Social Costs of Gambling

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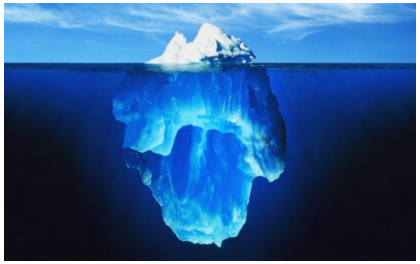
Agenda

- Introduction: Social Costs, Benefits and their Relationship to Welfare
- The Social Costs and Benefits of Gambling in Germany
- Two shortcuts for the evaluation of gambling (segments)
- Concluding remarks for regulation
- Discussion

Introduction

A simple view on the welfare effect of gambling

- Why is there need for any regulation, if gambling is positive for society?



Social Costs
€326 million
(Becker 2011)

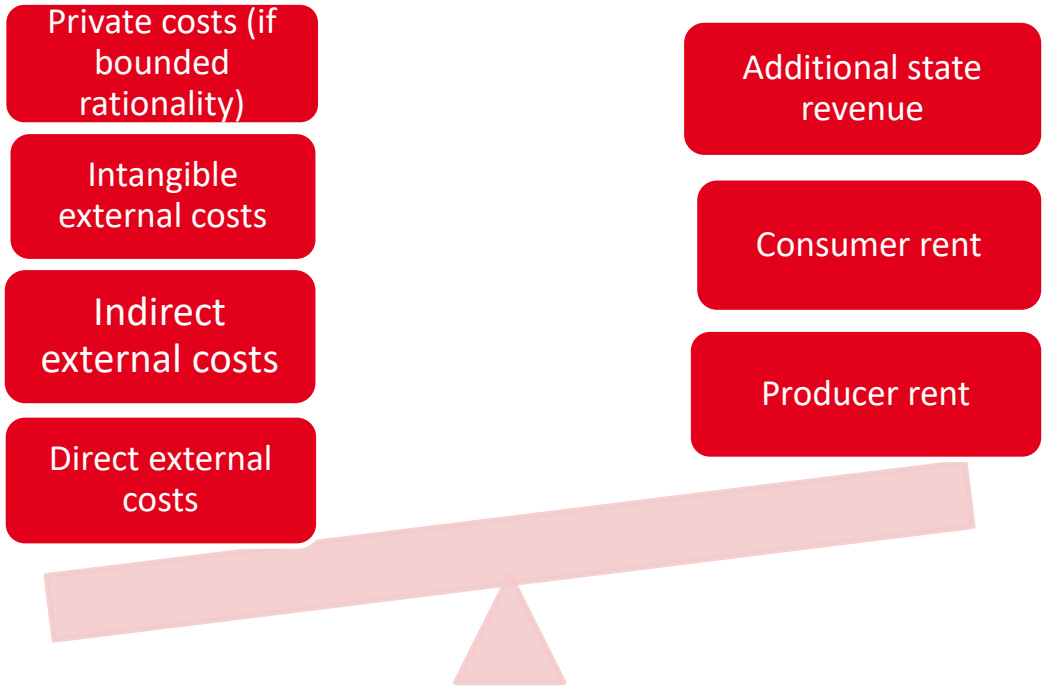
€ 5 billion state revenue

€ 11,6 billion Revenue

Jobs

Introduction

In the simple view important aspects are neglected and other things are counted twice

