



UNIVERSITY OF
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The Relationship between Exclusions from Gambling Arcades and Accessibility

Evidence from a newly introduced exclusion
program in Hesse, Germany

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Summary



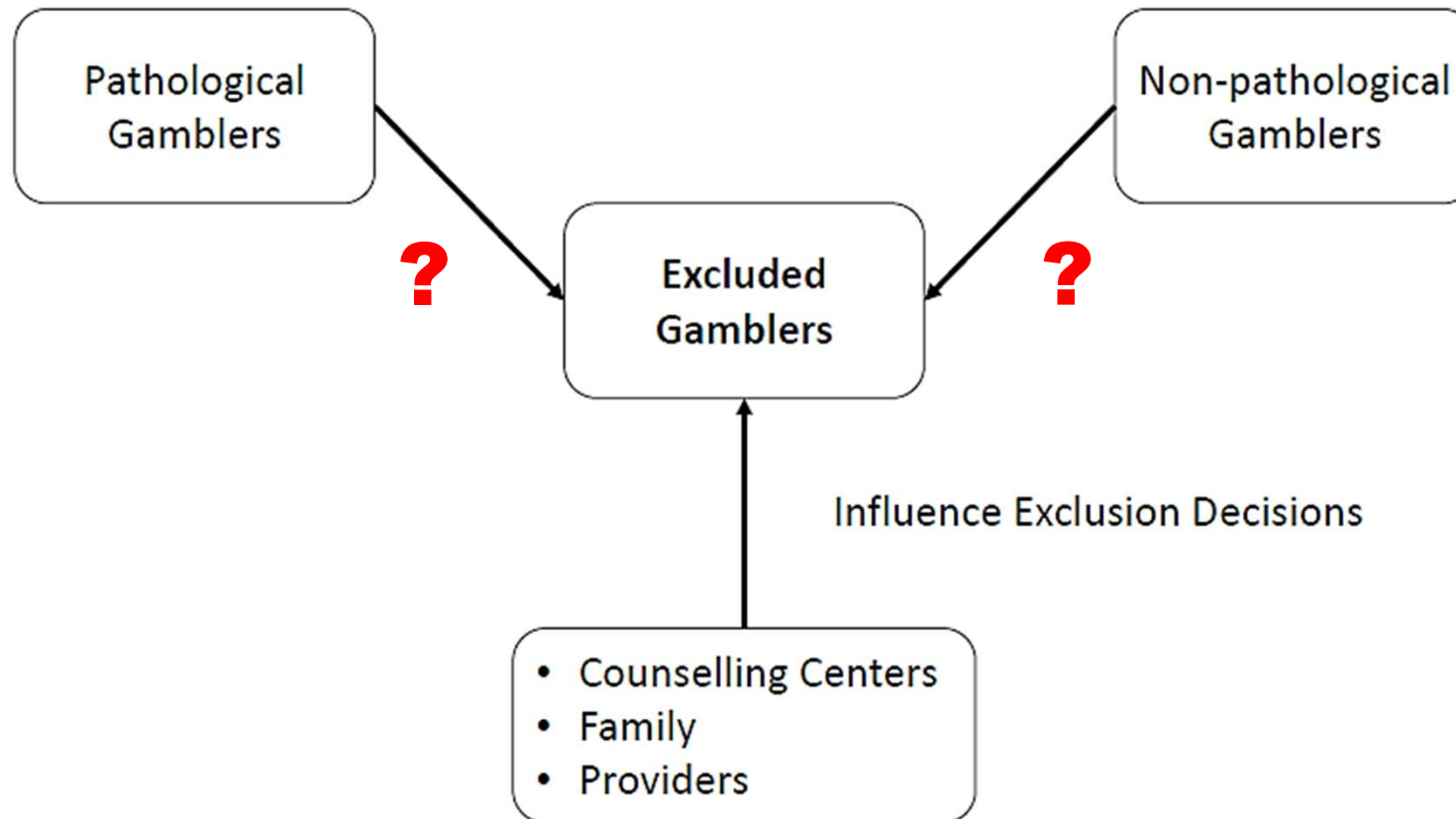
Introduction: Fundamentals

The Exclusion System in Hesse:

- The system is called OASIS
- Established in April of 2014
- Possible are self- as well as external exclusions
- Multi-site system
- Minimum duration of an exclusion is one year



Introduction: Fundamentals





Introduction: Research Questions

Two main questions:

- 1) To what extent are certain accessibility variables suitable for explaining variations in the number of exclusions between Hessian municipalities?
- 2) To what extent are the established socio-demographic risk factors for pathological gambling suitable for explaining variations in the number of exclusions between Hessian municipalities?



