

Image, ~~Football~~ and Urban Development

59th ERSA Congress 2019, 29th August 2019, Lyon

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Outline of Presentation

1. Introduction
2. Theoretical considerations
 - a. Image and regional development
 - b. City image and its determinants
3. Hypothesis, research design and data
4. Empirical results
5. Conclusion

Introduction

Previous results

- Recent paper (Fischer and Hamm 2019) analyses relationship between city image and the image of its football club
- Main results:
 - Borussia Mönchengladbach is the city's most important image builder
 - Positive correlation between the image of a football club and the city image
 - Close relationship between the club's and the city's image
 - Transfer of the club's image to the city

Research question

- **Is it possible to identify city image as a relevant determinant of urban economic development?**

Theoretical considerations – Image and regional development

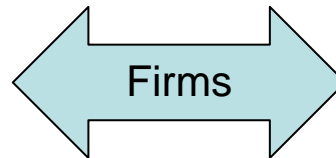
City image and urban development

- City image is relevant for the location decisions of key target groups like (Kotler et al. 1994; Riebel 1993):
 - Firms
 - Residents
 - Workers
 - Tourists
- The result of the location decisions of these key target groups determine economic development and economic success of cities (Florida 2002)

Theoretical considerations – Image and regional development

Image is expected to be ...

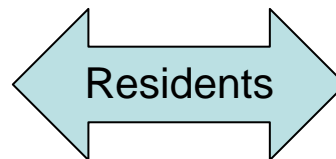
... a relevant 'soft' factor for the locational choice of companies (e.g. Eickelpasch et al. 2016; Grabow et al. 1995)



The decisions influence regional development:

Increase regional job offers, employment, income, and tax receipts (Krenz 2016)

... a relevant determinant for residential choice (Rosenfeld 2012). It is more difficult for a city with a negative image to attract skilled inhabitants (Kubo et al. 2012; Scholz 1989)



Increase the number of inhabitants, the supply of (qualified) workers and the amount of tax receipts (Jensen-Butler 1999)

... a key factor for visitors' destination choices (e.g. Agapito et al. 2013; Crompton 1979)



Stimulate regional economic development (Goeldner and Ritchie 2009)

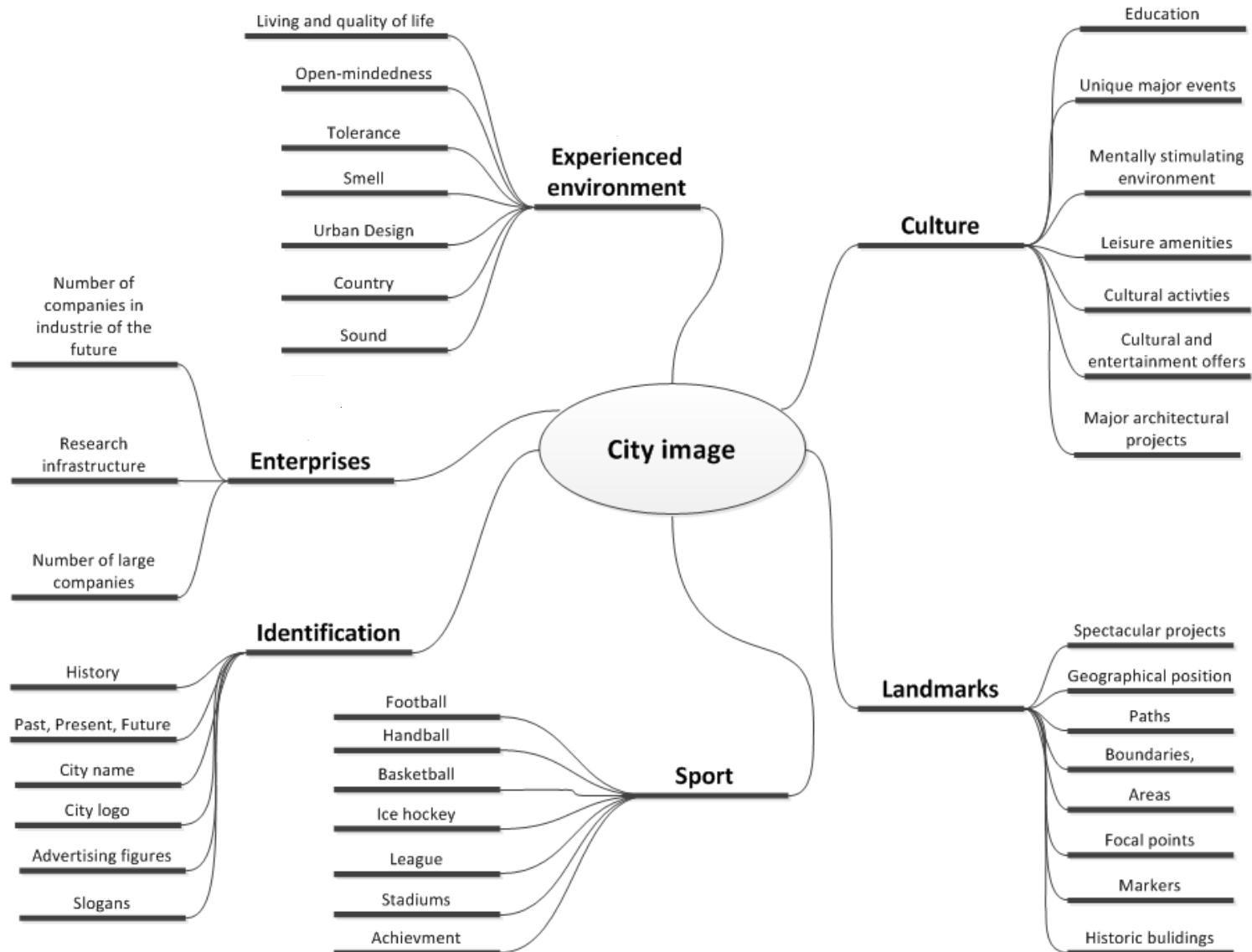
➤ **There is a positive relationship between city image and regional development**

