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The Localization of Entrepreneurship Capital* – Evidence from Germany –

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Abstract

Whereas initially physical capital and later, knowledge capital were viewed as crucial for growth, more recently a very different factor, entrepreneurship capital, has emerged as a driving force of economic growth. In this paper, we define a region's capacity to create new firms start-ups as the region's entrepreneurship capital. We then investigate the local embeddedness of this variable and which variables have an impact on this variable. Using data for Germany, we find that knowledge-based entrepreneurship capital is driven by local levels of knowledge creation and the acceptance of new ideas, indicating that local knowledge flows play an important role. Low-tech entrepreneurship capital is rather increased by regional unemployment and driven by direct incentives such as subsidies. All three measures are locally clustered, indicating that indeed, entrepreneurship capital is a phenomenon that is driven by local culture, and is therefore locally bounded.

JEL-classification: L60, O30, G30

Keywords: Entrepreneurship capital, Local Clusters, Knowledge Spillovers, Spatial Econometrics

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1 Introduction

Initially physical capital and later, knowledge capital were viewed as crucial for growth, more recently however, a very different factor, entrepreneurship, has emerged as a driving force of economic growth. For example, Romano Prodi (2002, p.3), who at the time served as President of the European Commission, proclaimed that the promotion of entrepreneurship was a central cornerstone of European economic growth policy: "Our lacunae in the field of entrepreneurship needs to be taken seriously because there is mounting evidence that the key to economic growth and productivity improvements lies in the entrepreneurial capacity of an economy." With the 2000 Lisbon Proclamation, the European Council made a commitment to becoming not just the leader in knowledge but also the entrepreneurship leader in the world by 2020 in order to ensure prosperity and a high standard of living throughout the continent.

Europe was not alone in focusing on entrepreneurship as a key factor generating economic growth. From the other side of the Atlantic, Mowery (2005) observes, "During the 1990s, the era of the 'New Economy', numerous observers (including some who, less than 10 years earlier, had written off the U.S. economy as doomed to economic decline in the face of competition from such economic powerhouses as Japan) hailed the resurgent economy in the United States as an illustration of the power of high-technology entrepreneurship. The new firms, which a decade earlier had been criticized by such authorities as the MIT Commission on Industrial Productivity (Dertouzos et al., 1989) for their failure to sustain competition against large non-U.S. firms, were seen as important sources of economic dynamism and employment growth. Indeed, the transformation in U.S. economic performance between the 1980s and 1990s is only slightly less remarkable than the failure of most experts in academia, government, and industry, to predict it."

We assume that entrepreneurship or the propensity to take the risk of starting a new venture is not only an economic phenomenon of rent seeking but also a cultural one, i.e. it depends on traditions and habits. If this is the case, entrepreneurship would be strongly localized in space. The purpose of this pa-per is to investigate the localization hypothesis. We do this by using spatial econometrics to analyze the relationships between factors shaping the extent of entrepreneurial activity and a manifestation of entrepreneurship, startup rates. The empirical results suggest that, based on German regions, entrepreneurship capital is indeed a localized phenomenon. The following section defines entrepreneurship capital and surveys the literature that investigates the variables that influences entrepreneurship. Section 3 gives an empirical assessment of entrepreneurship in Germany. Section 4 shows regression results and section 5 concludes.

2 The Geography of Entrepreneurship Capital

One of the reasons for the emergence of entrepreneurship as a focus of public policy—and especially regional public policy—is that while the marginal cost of transferring the more traditional factors, especially physical capital, across geographic space have become trivial, entrepreneurship still remains highly localized, in that it is specific to a particular region.

Before analyzing this argument further, we propose to survey the literature that analyzes the variables that drive entrepreneurship. In general terms, the propensity to engage into an entrepreneurial venture, i.e. to start a new firm is certainly linked to the level of business opportunities that a potential entrepreneur conceives (see e.g. Kirzner, 1979). These opportunities can be general (i.e. available to all industries) and more specific. Audretsch, Keilbach and Lehmann (2006) argue that a region's level of economic performance generates a general type of opportunity. High economic output implies a large market size, hence a high intensity in economic exchange and therefore a high level of entrepreneurial opportunities.