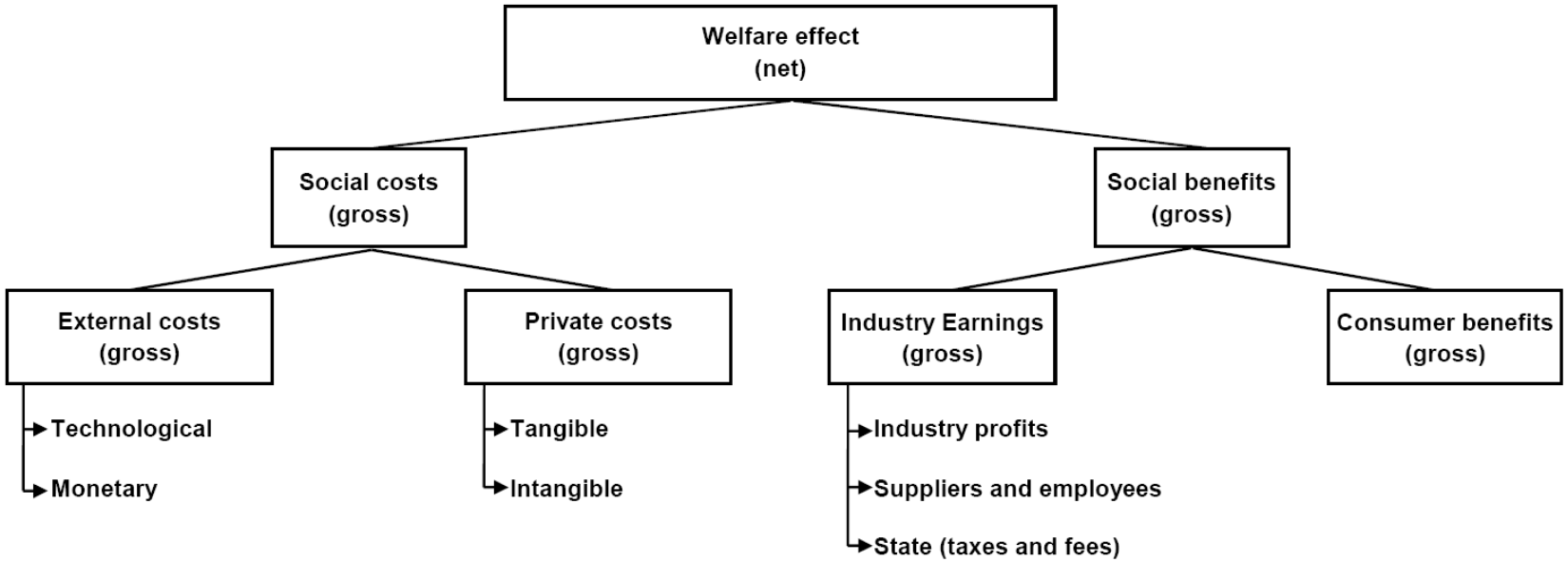


Introduction to the topic of social sosts and welfare

- Calculation of social costs is a (young) task of economics; the methodology is immature
- Different concepts lead to different meaning of same terms

  → Misunderstandings and non-comparable studies
- Problems intensified by non-disclosed assumptions and concepts as well as implicitly and ill-defined terms
- Assessment of different costs as „social costs“ often ad-hoc, arbitrary and not well-grounded
- Especially true for studies regarding the social costs of gambling
- And by the way: it is all about social welfare not social costs!

Methodology: Social Costs of Gambling



- Social costs opposed to social benefits yield effect on welfare
- Social costs as sum of private and external costs
- Monetary externalities have corresponding benefit
- Technological externalities have no corresponding benefit
- Players losses (tangible private costs) equal industry earnings
- Intangible private costs mostly due to gambling addiction