Theoretical considerations – City image and its determinants

City image

- Brand image is ‘the set of beliefs, ideas, and impressions a person holds regarding an object’ (Kotler and Keller 2012, p. G4)
- City image is defined as ‘the sum of beliefs, ideas, and impressions that a person has of a destination’ (Crompton 1979, p. 18)
- A multitude of determinants shape the image of cities, regions and countries: (Beerli and Martin 2004)
 - Natural resources
 - Natural environment
 - Infrastructure
 - Culture, history and art
 - Leisure and recreation
 - Social environment
 - Political and economic factors
 - Atmosphere of the place

Theoretical considerations – City image and its determinants



Eigene Darstellung

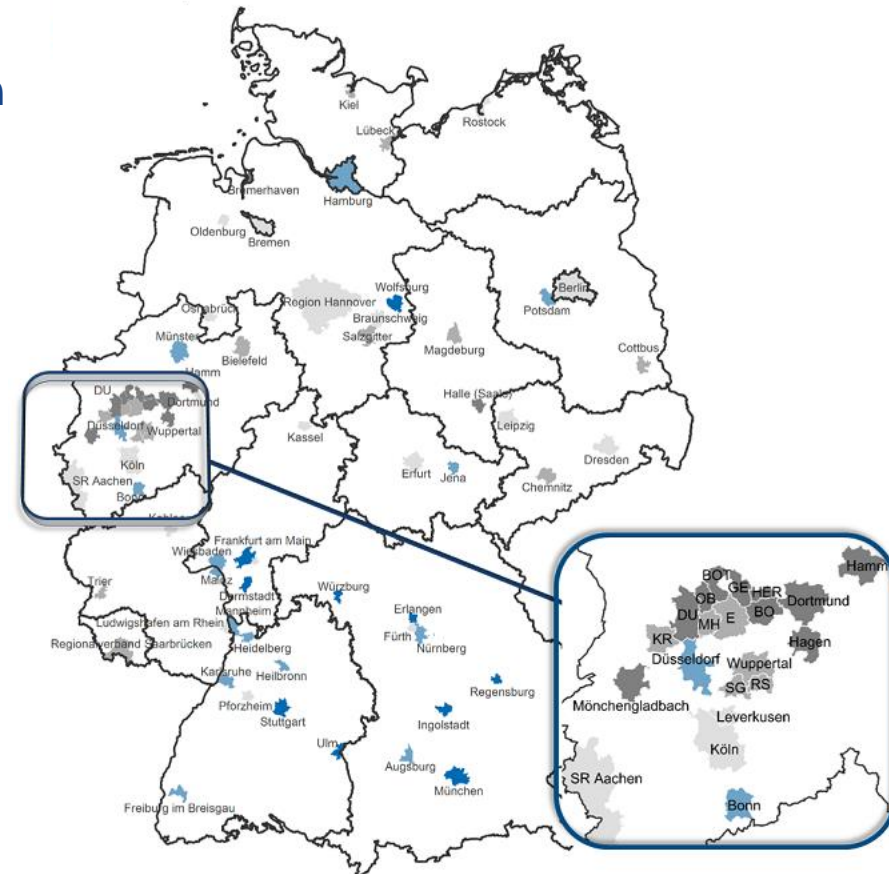
Hypothesis, research design and data

Hypothesis

- **Urban (regional) development depends on city (regional) image**

Research design

- 71 German cities with more than 100.000 inhabitants
- Four years of observations: 2013 - 2016
- Data sources
 - Statistisches Bundesamt
 - Bertelsmann Stiftung
 - Kicker
 - Börse.de Finanzportal AG
 - Deutscher Bühnenverein
 - Institut der deutschen Wirtschaft Köln Consult GmbH



Quelle: Institut der deutschen Wirtschaft Köln Consult GmbH

Hypothesis, research design and data

Production function

- The estimation is based on a regional production function
- Output of a city (Y) is explained by urban factor inputs of labor (L) and capital (C)
- Additionally, different image-variables (I) were tested

$$Y = f(L, C, I)$$

Variable	Content	Data on urban level
Y	Output	Gross domestic product, GDP
L	Labor	Employees
HQ	Highly qualified	Employees with academic degree
NQ	Normal qualified	Employees with no academic degree
C	Capital	Gross fixed assets
I	Image	Different definitions