A more specific set of opportunities is created by the creation and processing of new knowledge. Audretsch et al. (2006) argue that a high regional R&D activity increases regional opportunities to start-up new knowledge-based businesses. A high level of R&D intensity can be supposed to increase the creation of new technological knowledge and through knowledge spillovers the level of opportunities for start-ups in knowledge based industries. Audretsch *et al.* (2006) denote this relationship the *Knowledge Spillover Theory of Entrepreneurship*.

Acs and Armington (2003) argue along a similar line, suggesting that human capital is a driver for entrepreneurship, at least knowledge based or innovative entrepreneurship. They provide positive evidence based on the basis of data from 394 labour market areas in the US.

The arguments provided by Glaeser *et al.* (1992) and Ciccone and Hall (1996) can be applied to the diffusion of perception of new business opportunities. They argue that in densely populated regions, ideas and knowledge flow faster and the provision of ancillary services and inputs is also greater. There-fore, entrepreneurial opportunities are generated faster and can be appropriated more easily by economic agents. Hence, entrepreneurship should be higher in more densely populated regions than in less densely populated regions.

In the 1990ies there was a debate on whether local knowledge flows are more productive within a diversified or within a specialized set of industries in a region. In other words, the question was: What type of spatial industry agglomeration serves as the stronger 'engine to growth': strong concentration of industries (leading to 'Marshall-Arrow-Romer' type of externalities) or strong variety of industries (leading

to 'Jacobs' type of externalities)?[1] The empirical literature[2] did not come to a unanimous conclusion, suggesting that both effects are important, depending on the life cycle of the industry. These two types of externalities describe two different concepts of how generally available new economic knowledge is transformed into viable products. Both concepts are important then in the entrepreneurial process described above.

Another set of variables driving entrepreneurship are more personal or social. Oxenfeldt (1943) was probably the first to point out that individuals confronted with unemployment and low prospects for wage employment turn to self-employment as a viable alternative. This was an extension of Knight's (1921) view that individuals make a choice between three states – unemployment, self-employment and employment. The actual decision is shaped by the relative prices of these three activities but there was a clear prediction that entrepreneurship would be positively related to unemployment. As Storey (1991) documents however, the empirical evidence linking unemployment to entrepreneurship is fraught with ambiguities. While some studies find that greater unemployment serves as a catalyst for start-up activity (Evans and Jovanovic, 1989; Yamawaki, 1990; Evans and Leighton, 1990; Reynolds, Storey and West-head, 1994; Reynolds, Miller and Maki, 1995), still others have found that unemployment reduces the amount of entrepreneurial activity (Audretsch and Fritsch, 1994; Audretsch, 1995).

Florida (2002) has argued that *social diversity* in a society is a proxy for the openness of this society with respect to new ideas. Such openness is important in an environment where new ideas are transformed into business ideas and ultimately into new firm start-ups. Thus, openness contributes to the entrepreneurship of that society by enhancing new ideas and the spillover of knowledge.

Finally, it has often been argued that mere attractiveness of location at-tracts business founders. E.g. Saxenian (1994) argues that one of the factors that made Silicon Valley happen was the high level of leisure opportunities and the quality of life in California.

While these studies investigate variables that generate entrepreneurship, they do not investigate the localized aspect of entrepreneurship, that is the propensity for entrepreneurship capital to be localized within a specific geographical region. To investigate this, we define the notion of the entrepreneurship capital of a region as its capacity to generate entrepreneurial behaviour in general, and the startup of new firms in particular (e.g. Audretsch and Keilbach, 2004). It includes not only the set of economic opportunities and human capital that is conducive to entrepreneurship but also institutions, sets of values,

[1] This description is very simplified. See e.g. the literature in the following footnote for more detailed descriptions of the underlying processes. Keilbach (2000) gives a summary of this discussion.
[2] See e.g. Glaeser *et al*., 1992; Henderson *et al.*, 1995; Henderson, 1997 or Ellison and Glaeser, 1997.

cultural traditions and the habits that do so.

An example of a region rich in entrepreneurship capital, Silicon Valley in California, is provided by Saxenian (1994, pp.96-97), who observed, "It is not simply the concentration of skilled labour, suppliers and information that distinguish the region. A variety of regional institutions – including Stanford University, several trade associations and local business organizations, and a myriad of specialized consulting, market research, public relations and venture capital firms – provide technical, financial, and networking services which the region's enterprises often cannot afford individually. (...) In these forums, relationships are easily formed and maintained, technical and market information is exchanged, business contacts are established, and new enterprises are conceived (...) This decentralized and fluid environment also promotes the diffusion of intangible technological capabilities and understandings".