The Social Costs and Benefits of Gambling in Germany

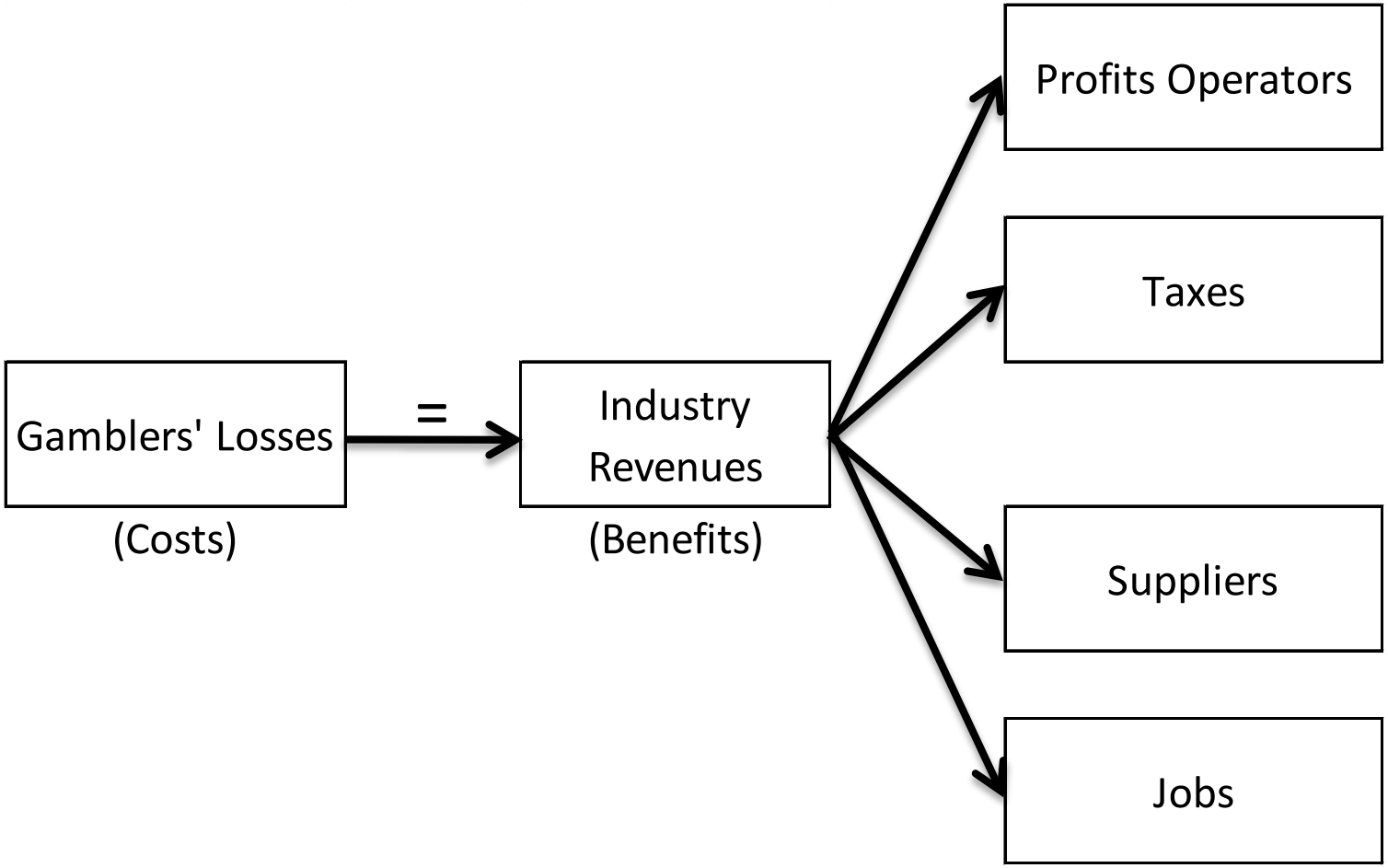
Three scenarios

(1) Rational gamblelrs, no intangible effects (WHO-guidelines)
(2) Rational gamblers, including intangible effects
(3) Bounded rationality of gamblers, including intangible effects

Assumption bounded rationality

	Degree of rationality						
Group	100%	90%	75%	50%	25%	0%	Ø
Recreational gambler	95%	2.50%	1.25%	1.25%	0%	0%	**98.81%**
Problematic gambler	50%	25%	10%	10%	5%	0%	**86%**
Pathological gambler	25%	25%	15%	15%	10%	10%	**69%**

Social benefits: profits, taxes, suppliers, jobs are financed by gamblers‘ losses



Social benefits: net benefits count, not gross benefits!

Type of benefit	Gross effect in mil. €	Net effect in mil. €
Consumer rent (adjusted for opportunity rent)	2,525	378.8
Producer rent (adjusted for opportunity rent)	1,770	265.5
Additional state revenues	4,940	1,440
Improved quality of life of environment of gamblers	11.4	11.4
Total	**9,246.4**	**2,095.6**

Social costs: Number of compulsive gamblers is a key parameter

	Scenario A	Scenario B	Scenario C
Pathological gamblers	100,000	195,000	290,000
Problematic gamblers	149,000	245,000	340,000

Private costs: have to be multiplied with degree of bounded rationality (0 with perfect rationality)

Type of Cost	Scenario A	Scenario B	Scenario C
Monetary losses	10,618	10,618	10,618
Income losses due to loss of job	117.1	201.7	281.2
Income losses due to lowered wages	157	286	414
Loss of housing	3.2	6.2	9.2
Penalties due to delinquency	7.1	39.2	57.0
Loss of life quality	1,433	2,700	3,965
Opportunity costs of time	2,254.1	2,254.1	2,254.1
Total	**14,615.2**	**16,146.3**	**17,474.2**
Total relevant to welfare	**2,089**	**2,522**	**2,955**

Figures in million Euro per year

Pecuniary externalities: not relevant to welfare

Type of Cost	€
Failure to repay debts and third party debt enforcement	/
Increased social transfer payments	/
Direct costs of gambling-induced crime	/
Direct costs of associated crime: Match fixing	/
Costs to the landlord from loss of housing	/
Crowding out of other industries by the gambling industry	/
General overview of pecuniary externalities	/
Total: not relevant to welfare	**/**