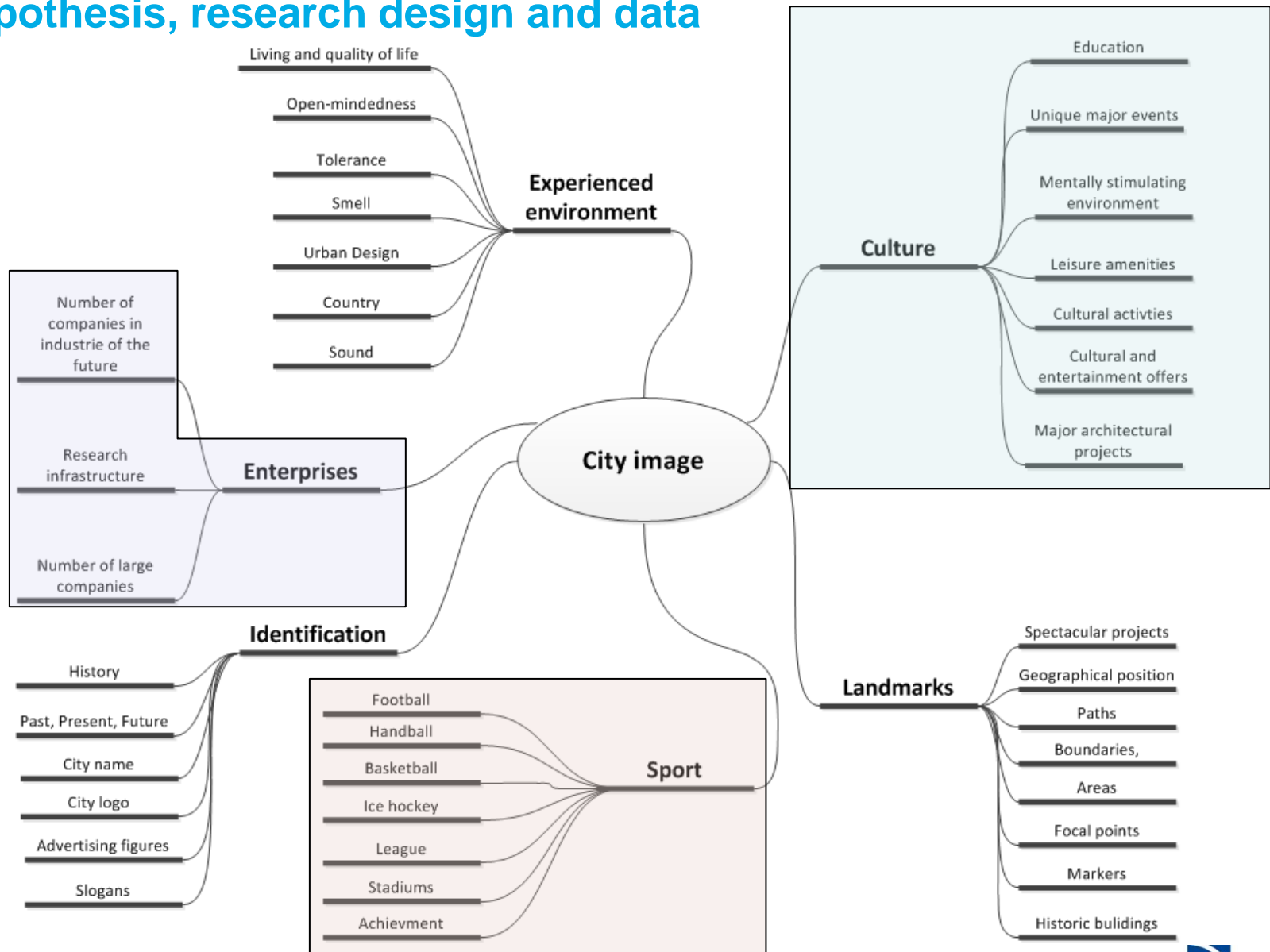
Quelle: eigene Darstellung

- Thus, the estimation function is as follows:

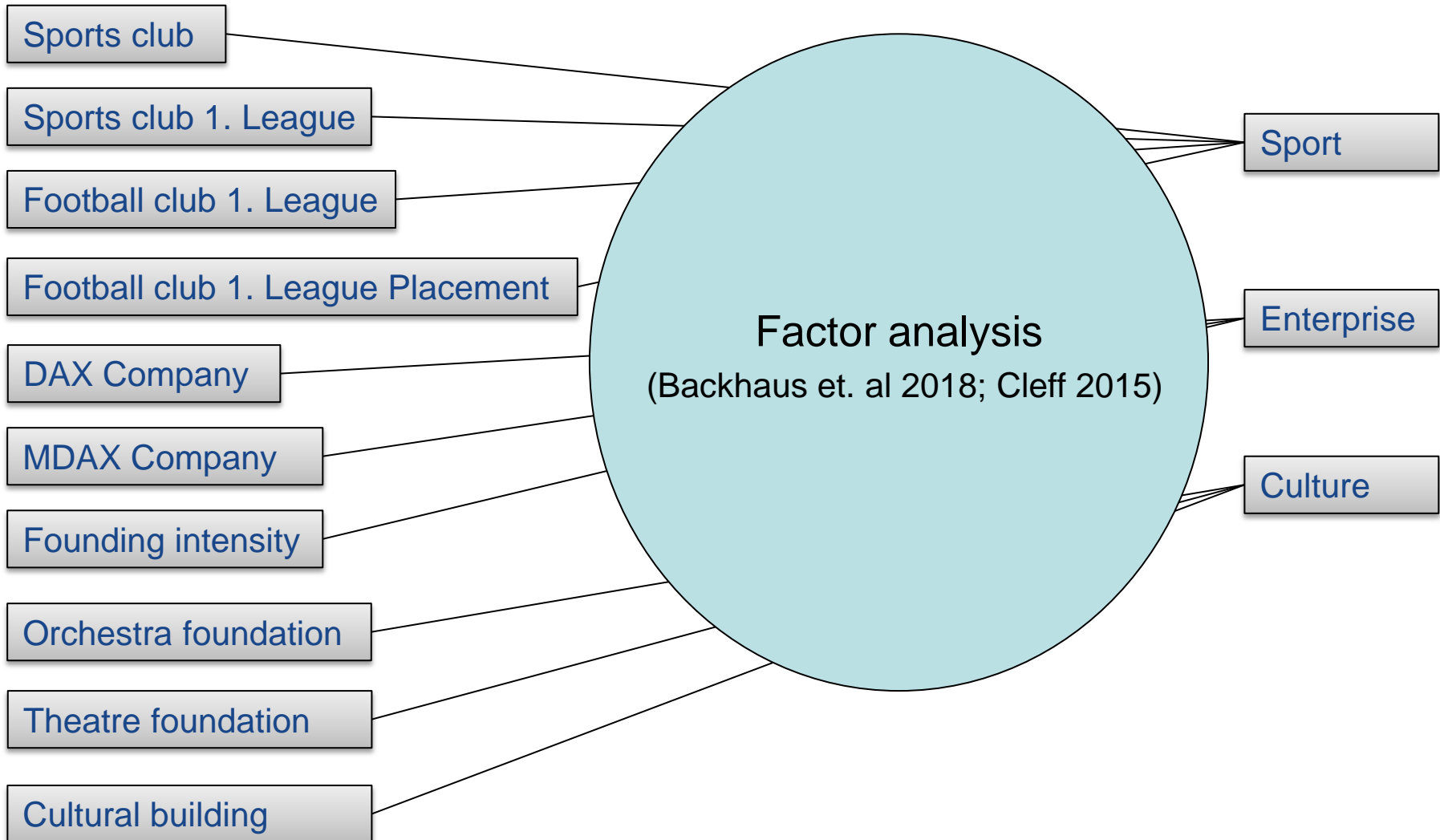
$$\ln Y = \gamma + \alpha \ln L + \beta \ln C + \delta I + \varepsilon$$