According to Saxenian, even the language and vocabulary used can be particular to the entrepreneurship capital associated with that region, ". . .a distinct language has evolved in the region and certain technical terms used by semiconductor production engineers in Silicon Valley would not even be under-stood by their counterparts in Boston's Route 128" (Saxenian, 1994, pp.97-98).

The relevant spatial unit for measuring entrepreneurship capital has generally been considered to be a city or region. This reflects a large empirical literature suggesting that knowledge spillovers tend to be localized within a geographically bounded region (Jaffe, 1989; Audretsch and Feldman, 1996; Audretsch and Stephan, 1996; Jaffe et al., 1993). While Jaffe (1989) and Audretsch and Feldman (1996) made it clear that spatial proximity is a prerequisite to accessing such knowledge spillovers, they provided no insight into the actual mechanisms transmitting such knowledge spillovers. As for the Romer (1986) and Lucas (1988) models, the Jaffe (1989) and Audretsch and Feldman (1996) studies assumed that investment in new knowledge automatically generates knowledge spillovers that lead to commercialization. If knowledge spillovers are spatially bounded within close geographical proximity to the source generating that entrepreneurship, transmitting those spillovers should also be spatially bounded, in that local access is required to access the knowledge facilitating the entrepreneurial start-up. Thus, knowledge spillover entrepreneurship will tend to be spatially located within close geographical proximity to the source of knowledge actually producing that knowledge.

Thus, entrepreneurship capital should be a local, rather than a national phenomenon. This leads to the proposition that entrepreneurship capital should be specific to particular regions and possibly have an influence on neighbouring regions but not have a great influence on distant regions.

3 Empirical Assessment of Entrepreneurship Capital

3.1 The Spatial Pattern of Entrepreneurship Capital

Entrepreneurship Capital as defined above has some strongly cultural and institutional aspects. Therefore, this variable cannot be measured as such[3] as some of these aspects defy measurement. A region's entrepreneurship capital however, certainly manifests itself in one way – the start-up of new enterprises. We therefore define the number of new firms in a region, relative to its population, as our index measure of the region's entrepreneurship capital.

This measure allows us to differentiate along different levels of knowledge orientation of entrepreneurship capital. The start-up of a firm in a knowledge-based industry requires more formal education than a start-up in retail or gastronomy. We consider three different types of entrepreneurship capital for Germany, two are technology-based and one is not. The rationale behind this stratification is that technology-based start-ups lead to higher levels of economic growth.[4]

Figure 1 shows the spatial pattern of entrepreneurship capital in the High-Tech industries in German counties. A High-Tech Industry is defined as one in which R&D expenditure is at least 2.5% of the industry's sales. This map reveals three regional aspects of this variable:

1. High-Tech entrepreneurship capital is stronger in agglomerated areas. In-deed all the dark spots are German cities or surrounding regions. Note that we measure entrepreneurship capital as start-ups relative to the level of population.
2. High-Tech entrepreneurship capital is strong in Berlin, Hamburg and Leipzig and generally in the German Southwest.
3. High-Tech entrepreneurship capital seems to be strongly spatially auto-correlated, i.e. regions with high realizations of this variable are clustered together and regions with low realizations are clustered together.

Figure 2 shows the spatial distribution of entrepreneurship capital in the industries dealing with information and communication technologies (ICT). These industries include the manufacture of hardware and the provision of software services, however no retail activities.

This map shows roughly the same patterns as Figure 1 however with a stronger concentration of ICT entrepreneurship capital in Western Germany. Regions that formerly constituted the GDR show a

[3] Measurement is a common problem for all types of capital. Even the established measure of physical capital as a weighted sum of previous investments is subject to extremely simplifying analyses.
[4] See Audretsch and Keilbach (2004, 2005) for a detailed discussion of this topic.

very low level of this variable. This is noteworthy as, since the late 1990's, Germany has seen a strong boom in the ICT industries.

Taken together, start-up activities in these two industries amount to roughly 15% of the overall start-up activity. The remaining part consists of non R&D oriented manufacturing industries and services such as e.g. trade, retail and the hospitality industry. For the purpose of this analysis, we denote the aggregate of the remaining industries as "low-tech" industries. Figure 3 shows the spatial distribution of entrepreneurship capital in these industries. The main difference to the patterns in Figures 1 and 2 is the strong concentration of this type of entrepreneurship capital in Eastern Germany, i.e. in those regions which once constituted the GDR.