Technological externalities: „classical social costs“ 1/2

Type of Cost	Scenario A	Scenario B	Scenario C
Medical treatment	131.4	256.3	381.2
Administering social transfers	0.4	0.6	0.9
Productivity losses at work	646.3	1,206.8	1,766.0
Productivity losses outside of work	56.1	103.8	151.3
Follow-up costs delinquency (w/o intangible costs)	30	30	30
Follow-up costs associated crime: organized crime, money laundering, match fixing	?	?	?
Enforcement gambling-induced debts	1.6	2.9	4.1
Credit counseling insolvency processing	2.1	4.0	6.0
Increased regresiveness due to redistribution	?	?	?

Technological externalities: „classical social costs“ 2/2

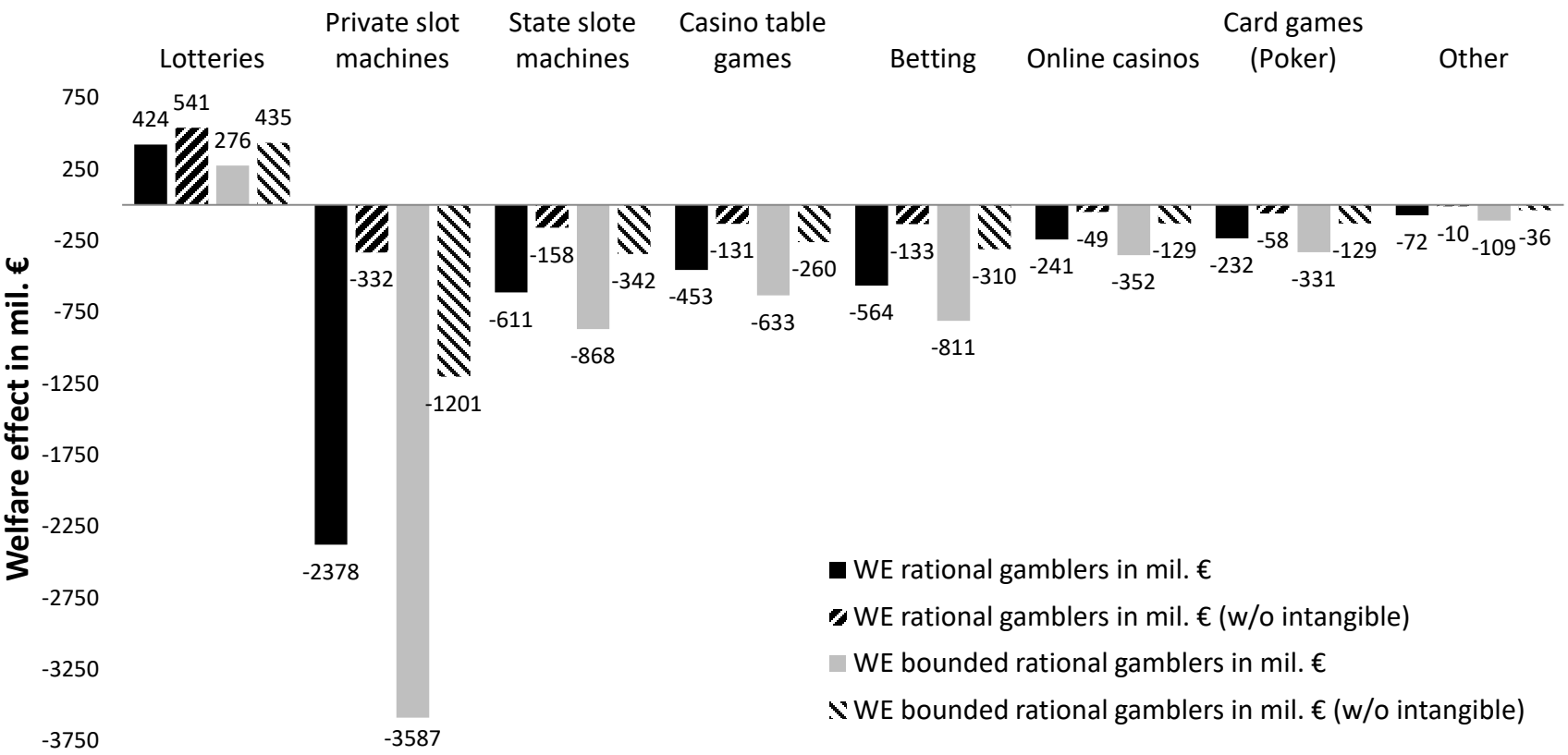
Type of Cost	Scenario A	Scenario B	Scenario C
Costs of legislation, regulation, monitoring, public administration	73.3	73.3	73.3
Costs of prevention	28.4	28.4	28.4
Costs of gambling research	13.2	13.2	13.2
Disruption of families and consequences	2,360.1	4,446.4	6,529.6
Increased risk of addiction of gamblers‘ children	203	395	588
Follow-up costs of suicides	50	50	50
Degentrification/loss of real estate value	?	?	?
Total	**3,596**	**6,611**	**9,622**