- Pooled OLS (n = 71 cities for t = four years) (Cameron and Trivedi 2005)
- OLS (n = 71 cities for t = one year) (Kohler and Kreuter 2016)

Hypothesis, research design and data



Hypothesis, research design and methods



Eigene Darstellung

Hypothesis, research design and data

Y	Output	Gross domestic product, GDP
L	Labor	Employees
HQ	Highly qualified	Employees with academic degree
NQ	Normal qualified	Employees with no academic degree
C	Capital	Gross fixed assets
I	Image	Different definitions

OLS-Models

- Model 1 $\rightarrow Y = f(L, C) \rightarrow \ln Y = \gamma + \alpha \ln L + \beta \ln C + \varepsilon$
- Model 2 $\rightarrow Y = f(HQ, NQ, C) \rightarrow \ln Y = \gamma + \alpha_1 \ln HQ + \alpha_2 \ln NQ + \beta \ln C + \varepsilon$
- Model 3 $\rightarrow Y = f(HQ, NQ, C, I_{Sport}, I_{Enterprise}, I_{Culture}) \rightarrow$
 $\ln Y = \gamma + \alpha_1 \ln HQ + \alpha_2 \ln NQ + \beta \ln C + I_{Sport} + I_{Enterprise} + I_{Culture} + \varepsilon$
- Model 4 $\rightarrow Y = f(HQ, NQ, C, I_{Sport}, I_{Enterprise}) \rightarrow$
 $\ln Y = \gamma + \alpha_1 \ln HQ + \alpha_2 \ln NQ + \beta \ln C + I_{Sport} + I_{Enterprise} + \varepsilon$
- To avoid possible endogeneity (Stoetzer 2017) or multicollinearity (Schneider 2009)
- Model 5 $\rightarrow Y = f(H, C, I_{(Sport+Enterprise)/2}) \rightarrow$
 $\ln Y = \gamma + \alpha_1 \ln HQ + \alpha_2 \ln NQ + \beta \ln C + I_{(Sport+Enterprise)/2} + \varepsilon$

Empirical results

OLS-Regression 2013-2016

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Coeff	t	Coeff	t	Coeff	t	Coeff	t	Coeff	t
Labor	0.406	3.71								
HQ			0.208	4.80	0.207	5.31	0.204	5.23	0.206	5.33
NQ			0.278	3.08	0.286	3.53	0.283	3.49	0.286	3.53
Capital	0.667	6.14	0.552	4.89	0.453	4.43	0.447	4.38	0.443	4.35
Sport					0.036	5.97	0.038	6.39		
Enterprise					0.042	5.98	0.044	6.48		
Culture					-0.008	-1.18				
Image									0.081	8.38
R ²	0.9440		0.9463		0.9574		0.9572		0.9571	