Hence, while Eastern Germany is very strong in entrepreneurship capital in the "low-tech" industries, it is rather weak in the technology oriented industries. We assume that this pattern is driven by the fact that Eastern Germany is still catching up with Western Germany: At the time of the unification of the two regions, the retail structure was dominated by state-run chain stores and the technology basis was outdated. The following section suggests quantitative measures of the spatial autocorrelation of these three measures of entrepreneurship capital.

3.2 Setting up the explaining variables

In this section, we describe the variables used in the regression. We set up a database for all 440 German counties ("Kreise"), which is the smallest available geographical unit with general availability of data. All measures are taken from year 2000 unless stated otherwise.

We use a measure of *GDP Growth* to proxy the level of general economic opportunities. Strong economic growth of a region implies increasing wealth, increasing market size, increasing intensity in economic exchange, and consequently, increasing general opportunities for new businesses. We compute this variable as $g_Y = \ln(Y_{t_1} - Y_{t_0})/(t_1 - t_0)$, with t_0 = 1992 and t_1 = 2000, measuring the regions' average growth rates between years 1992 and 2000. Rather than the stock measure of GDP, GDP growth is a measure of the regions' past economic performance. We assume that nascent entrepreneurs derive their expectations concerning the future regional evolution from this past performance.

With *R&D Intensity*, we describe the regions' potential for creating new knowledge. We measure R&D intensity as the number of researchers in the public and private sectors, relative to the number of all employees. With this measure, we proxy the amount of new knowledge creation, hence the level of specific, i.e. knowledge-based business opportunities. In terms of opportunity generation, this variable is

more knowledge-specific when compared to mere GDP growth. We therefore expect a positive impact of this variable on a region's level of knowledge-based entrepreneurship capital.

Population Density is measured as the number of inhabitants in each county relative to its surface. With this measure, we proxy the size of the local market, hence the level of general opportunities.

Regional and national authorities use different subsidy schemes as instruments to achieve economic policy goals. Our variable *Subsidies per person* measures the sum of all subsidies that were spent in each respective region, relative to that region's population. Start-up funding is only one among a large number of schemes.[5]

We use the regional *Unemployment Rate* to test the hypothesis that entrepreneurship is generated out of unemployment.

We also aim to investigate whether or not a high tax-burden reduces the propensity to start up a new business, hence the regions' entrepreneurship capital. Generally, the German tax system does not make regional distinctions with the exception of Business Tax, the level of which is fixed by regional authorities. With these taxes, regional authorities finance their local budget. Consequently, there are two points in relation to the regional business tax. While one side argues that a high business tax prevents firms from settling in the high tax multiplier, preferring to settle in other regions, the other side argues that the corresponding services attract the firms. We test these arguments by including the *regional business tax level* in the regressions.

We test the hypothesis that Social Diversity is conducive to entrepreneur-ship using a diversity measure based on voting behavior for the 1998 German Parliament vote. For Germany this is a meaningful approach as parties rep-resent specific life-styles and indeed world views. A large variety of votes in a region would therefore represent a large variety of world views. Along with Florida (2002), we argue that this variable is only an indicator of diversity, it cannot actually measure diversity. We use an entropy index that takes into account all major political parties but also smaller ones (6 in total). We transform the entropy index to [0,1] such that 0 indicates no variety and 1 indicates maximum variety.

We test the impact of *Industrial Diversity,* i.e. the question whether Jacobian or MAR-externalities prevail using a Herfindahl index of Industrial Diversity in the regressions.

Finally, we investigate whether or not *Locational Attractiveness* drives entrepreneurship, by including a proxy for locational attractiveness: the number of a region's hotel beds relative to its

[5] This measure can only give primary evidence on the effectiveness on subsidies. An actual evaluation of the impact requires e.g. microeconometric evaluation procedures, e.g. Arvanitis and Keilbach (2002).

surface.

