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Regional patterns of intangible capital, agglomeration effects and localised spillovers in Germany

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Data

The dataset used for this analysis provides information on ...

... establishments, not firms

... self-produced intangible assets calculated on the basis of expenditures

... the period from 1999 to 2003

Steps of the analysis

Distribution of self-produced intangible capital across ...

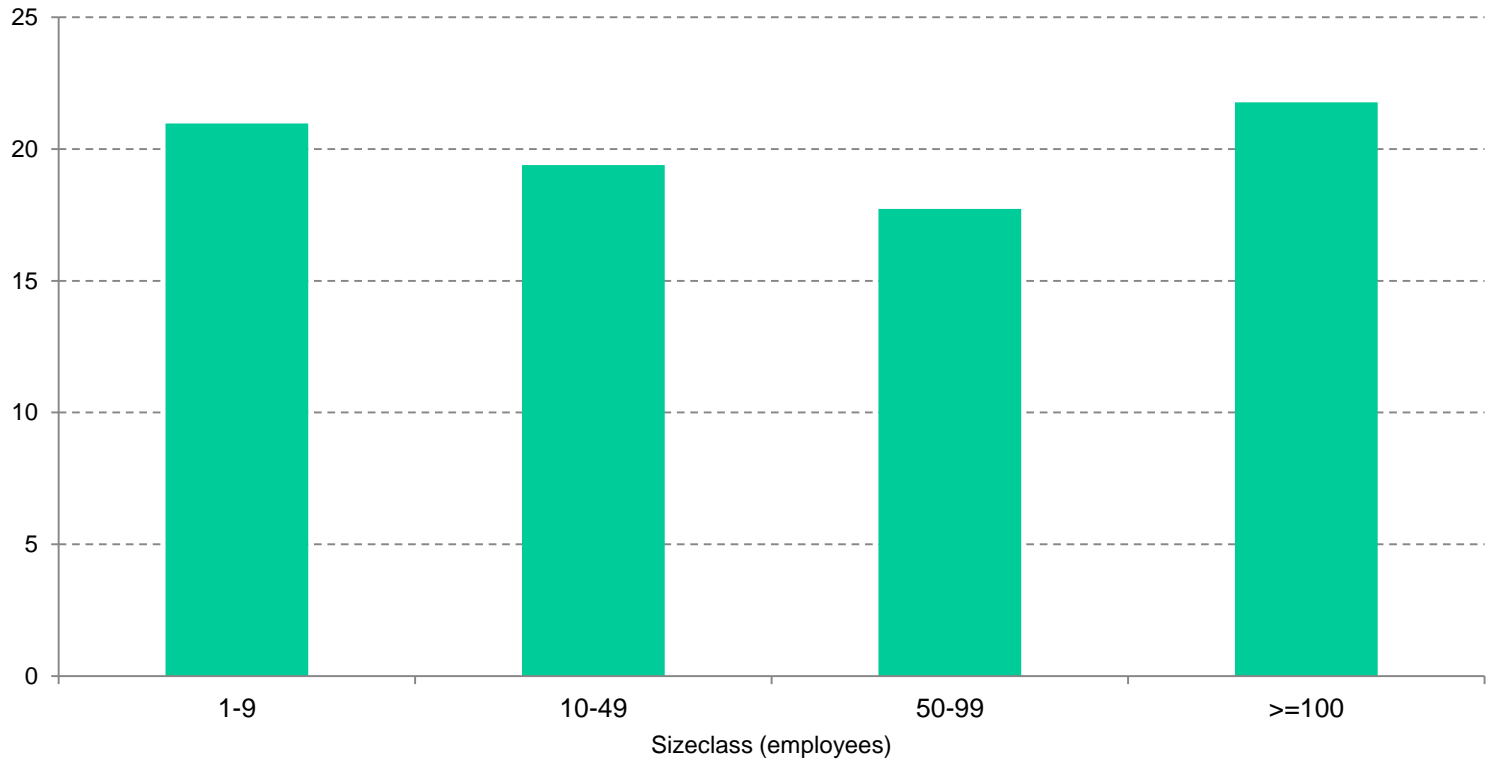
- ... establishments
- ... industries
- ... regions