Conclusion

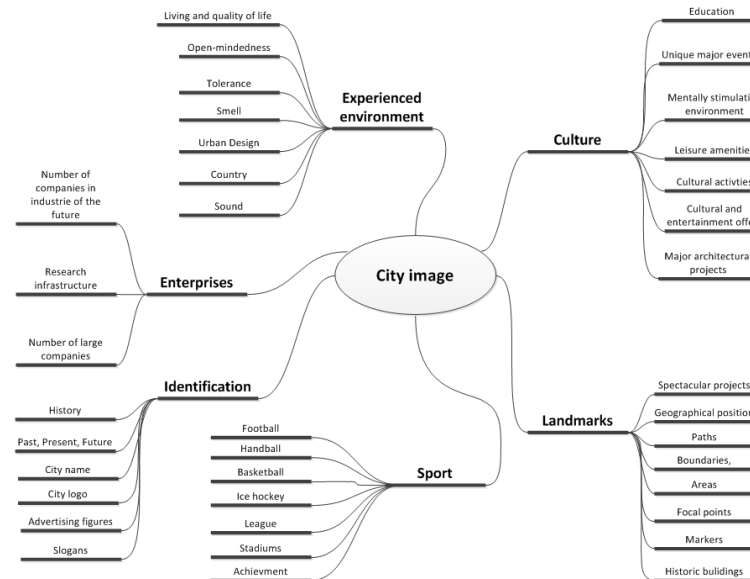
Results

- The hypothesis that the “sports” and “enterprises” (as possible image components) influence a city’s economic performance can be confirmed
- The hypothesis that “culture” (as possible image component) influences a city’s and its economic performance can not be confirmed
- These results hold for the pooled regression as well as single years with very similar results

Conclusion

Study is still a work in progress

- Can further factors for the image of a city be formed, which have a significant effect on the economic performance of a city?
 - Are there better variables for the culture factor?
 - Can the other main points be represented by variables?
 - Can other sports also be identified?
- Do the results for Germany also apply to other countries?



**THANK YOU
FOR YOUR ATTENTION!**

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Empirical results

OLS-Regression 2016

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Coeff	t	Coeff	t	Coeff	t	Coeff	t	Coeff	t
Labor	0.496	2.14								
HQ			0.262	2.68	0.243	2.70	0.235	2.62	0.236	2.65
NQ			0.332	1.75	0.337	1.93	0.324	1.86	0.329	1.91
Capital	0.575	2.50	0.432	1.79	0.368	1.66	0.364	1.64	0.360	1.64
Sport					0.035	2.60	0.038	2.90		
Enterprise					0.042	2.73	0.046	3.10		
Culture					-0.016	-1.02				
Image									0.083	3.89
R ²	0.9391		0.9422		0.9538		0.9531		0.9529	

Empirical results

OLS-Regression 2015

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Coeff	t	Coeff	t	Coeff	t	Coeff	t	Coeff	t
Labor	0.429	2.01								
HQ			0.217	2.55	0.219	2.86	0.216	2.85	0.217	2.88
NQ			0.286	1.62	0.273	1.72	0.270	1.71	0.270	1.72
Capital	0.650	3.06	0.539	2.45	0.453	2.28	0.448	2.27	0.448	2.29
Sport					0.040	3.37	0.041	3.59		
Enterprise					0.039	2.29	0.041	3.20		
Culture					-0.007	-0.56				
Image									0.083	4.44
R ²	0.9504		0.9527		0.9638		0.9636		0.9636	

Empirical results

OLS-Regression 2014

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Coeff	t	Coeff	t	Coeff	t	Coeff	t	Coeff	t
Labor	0.418	1.86								
HQ			0.200	2.33	0.206	2.61	0.204	2.61	0.207	2.67
NQ			0.283	1.50	0.330	1.91	0.328	1.91	0.332	1.95
Capital	0.651	2.92	0.553	2.40	0.411	1.92	0.403	1.90	0.399	1.90
Sport					0.036	2.91	0.038	3.15		
Enterprise					0.040	2.78	0.042	3.06		
Culture					-0.007	-0.49				
Image									0.079	4.10
R ²	0.9450		0.9472		0.9581		0.9580		0.9579	

Empirical results

OLS-Regression 2013

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Coeff	t	Coeff	t	Coeff	t	Coeff	t	Coeff	t
Labor	0.368	1.59								
HQ			0.159	1.86	0.169	2.13	0.168	2.13	0.175	2.26
NQ			0.263	1.32	0.276	1.51	0.274	1.51	0.279	1.55
Capital	0.702	3.05	0.623	2.60	0.499	2.25	0.498	2.26	0.487	2.23
Sport					0.035	2.70	0.035	2.86		
Enterprise					0.046	3.16	0.047	3.34		
Culture					-0.003	-0.23				
Image									0.081	4.01
R ²	0.9422		0.9436		0.9550		0.9550		0.9547	