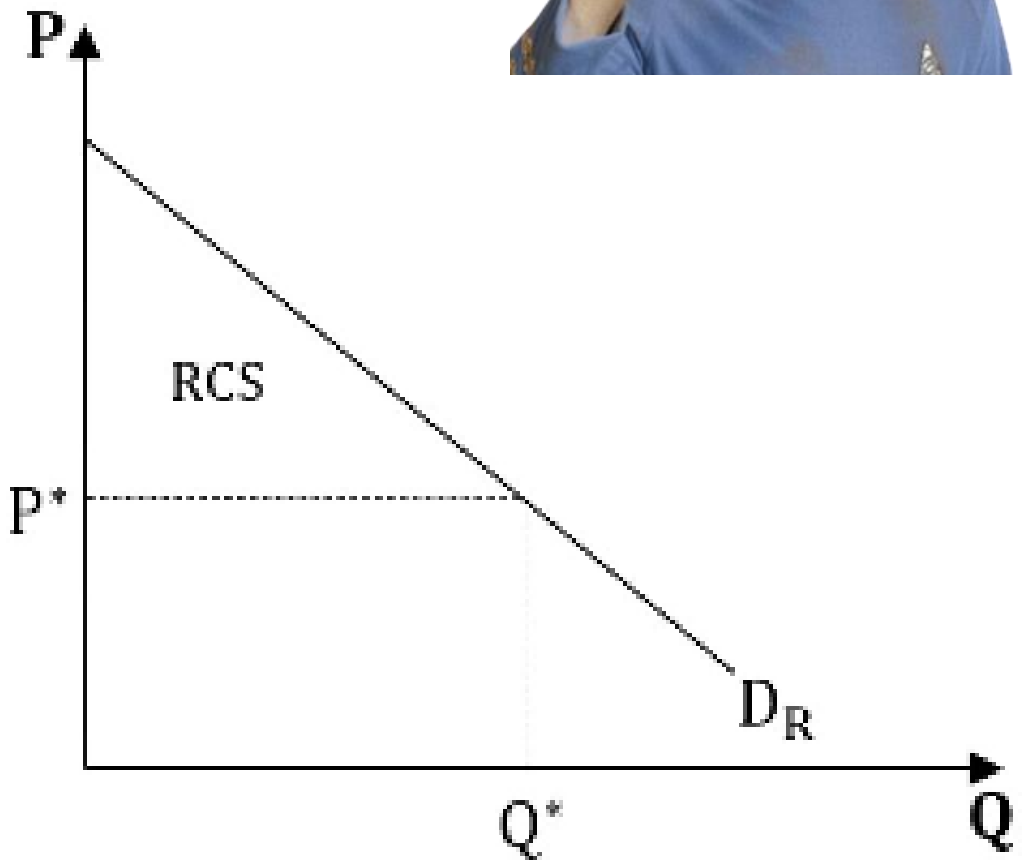
=> in CBA, distinction between rational and addicted consumers

THE RATIONAL CONSUMER SURPLUS

Standard measurement of consumer surplus:

$$RCS = \frac{S}{2|\eta_R^*|},$$

with $S = P^* Q^*$ the spending of rational consumers and η_R^* the price elasticity of rational demand.