Table 1 provides summary statistics for these data. The last column of this table provides Moran's I as a measure of spatial autocorrelation (Moran, 1948). The principle of this measure constructs in principle a simple correlation between a vector z and its spatially lagged counterpart **Wz**, where **W** is a binary spatial weight matrix. Under the Null Hypothesis of no global autocorrelation, the expected value is $E(I) = -1/(N-I)$ which corresponds to -0.0023 for our dataset. If the *I*-statistic is significantly larger than its expected value, **z** shows positive spatial autocorrelation, *I* being significantly smaller, **z** shows negative spatial autocorrelation.

Hence, Table 1 provides evidence that all the variables in the dataset show significant positive spatial autocorrelation with the exception of R&D intensity. Considering our measures of entrepreneurship capital, these measures confirm observation 3 made above. ICT entrepreneurship capital shows the strongest level of autocorrelation. i.e. the strongest clustering, while low-tech entrepreneur-ship capital shows the lowest level of clustering.

4 What drives entrepreneurship capital?

4.1 Regression Results

In this section, we show results of regressions of the variables described in section 3.2 against our three measures of entrepreneurship capital (described in section 3.1). To measure the intensity of local clustering of entrepreneurship capital, we specify a model with spatial autocorrelation of these variables, i.e. we specify a spatially autoregressive model of the form

$$\mathbf{y} = \rho\mathbf{W}\mathbf{y} + \mathbf{X}\mathbf{b} + \mathbf{e},$$
$$\mathbf{e} = \lambda\mathbf{W}\mathbf{e} + \mathbf{u}, \qquad \mathbf{u} \sim n.i.i.d$$

where **W** is a standardized spatial weight matrix of first order, ρ is the coefficient of spatial autoregression and λ is a coefficient of spatial residual autocorrelation. We estimate this model using a two step procedure, where we first estimate ρ using a maximum likelihood estimation procedure (e.g. Anselin, 1988, p.182) and then an iterative GLS procedure (e.g. Anselin, 1988, p.183) to estimate λ using $\hat{\rho}$ of the ML estimation. Table 2 displays the results of these regressions. We find that regions with a higher growth rate of GDP have a significantly higher level of high-tech entrepreneurship capital. In our sample, a 1 percentage point increase of the growth rate would imply an increase in the level of high-tech entrepreneurship capital of 0.3. A similar, though less pronounced effect occurs for low-tech entrepreneurship capital. For ICT, we do not observe an impact from GDP growth. Unlike the

other two measures of entrepreneurship capital, entrepreneurship capital in the ICT industries was not sensitive with respect to general opportunities. This is probably due to the fact that the years 2000 to 2002 were still marked by an ICT startup boom.

The impact of our more specific measure of economic opportunity, *R&D-intensity*, is positive and significant for the knowledge-based measures of entrepreneurship capital, whereas it is insignificant for the others. Hence, R&D creates localized generally available knowledge and thus opportunities for knowledge-based entrepreneurship.

Entrepreneurship capital in knowledge based industries is stronger in regions with high *population density*. Apparently, the propensity to start up a new firm in these industries is larger in cities and surrounding areas. Obviously, the density effect, discussed in section 2 has the expected impact on the knowledge-based start-up activities but not on the low-tech measure of entrepreneurship capital. In simple terms, this implies that knowledge-based entrepreneurship capital is stronger in cities while low-tech entrepreneurship is not driven by agglomeration.

The level of *subsidies* does not have a significant impact on the knowledge based measures of entrepreneurship capital. On the other hand, it is significantly positive for the low-tech measure of entrepreneurship capital. Apparently, knowledge oriented entrepreneurship does not respond to this direct incentive measure, it is more responsive to the more indirect effect of new knowledge creation (see the discussion of the impact of R&D intensity above).

An interesting effect occurs when considering the effect of the local *unemployment* rate. While the impact of regional unemployment is significantly negative for the knowledge oriented measures, it is insignificant for the "low-tech" measure. Obviously, the high level of qualification that is necessary in order to start up a firm in a high-tech industry simply does not match the knowledge structure of regions with high unemployment. Rather, high regional unemployment reflects a lack of opportunities for knowledge-based start-ups. Therefore a policy measure that aims to encourage knowledge-based start-ups out of unemployment is probably doomed to fail.

The regression results for the *regional business tax multiplier* shows a significant negative impact on the regional entrepreneurship capital in the ICT industries. Hence, start-ups in the ICT industries were stronger in regions with lower levels of business tax. This is an important aspect for local policy makers who try to foster high-tech start-ups in their regions. The other measures of entrepreneurship capital are apparently not sensitive to this tax level.