Intangible capital and the wage level of establishments – micro data analysis

Conclusions

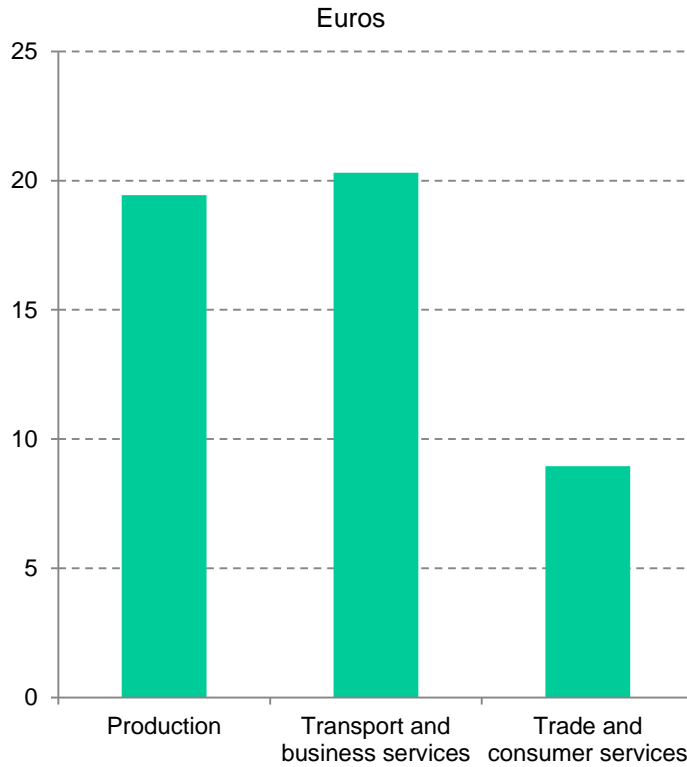
Establishments

Share of intangible capital in total capital by establishment size

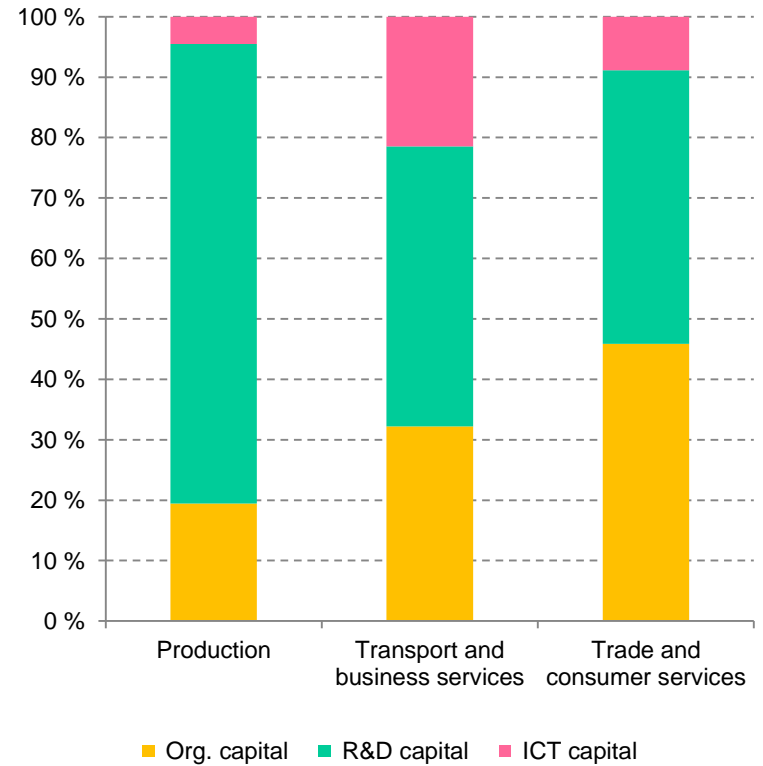


Industries

Intangible capital per hour worked

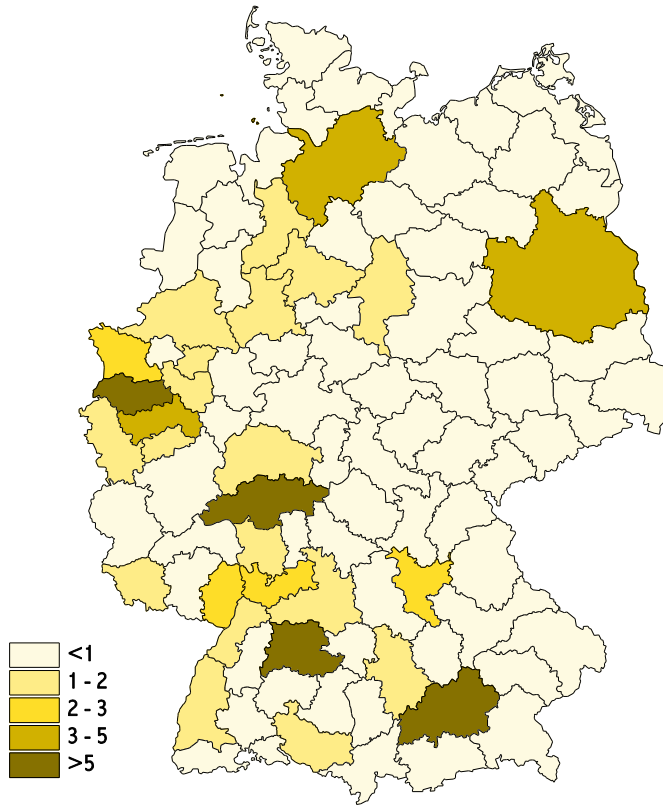


Components of intangible capital

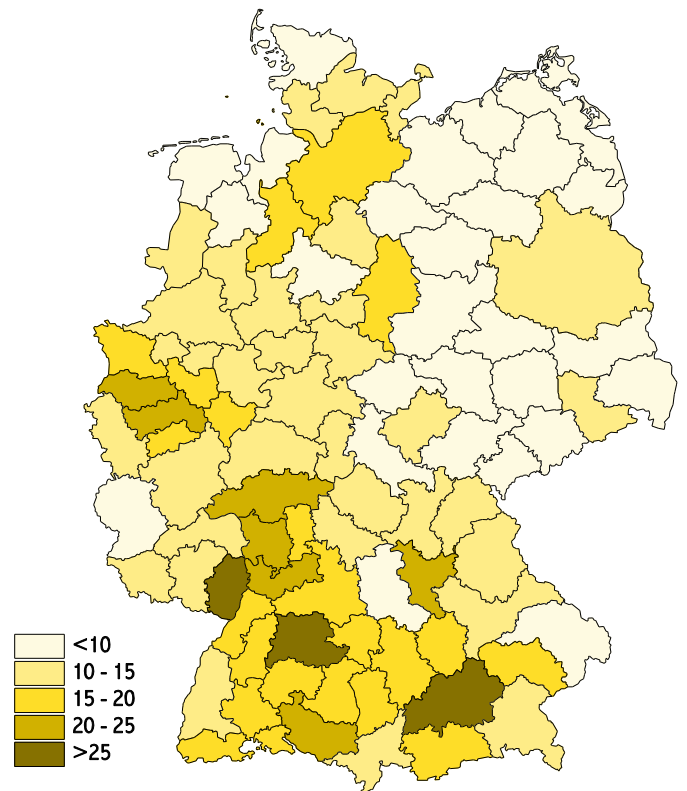


Regions

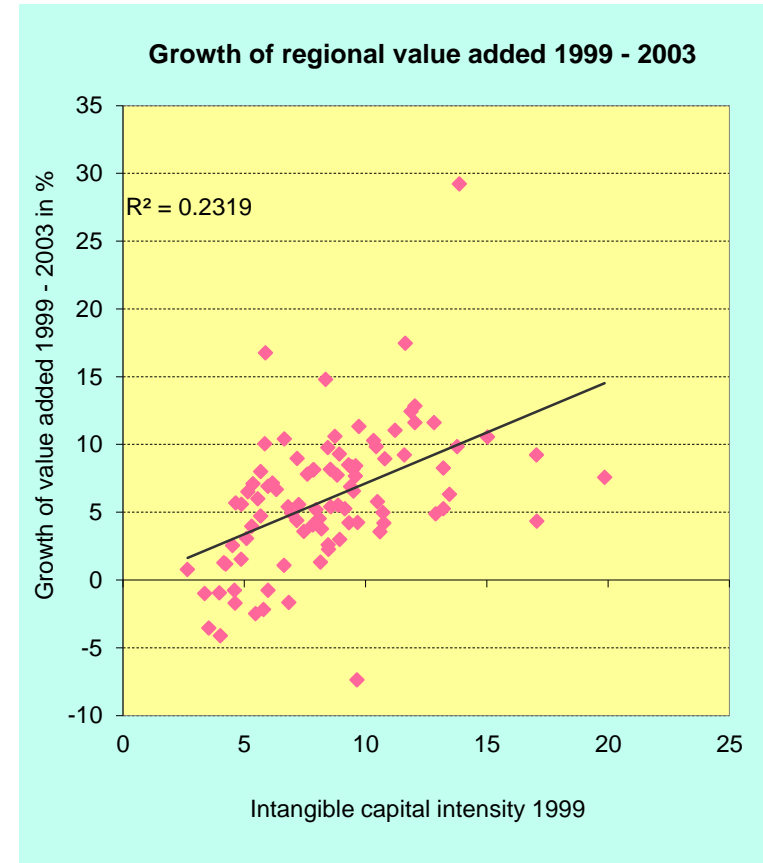
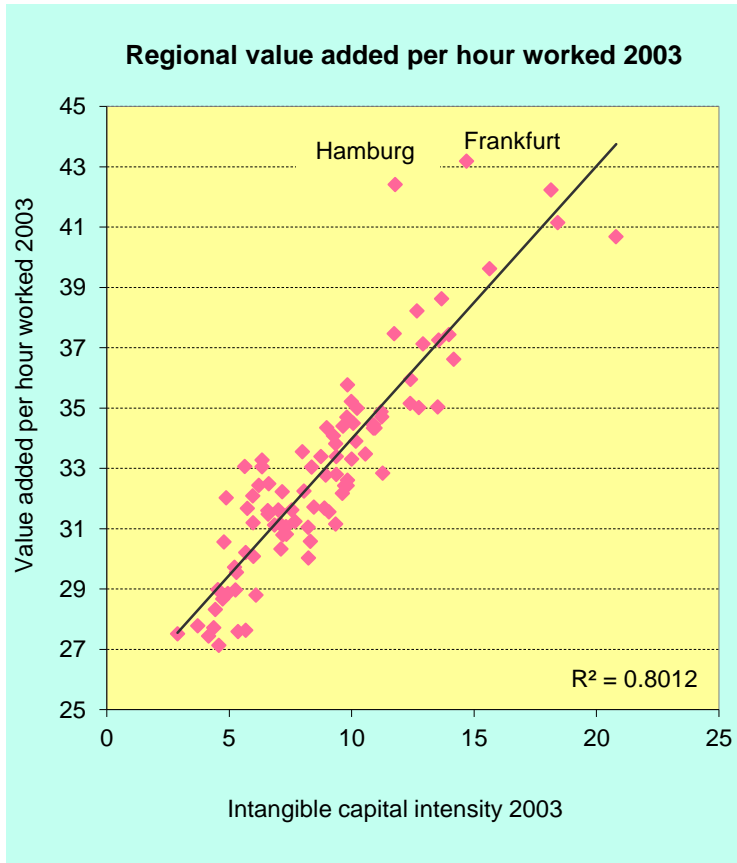
Shares of regions in national intangible capital
2003



Intangible capital per hour worked
2003



Regions



Intangible capital and the wage level of establishments

Dependent variable: log average hourly wage of establishments. Period of observation: 1999-2003

	OLS			Fixed effects	Random effects
	All employees		Non-intangible employees	All employees	
	(1)	(2)	(3)	(4)	(5)
Establishment variables					
Employment	0.0108***	0.0116***	0.0141***	-0.0046***	0.0053***