Welfare effect: balancing of costs and benefits

Welfare effect	A	B	C
Perfect rationality, excluding intangible costs/benefits	+511.7	-410.6	1,331.4
Perfect rationality, including intangible costs/benefits	-1,500.7	-4,515.5	-7,526.8
Bounded rationality, including intangible costs/benefits	-3,556	-6,974	-10,398

Figures in million Euro per year

Welfare effect differs strongly per segment



Calculations are conservative

- For each cost type the lower cost estimate was used, if no exact calculation was possible
- Some important costs were not be quantified
  - Follow-up costs associated crime: organized crime, money laundering, match fixing
  - Increased regresiveness due to redistribution
  - Costs caused by lobbying and corruption
  - Degentrification and loss of real estate values
- Degree of bounded rationality most likely much higher

→ Welfare effect most likely worse than figures show

Who bears the costs and who reapes the benefits?

Political power ⟵ ⟶ Degree of diffusion

Operator	State	Gambler	Social insurance	Context gambler	Ceditors	Employers	Whole society
Producer rent	Additional Income	Consumer rent	Increased transfers	Quality of life	Unpaid debt	Productiity losses	Technology
	Prevention	Monetary losses	Costs of treatment	Family disruptions	Unpaid rent		Associated crime
	Regulation	Decrease in quality of life	Administartion costs	Productivity losses	Measures to claim bad debts		Delinquency
	Research	Decrease in income		Increased risk of addiction, children			Lobbyism & corruption
		Opportunity costs		Follow-up costs suicids			
		Loss of housing					
		Crime penalties					

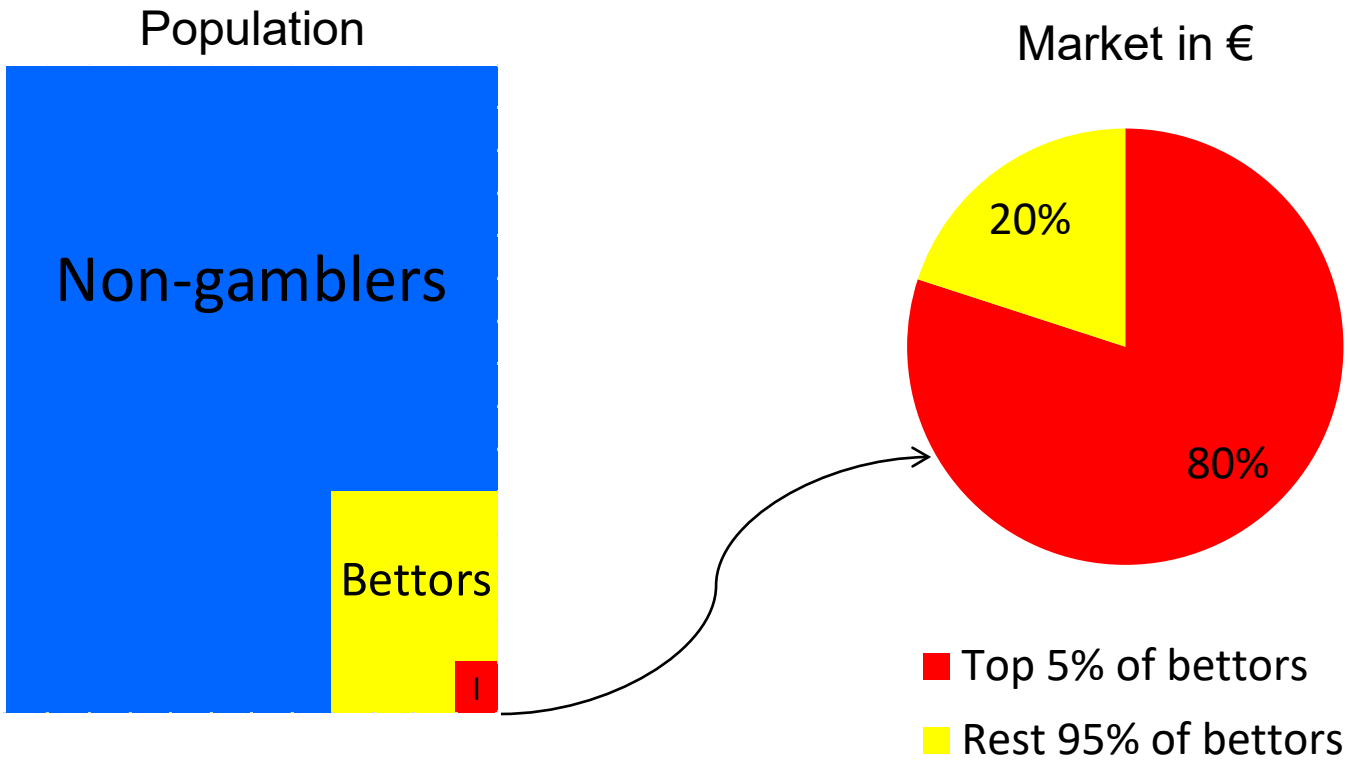
Limitions to the quantification of the welfare effect of gambling