Considering the two diversity measures, *social diversity* does not seem to have an overall impact on the regions' entrepreneurship capital. Hence, we find no evidence in favour of the arguments put forward

by Florida (2002). On the other hand, the estimates for *industry diversity* are significant and positive for all three measures of entrepreneurship. This implies that a high industry concentration has a positive impact on the regions' propensity to start up new businesses. Hence, we find external effects of the Marshall-Arrow-Romer type as having a positive impact on the regions' entrepreneurship capital.

Let us finally consider the impact of *locational attractiveness*. We find that locational attractiveness has indeed a positive correlation with ICT oriented entrepreneurship capital. Thus, we find evidence in favour of Saxenian's (1994) arguments.

The last lines of Table 2 report the estimates of the spatial autoregression coefficient ρ and the coefficient of spatial residual autocorrelation λ. For both coefficients we find significant estimates. The parameter estimate of ρ can be interpreted directly: an increase in the entrepreneurship capital by a factor e in the regions adjacent to region *i* would increase the entrepreneurship capital in region *i* by factor ρ·e. We consider this as evidence in favour of our hypothesis of the local embeddedness of entrepreneurship capital. The set of values, cultural traditions and habits that drive entrepreneurship capital are exchanged locally and across the (artificial) administrative borders or the regions under investigation (German counties). This set of cultural variables therefore diffuses slowly or even not at all. Hence, entrepreneurship capital is strongly locally embedded.

Although the estimates of spatial autoregression are positive and significant, the estimates of λ are still reported significant, showing that there is still significant spatial residual autocorrelation in the data. The estimation method used here, corrects for corresponding statistical biases.

Let us summarize these findings. Whereas knowledge-based entrepreneurship capital is driven by local levels of knowledge creation and by fast diffusion of these new ideas, low-tech entrepreneurship capital is driven by the level of general opportunities and by direct incentives such as subsidies. All three measures show strong spatial autocorrelation which bears evidence to the hypothesis that entrepreneurship capital is partly a cultural phenomenon and therefore locally bounded.

5 Summary and Conclusions

Just as policy makers have increasingly turned to entrepreneurship in order to generate employment, growth and competitiveness in globally linked markets, scholars have identified entrepreneurship capital as a missing link to economic growth.

In this paper, we investigate the hypothesis that entrepreneurship capital is driven by different types of business opportunities and at the same time is locally embedded. We investigate this using data on

all 440 German counties. This paper finds that entrepreneurship capital shows significant spatial autocorrelation and does spill over to neighbouring regions. We take this as evidence that entrepreneurship capital is indeed linked to cultural variables that are strongly spatially clustered. We acknowledge of course that this is not an analysis of the actual cultural variables involved. Nevertheless, we suggest that these results be considered as a first step towards further research in this direction.

The local embeddedness of entrepreneurship capital may explain the dilemma confronting public policy attempts to generate entrepreneurship capital at that national and supra-national levels, such as the Lisbon mandate of the European Union. Whilst entrepreneurship may in fact constitute the missing link for economic growth, the capacity to generate entrepreneurship, or what we have termed as entrepreneurship capital, is in fact a local phenomenon. Thus, national and supra-national efforts to promote entrepreneurship capital may be inherently doomed to failure, or at least limited, since entrepreneurship capital is embedded in regions. To the degree that entrepreneurship is crucial for growth and employment generation, local and regional policies should emerge as more important, since entrepreneurship capital is local in nature.

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Table 1: Descriptive Statistics of variables used in regression

Variable	Mean	Std. Dev.	Min	Max	Moran's I
High-Tech E.	0.001	0.000	0.000	0.003	0.442
ICT E.	0.001	0.000	0.000	0.003	0.495
Low-Tech E.	0.008	0.002	0.001	0.020	0.384
General E.	0.009	0.003	0.003	0.023	0.368
GDP Growth	0.263	0.181	-0.160	0.938	0.661
R&D Intensity	0.007	0.015	0.000	0.144	0.002*
Population Density	0.051	0.066	0.004	0.390	0.288
Subsidies per Inhabitant	10.250	5.051	1.270	32.310	0.514
Unemployment Rate	11.872	5.310	3.600	25.400	0.876
Business Tax Level	3.578	0.468	1.830	5.000	0.390
Social Diversity Index	0.685	0.127	0.411	0.968	0.823
Industry Diversity Index	1.355	0.099	0.972	1.787	0.150
Locational Attractiveness	0.160	0.148	0.013	1.085	0.178