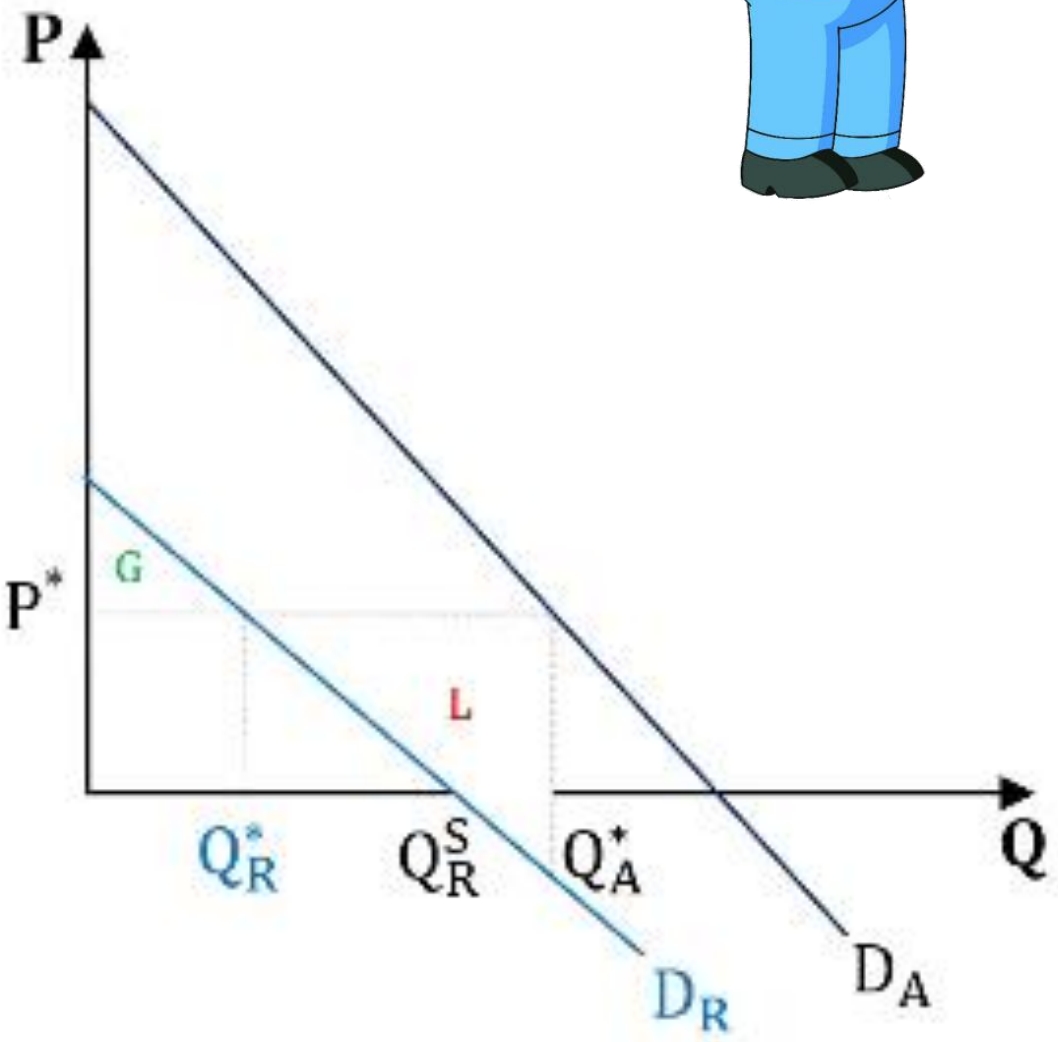


THE ADDICTED CONSUMER SURPLUS

- Incorporation of internalities into surplus measurement
- Rational benchmark approach (Australian Productivity Commission, 1999; Massin and Miéra, 2020)

$$ACS = G - L = \frac{R^2 - E^2}{2R|\eta_R^*|},$$

with $R = P^* Q_R^*$ the recreational spending of addicted consumers and $E = P^*(Q_A^* - Q_R^*)$ the excess spending of rational consumers.