- Most important costs are intangible
- Intangible costs cannot be measured (Walker 2007, Reith 2007) or are even „Impossible to calculate“ (NGISC 1999)
- (Degree of) causality of some effects unknown, e.g. of induced substance disorders
- Insufficient data base on many cost types

→ **Are there simple and practical second-best solutions?**

Two shortcuts for the evaluation of gambling (segments)

Example: the market for sports betting



→ 0.5% of the population creates 80% of the market

→ Are those intense gamblers just rich? Or are they addicted?

Shortcut 1: Share of revenues derived from problem gamblers

- The more addictive a game segment, the worse ist effect on welfare
- Problem gamblers play
  - More often
  - More intensely
  - Longer than recreational gamblers

→ **Problem gamblers spend much more money per head than recreational gamblers**

- Share of revenues derived from problem gamblers as an indicator for the welfare effect of a game segment

$$X = \frac{\text{Share probl. Gamblers} * \text{multiplier}}{\text{Share probl. Gamblers} * \text{multiplier} + \text{share recr. gamblers} * 1}$$

Shortcut 2: Industry revenues per problem gambler

Variable 1) Industry earnings

Variable 2) Number of addicts

Ratio: Industry earnings/number of addicts to evaluate different games

Interpretation

- How much earnings are needed to accept one addict?
- Ranking of games by the earnings which can be generated until one addict arises (on average)

$$X = \frac{\text{Revenues in €}}{\text{Number of attributed problem gamblers}}$$

Results: share of revenues with problem gamblers and revenues per problem gambler

Game segment	Share of revenues with PG	Revenues per PG (Scenario B)
Private slot machines	79.7%	€13,477 – €20,367
State-owned slot machines	75.0%	€8,435 – €24,131
Online casinos	53.0%	€14,545 – €54,545
Casino table games	26.3%	€4,608 – €16,818
Sport and horse betting	21.9%*	€11,159 – €18,589
Lotteries	14.3%	€157,000 – €236,000
Total	**47.0%**	**€24,131**

*Most likely an underestimation due to recent increase in sports betting adoption

Attention: Shortcuts are relative measures, welfare effect is absolute!

Is there room for improvement by regulation?

- Most forms of gambling cause more costs than benefits
- Negative welfare effect does not necessarily mean there is room for improvement by regulation
  - New regulation could worsen the situation, e.g., a prohibition which leads to a thriving black market
- Room for improvement by regulation, if
  - Regulatory intervention is not coherent with the welfare effect of a gambling segment
  - Regulatory intervention is not focused on reducing the main driver of costs: addiction

Discussion

Appendix:
Bounded Rationality: Are Private Costs are Relevant to Welfare?