Introduction: Variables

Accessibility measures used for the analysis:

- Model I: EGMs per 1.000 inhabitants (*raw effect*)
- Model II: Locations per 1.000 inhabitants (*location effect*) and License to location ratio (*clustering effect*)

Why two models?

1. To avoid multi-collinearity issues
2. Possibility to disentangle the raw effect of the share of EGMs into a location and clustering effect



Introduction: Variables

Socio-demographic variables used for the analysis:

- Fraction of men
- Fraction of 30-39 year olds
- Fraction of singles/divorced/widowed
- Fraction of those with at least A-levels or advanced technical college entrance qualification
- Fraction of unemployed
- Fraction of those with migration background
- +
- Indicator for population density



Descriptive Statistics: Exclusions

The number of uniquely assignable exclusions amounts to **11 902**, they are distributed among **191** Hessian municipalities (as of November 2015)

Total number of observations	191
Minimum	1
25%-Quantil	8.5
Median	26
75% -Quantil	62
Maximum	1 184
Mean	62.31



Descriptive Statistics: Accessibility

Following Trümper (2014) for Hessian municipalities with more than 10 000 inhabitants:

	Sum	Mean absolute	Mean of share	Max. Value
No. of EGMs	12 717	62	2.8	1 688 in FFM
No. of licenses	1 134	8	0.3	169 in FFM
No. of locations	634	5	0.2	87 in FFM



Results: Model I

<i>Dependent variable:</i>		
	Share of Exclusions	Standard Error
Constant	-3.684	(11.063)
<i>Accessibility Variable</i>		
No. of EGMs	0.686***	(0.054)
<i>Socio-demographic Variables</i>		
Male	-0.019	(0.021)
Age 30-39	0.041**	(0.018)
Migration	-0.004	(0.004)
Living alone	0.017**	(0.008)
Education	-0.001	(0.003)
Unemployed	-0.040	(0.028)
Sparsely populated	1.234*	(0.742)
Observations	134	
R ²	0.590	
Adjusted R ²	0.564	
F Statistic	22.505*** (df = 8; 125)	

Note: *p<0.1; **p<0.05; ***p<0.01



Results: Model I

- Significant coefficients for the **socio-demographic variables**:
 - If the share of people from the *age group 30-39* increases by one unit, the share of exclusions will increase by 0.041 units (p-value<0.05)
 - If there share of people who are *living alone* increases by one unit, the share of exclusions will increase by 0.017 units (p-value<0.05)

- Significant coefficient for the **accessibility variable**:
 - If the *share of EGMs* increases by one unit, the share of exclusions will increase by 0.686 units (p-value<0.01)



Results: Model II

<i>Dependent variable:</i>		
	Share of Exclusions	Standard Errors
Constant	2.080	(12.095)
<i>Accessibility Variables</i>		
Locations per 1000	10.743***	(1.644)
License to location ratio	1.457***	(0.163)
<i>Socio-demographic variables</i>		
Male	-0.034	(0.023)
Age 30-39	0.049**	(0.020)
Migration	-0.007	(0.004)
Living alone	0.014	(0.009)
Education	-0.002	(0.003)
Unemployed	-0.020	(0.031)
Sparsely populated	1.105	(0.804)
Observations	132	
R ²	0.528	
Adjusted R ²	0.494	
F Statistic	15.185*** (df = 9; 122)	

Note: *p<0.1; **p<0.05; ***p<0.01



Results: Model II

- Significant coefficient for the **socio-demographic variable**:
 - If the share of people from the *age group 30-39* increases by one unit, the share of exclusions will increase by 0.049 units (p-value<0.05)

- Significant coefficients for the **accessibility variables**:
 - If the *share of locations* increases by one unit, the share of exclusions will increase by 10.743 units (p-value<0.01)
 - If the *license to location ratio* increases by one unit, the share of exclusions will increase by 1.457 units (p-value<0.01)



Summary

- The well-established socio-demographic risk factors for pathological gambling play a minor role in explaining cross-sectional variations in the number of exclusions
 - Vulnerable gamblers seem to have no specific socio-demographic background
 - This hints towards little overlap between the groups of pathological and vulnerable gamblers

- Accessibility is a strong predictor for exclusions
 - An increase in accessibility measured in the share of EGMs leads to an increase in exclusions
 - When this effect is further disentangled it is shown that the location effect is more pronounced than the clustering effect



Thank you for your attention!

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