Intangible capital intensity	0.0103***	0.0103***	0.0097***	0.0015**	0.0087***
Tangible capital intensity	0.0594***	0.0566***	0.0583***	0.0149***	0.0187***
Economic environment					
Own-industry:					
Number of Establishments		0.0064***	0.0064***	0.0003	0.0021***
Intangible capital intensity		0.0013***	0.0012***	0.0000	0.0004*
Rest of regional economy:					
Industrial diversity		0.0267***	0.0268***	-0.0021	0.0067***
Intangible capital intensity		0.0833***	0.0828***	-0.0180***	0.0197***
Settlement type:					
Large Metro	0.1190***				
Small Metro	0.0335***				
Intermediate region	0.0234***				
East dummy	-0.226***	-0.180***	-0.182***		-0.201***
Constant	2.394***	2.127***	2.111***	3.023***	2.498***
N	150471	150471	149779	150471	150471
R-squared	0.684	0.683	0.660	0.459	0.662
Number of establishments				41156	41156

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ (robust standard errors); variables in logarithms; 3-digit industry dummies.

Conclusions

- Intangible capital accounts for more than 20 % of total capital in the non-farm private economy
- R&D capital is the largest component of intangible capital – at least in Germany
- Intangible capital is positively related to the economic performance of regions
- Self-produced intangible capital of establishments has a positive effect on productivity and wages – both for “intangible” and “non-intangible” workers
- There are sizable externalities of agglomeration: establishments in large metro areas pay 12 % more than those in rural regions
- Externalities *across* industries (urbanisation effects) appear to be more important than externalities *within* industries (localisation effects)
- With our dataset we can not satisfyingly tackle estimation problems resulting from spatial selection, unobserved characteristics and endogeneity ...
- ... but our findings indicate that there are significant positive relationships between intangible capital, productivity of establishments, and regional economic performance – and that intra-regional externalities play a role in these processes