Note: * Test on Moran's I is rejected at $\alpha = 0.1$

Table 2: Regressions of Different Measures of Entrepreneurship Capital as Dependent Variable

	Dependent Variable: Entrepreneurship Capital		
	High-Tech	*ICT*	*Low-Tech*
GDP Growth	0.3293***	0.1486	0.1149*
	(0.003)	(0.124)	(0.086)
R&D Intensity	0.0822***	0.0628***	0.0078
	(0.000)	(0.000)	(0.312)
Population Density	0.7946**	0.6673**	0.3148
	(0.021)	(0.02)	(0.108)
Subsidies per Inhabitant	0.0049	-0.0027	0.0049**
	(0.143)	(0.383)	(0.020)
Unemployment Rate	-0.0157***	-0.0084**	-0.0031
	(0.000)	(0.040)	(0.105)
Business Tax Level	0.0086	-0.0619*	-0.0008
	(0.833)	(0.076)	(0.972)
Social Diversity Index	-0.1104	0.1557	0.1099
	(0.488)	(0.175)	(0.159)
Industry Diversity Index	0.7507***	0.7484***	0.3269***
	(0.000)	(0.000)	(0.004)
Locational Attractiveness	0.0268	0.0629***	0.0248**
	(0.211)	(0.001)	(0.050)
Constant	-2.4104***	-1.9860***	-0.1227
	(0.000)	(0.000)	(0.722)
ρ	0.7546***	0.7940***	1.0719***
	(0.000)	(0.000)	(0.000)
λ	-0.3784***	-0.591***	-0.764***
	(0.000)	(0.000)	(0.000)
Pseudo R^2	0.642	0.723	0.565
Number of Observations	440	440	440

Note: p-values in brackets. *** / ** / * denotes statistical significance at $\alpha = 0.01 / 0.05 / 0.1$

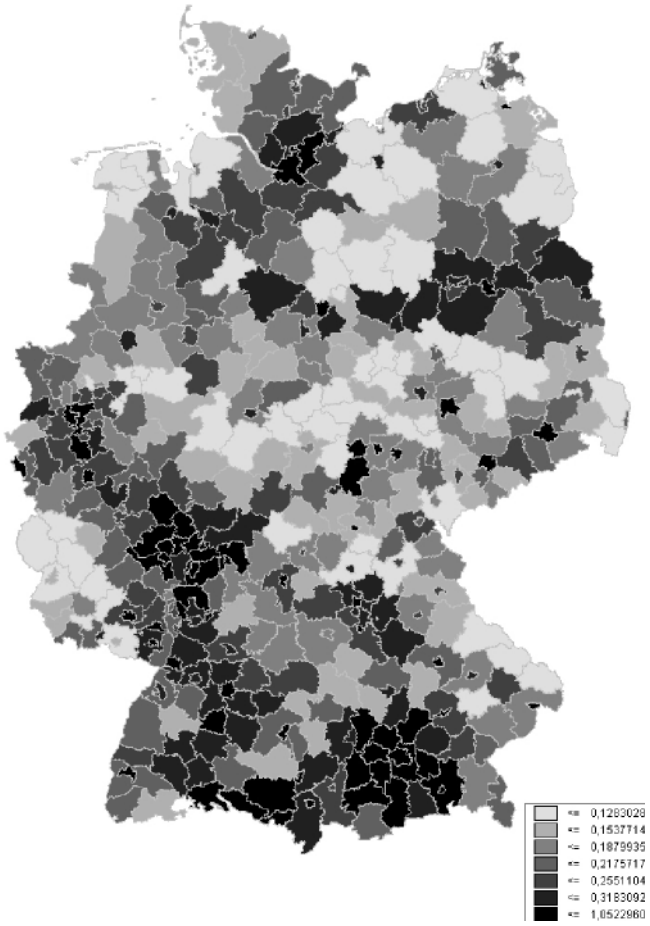

Figure 1: High- Tech oriented Entrepreneurship Capital in German counties expressed as startups of new firms in high-tech industries 2000 to 2002 relative to the counties' population