Can private costs be relevant to welfare? The case of intra-personal externalities

- Intra-personal externalities are costs an agent does not account for but still has to bear
- Intra-personal externalities exist if…

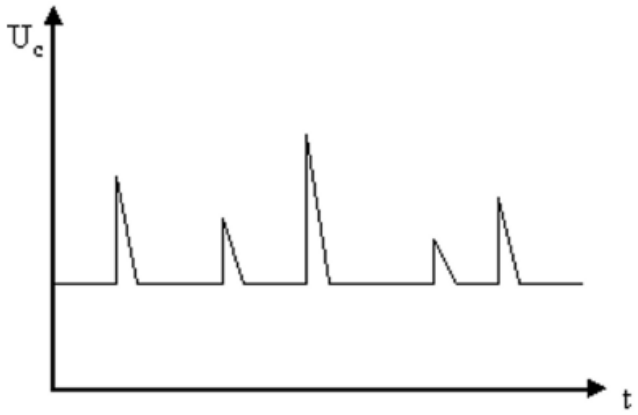
(1) …people are irrational

- ➢ Rationality is a common assumption in economics
  - „The earth is *round*, but for most purposes it's sensible to *treat it as flat*." (Theodore Levitt)
  - Do „most purposes" include addictions?
  - Do „most purposes" include gambling?

(2) …path dependency is combined with information deficiency

Cues and Consistent Preferences

Cues are stimuli of the environment, that temporarily increase the marginal utility of a good c



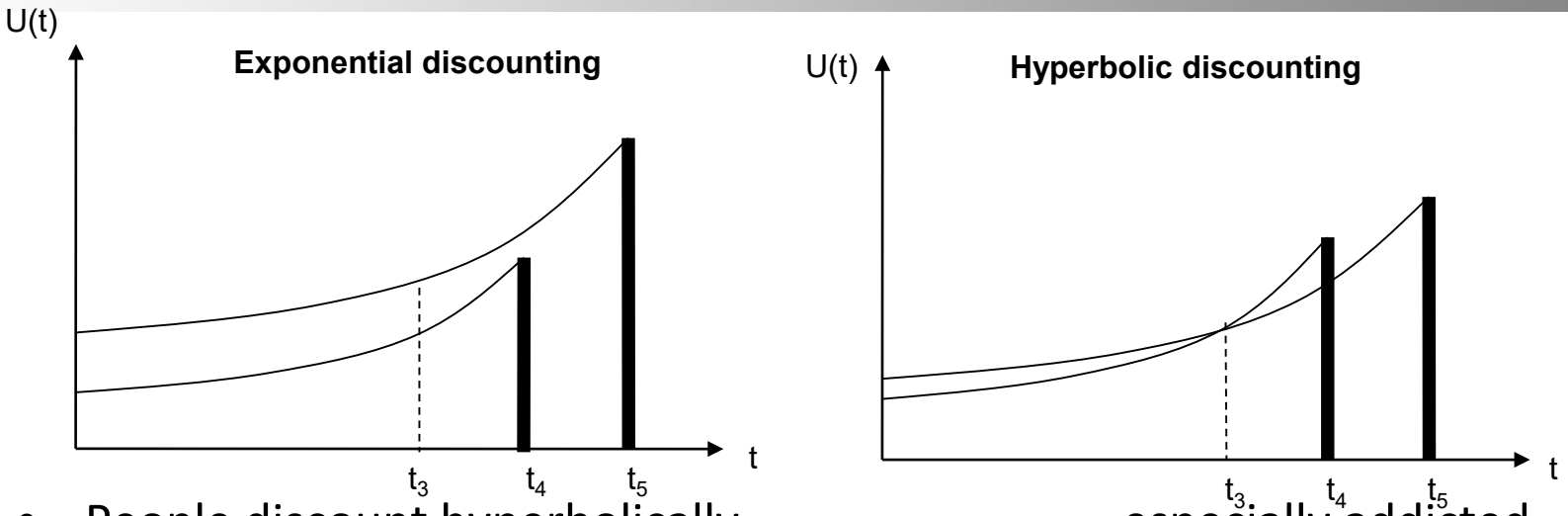
„Conditioned response“: In the moment of a cue (hot mode), individuals decide to consume because $U_c > C_c$. Afterwards (cold mode) they may regret their decision

Cues temporarily change the preference order (Laibson 2001)

Individuals are willing to bear huge costs to avoid cues (Laibson 2001)

This leads to Cue-Management (Schelling 1984)