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AT THE AGGREGATE LEVEL (i.e. country level)

By gambling types:

- Spending of overall gamblers (i.e. price x quantity) = *Gross Gambling Revenue* (GGR)
- Revenue of gambling operators = *Net Gambling Revenue* (NGR)
- *Taxes* as the difference

FROM INDIVIDUAL SURVEY DATA

- PGSI score (or equivalent)
- Spending by gambling type (usually self-reported)

IDENTIFICATION OF GAMBLERS CATEGORIES

In the analytical framework:	From survey data:
rational	PGSI 0: non-problem gamblers
vs	PGSI 1-2: low-risk gamblers
addicted	PGSI 3-7: moderate-risk gamblers
consumers	PGSI 8-27: problem gamblers

Transposition :

Rational consumers → recreational gamblers

Addicted consumers → problem gamblers

Threshold of problem gambling: PGSI ≥ 3

Need for sensitivity analysis

SPENDING BY GAMBLERS CATEGORIES

- Breakdown of global spending (aggregate data) between recreational and problem gamblers (using the information from the individual survey data)
- Breakdown of problem gamblers spending between recreational and excess spending:
  1) calibration of recreational spending on the median spending of recreational gamblers
  2) excess spending as the difference between total and recreational spending

Exemple: a problem gambler spends €3,000 on casino games. The median spending of recreational gamblers in casinos games is €500. The recreational spending of the problem gambler is €500 and his/her excess spending is €2,500.

CALIBRATION OF ELASTICITIES

- Difficulty to estimate elasticities ⇒ calibration
- Price elasticity of recreational demand:
  Optimal monopoly pricing: $|\eta*|=1$
  Recreational demand more elastic than overall demand
  => chosen elasticity: $|\eta_R^*|=1.25$
- Price elasticity of supply:
  Accounting estimate of surplus in Tasmania (Allen Consulting Group, 2011): $SP \approx 0.5GGR \Leftrightarrow \varepsilon^* = 1$
  => chosen elasticity: $\varepsilon^* = 1$
- Need for sensitivity analysis

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ORIGINAL PAPER

The social value of gambling: surplus estimates by gambling types for France

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Abstract

We estimate the social surplus of gambling in France by adding three components: consumer surplus, producer surplus and taxation revenue. To estimate consumer surplus, we use the rational benchmark approach, which attributes a loss of welfare (i.e. a negative surplus) to problem gamblers depending on their level of excess spending compared with recreational gamblers. Using data for the year 2019 and considering only legal gambling, we find that the consumer surplus is negative for the gambling activity as a whole. When we add the producer surplus and the taxation revenue to the consumer surplus, we find that the social surplus is more likely to be negative, ranging from − 45 billion euros in the pessimistic scenario to + 6 billion euros in the optimistic scenario. There are, however, important differences between gambling types. The social surplus is negative in all scenarios for poker and sports betting. Conversely, it is positive in all scenarios for draw lotteries and scratch cards.

Keywords Gambling · Consumer surplus · Rational benchmark · Producer surplus · Taxation revenue · Social surplus

DATA SOURCES

- Aggregated data provided by the French Monitoring Centre for Gambling
- Individual survey data provided by the French Health Barometer 2019

CONSUMER SURPLUS

Consumer surplus in 2019 (in million euros)

	Recreational gamblers surplus PGSI 0-2 (RCS)	Problem gamblers surplus			Overall gamblers surplus (CS=RCS+PGS)
		PGSI 3-7	PGSI 8-27	Total (PGS)	
Draw lotteries	682	-647	-491	-1 138	-456
Scratch cards	583	-279	-708	-987	-404
Horse racing	645	-201	-821	-1 022	-377
Slot machines	532	-1 572	-1 125	-2 697	-2 165
Sports betting	247	-1 044	-4 256	-5 300	-5 052
Table games (w/o poker)	64	-1 070	-130	-1 200	-1 136
Poker	56	-3 280	-2 572	-5 852	-5 796
All gambling	2 810	-8 094	-10 102	-18 196	-15 386

SOCIAL SURPLUS

Social surplus in 2019 (in million euros)