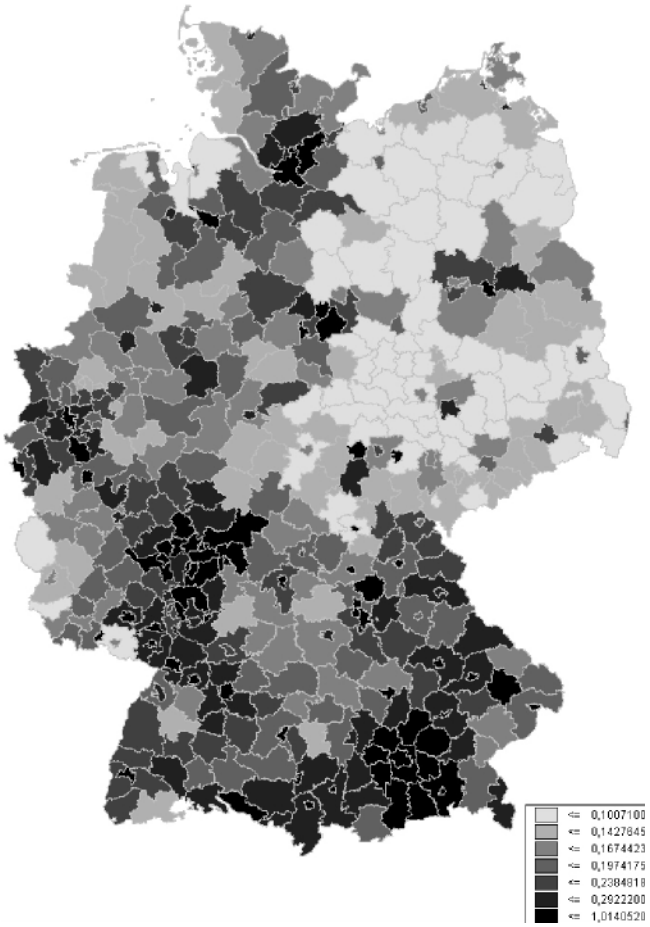

Figure 2: ICT oriented Entrepreneurship Capital in German counties expressed as startups of new firms in ICT industries 2000 to 2002 relative to the counties' population

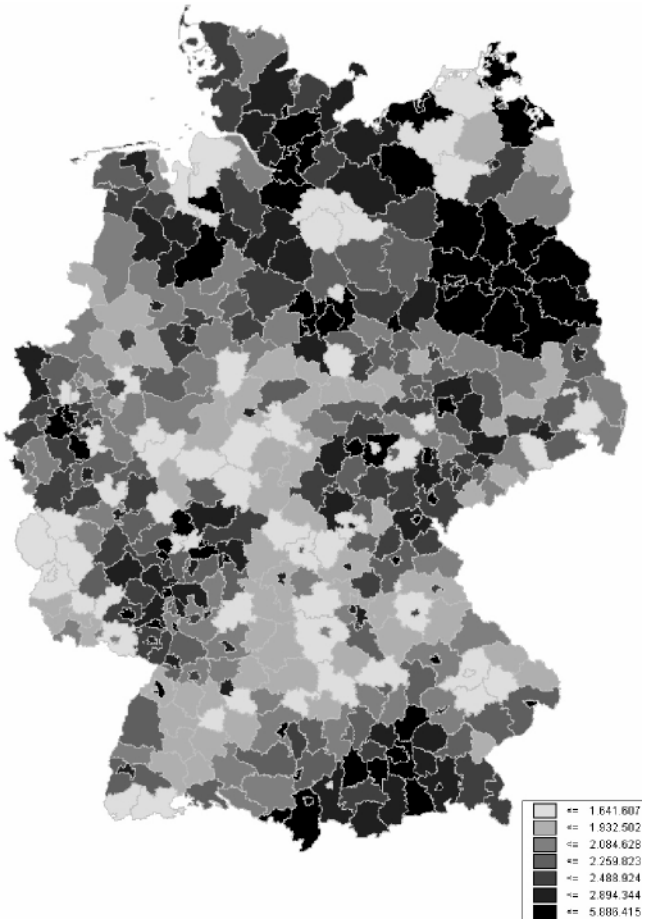

Figure 3: Other (or "Low-Tech" oriented) Entrepreneurship Capital in German counties ex-pressed as startups of new firms in non high-tech and non ICT industries 200 to 2002 relative to the counties' population