Discounting and Consistent Preferences

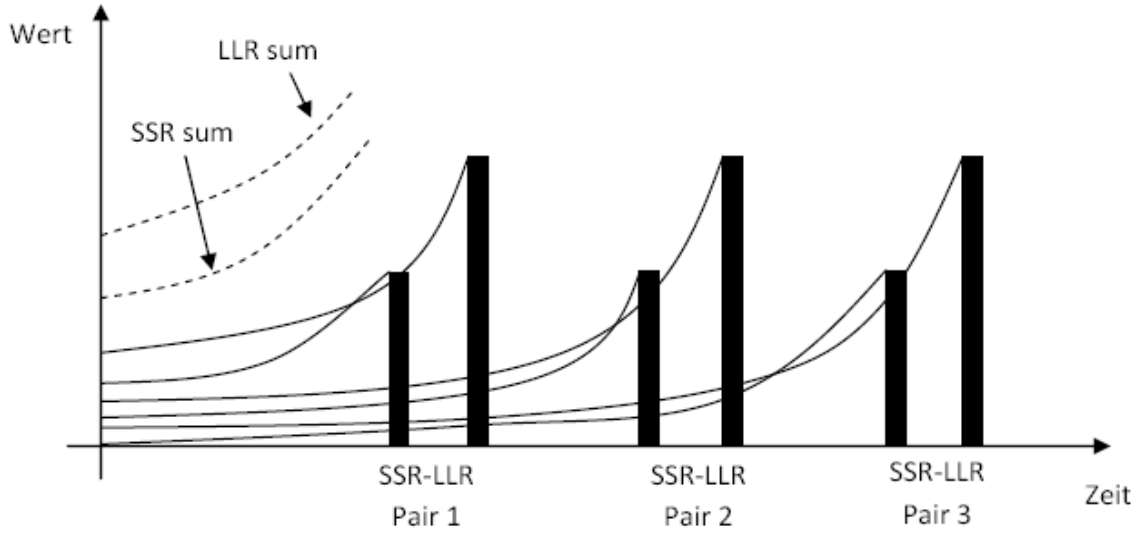


- People discount hyperbolically (Ainslie 1975, Thaler 1981), especially addicted people (Vuchini and Simpson 1998)
- Hyperbolic discounting and addiction are closeley linked (Skog 2005)
- Hyperbolic discounting can be modelled best in a utility function based on two systems with different discount rates (McClure et al. 2007)
  - β-system: high discounting, related to the mesolimbic system
  - δ-system: slow discounting, related to the prefrontal cortex
  - β-system activated by cues → discount rate increases temporarily

Consistent Preferences & Reward Bundling

Decision bundling can lead to exponential discounting (Ross et al. 2008)

LLR = Larger Later Reward; SSR = Smaller Sooner Reward



- Horizon: amount of bundled decisions
- The greater the path dependency of decisions, the longer the horizon, that is needed for consistent decisions

Addictive goods are highly path dependent

- Path dependent decisions: Utility in the future depends on todays decisions
- Costs of addiction arise in later periods and depend on consumption in earlier periods
- Consumption of addictive goods create so called „consumption capital“: The higher the consumption capital, the lower the overall utility and the higher the marginal utility of consumption
- Consumption capital increases with consumption and decreases over time
- Consumption capital in equilibrium: CC*

Do people know the costs of consuming an addictive good?

- Cost of addiction varies from person to person
- Cost of addictions is an unknown to the decision maker (at least in advance)
- Probability of getting addicted differs from person to person
- Probability of getting addicted is an unknown to the decision maker (at least in advance)
- Even if range of costs and range of probability of addiction are known, decision are suboptimal
- Even with rationality, information deficiency paired with path dependency lead to suboptimal decisions in non-one-shot-games
- Even if people predict everything correctly: Do they bundle their decisions until t*, given that many addicted people started consumption as juveniles?

Do gamblers evaluate their utility correctly?

- Gamblers overestimate their chances of winning (Weinstein 1980)
  - Illusion of control (Langer and Roth 1975)
  - 75% of all gamblers believe that winnings occur in cycles and events are not independent (Australian Productivity Commission 2009)
  - 32% of all problem gamblers think it is possible to win money consistently (Australian Productivity Commission 2009)
- People overestimate the utility of winning a jackpot
  - People assume the same marginal utility of money as in their current situation

First resumé

- Gambling is an addictive good
- Cues lead to hyperbolic discounting and therefore to intransitive utility functions and insconsistent decisions
- People, especially addicts, have a too short horizon and do not bundle enough decisions
- People underestimate the costs of addiction
- Gamblers overstimate their marginal utility

→ Gamblers do not internalize their costs completely

→ What about the welfare effect of gambling?