	Gross gambling revenue (GGR)	Consumer surplus (CS)	Producer surplus (PS)	Taxation revenue (TR)	Social surplus (SS)	Ratio SS/GGR
Draw lotteries	2 285	-456	314	1 656	1 515	0.663
Scratch cards	2 410	-404	449	1 512	1 557	0.646
Horse racing	2 050	-377	669	711	1 004	0.490
Slot machines	2 027	-2 165	456	1 115	-594	-0.293
Sports betting	1 659	-5 052	445	768	-3 839	-2.315
Table games (w/o poker)	332	-1 136	75	183	-878	-2.649
Poker	333	-5 796	107	119	-5 570	-16.748
All gambling	11 095	-15 386	2 516	6 063	-6 806	-0.613

SENSITIVITY ANALYSIS

Sensitivity analysis (in million euros)

	Pessimistic scenario			**Baseline scenario**			**Optimistic scenario**		
	Problem gamblers = PGSI 1+ $\lvert\eta_R^*\rvert = 0.75$ $\varepsilon^* = 1.50$			Problem gamblers = PGSI 3+ $\lvert\eta_R^*\rvert = 1.25$ $\varepsilon^* = 1.00$			Problem gamblers = PGSI 8+ $\lvert\eta_R^*\rvert = 1.75$ $\varepsilon^* = 0.75$		
	Consumer surplus	Producer surplus	Social surplus	Consumer surplus	Producer surplus	Social surplus	Consumer surplus	Producer surplus	Social surplus
Draw lotteries	-890	210	976	-456	314	1 515	293	419	2 369
Scratch cards	-1 554	299	257	-404	449	1 557	50	599	2 160
Horse racing	-6 296	446	-5 139	-377	669	1 004	-72	892	1 531
Slot machines	-10 813	304	-9 394	-2 165	456	-594	579	608	2 302
Table games (w/o poker)	-2 522	50	-2 290	-1 136	75	-878	2	99	284
Poker	-14 029	71	-13 839	-5 796	107	-5 570	-1 601	143	-1 340
Sports betting	-16 618	297	-15 553	-5 052	445	-3 839	-2 751	594	-1 389
All gambling	-52 723	1 677	-44 983	-15 386	2 516	-6 806	-3 500	3 354	5 917

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DATA SOURCES

- Aggregated data provided by the National Lottery
- Individual survey conducted by Ipsos in 2022

MAIN RESULTS

Social surplus in 2022 (in million euros)

	Pessimistic scenario Problem gamblers = PGSI 1+ Elasticity of demand = 0.75 Elasticity of supply = 1.50			**Baseline scenario** Problem gamblers = PGSI 3+ Elasticity of demand = 1.25 Elasticity of supply = 1.00			**Optimistic scenario** Problem gamblers = PGSI 8+ Elasticity of demand = 1.75 Elasticity of supply = 0.75		
	Consumer surplus	Producer surplus	Social surplus	Consumer surplus	Producer surplus	Social surplus	Consumer surplus	Producer surplus	Social surplus
Lottery									
Offline	-718	71	-389	-235	106	129	-40	141	359
Online	-66	26	57	5	40	142	33	53	183
Casinos									
Offline	-440	25	-368	-202	37	-117	-12	50	85
Online	-6915	112	-6761	-3058	169	-2848	-851	225	-584
Slots									
Offline	-888	39	-806	-456	59	-354	-303	79	-181
Online	-17502	63	-17416	-6523	94	-6406	-3837	125	-3689
Betting									
Offline	-3559	44	-3491	-1286	67	-1196	-224	89	-112
Online	-2227	63	-2141	-799	94	-682	-394	125	-246

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STRENGTHS AND LIMITATIONS OF THE STUDY

- Simple approach
- Easy to implement
- Produces straightforward results

- No account of public spending and externalities (<0)
- Binary conception of gambling behavior
- Self-reported data on spending
- No information on the nature of welfare loss
- Heterogeneity of gambling categories
- Assumption of components offsetting
- Unclear account of illegal gambling
- No precise prescription; damage mitigation as a natural objective

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PROSPECTS

- further study and explain the Belgian results
- apply the method to Norway (and perhaps Spain)
- apply to other French data to study trends (2014)
- need to beware of potential conflicts of interest

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