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**Conference Paper**

## Startups and Local Social Capital in the Municipalities of Sweden

52nd Congress of the European Regional Science Association: "Regions in Motion - Breaking the Path", 21-25 August 2012, Bratislava, Slovakia

**Provided in Cooperation with:**

European Regional Science Association (ERSA)

*Suggested Citation:* Westlund, Hans; Larsson, Johan P.; Olsson, Amy (2012) : Startups and Local Social Capital in the Municipalities of Sweden, 52nd Congress of the European Regional Science Association: "Regions in Motion - Breaking the Path", 21-25 August 2012, Bratislava, Slovakia, European Regional Science Association (ERSA), Louvain-la-Neuve

This Version is available at:

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# Startups and Local Social Capital in the Municipalities of Sweden\*

*Hans Westlund, Johan P. Larsson and Amy Rader Olsson,*

## **ABSTRACT**

*This paper contains one of the first empirical attempts to investigate the influence of local Entrepreneurial Social Capital on startup propensity. We use a unique database including not only total startups, but data on startups divided in six branches to study the impact of Entrepreneurial social capital on startups per capita. Analyses are performed on all municipalities as well as by municipality type (urban or rural). Entrepreneurial social capital, measured by local firms' assessment of local publics' attitudes to entrepreneurship seem to exert a positive and significant influence on local startup rates in both urban and rural municipalities in Sweden. When startups are being divided in six branch groups, entrepreneurial social capital keeps its significance for all branches in rural areas, while it stays significant for two of the groups in urban areas. Thus, social capital seems to have a broader and more general impact on startup rates in rural areas.*

*Keywords: Entrepreneurship, Startups, Entrepreneurial social capital*

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\* Acknowledgements: The work with this paper has partly been financed by the research council Formas, grant No 251 – 2007-2038.

# 1. Introduction

“Entrepreneurship” has become a buzzword in contemporary policies and public debate. Promoting entrepreneurship in the form of startups is a policy activity being given high priority all over the world, at the transnational (for example the EU), national, regional and local levels. In Sweden, measures for supporting entrepreneurship are among the most prioritized in the Regional Growth Programs (*Regionala Tillväxtprogram, RTP*). Recent research has shown that local government in Sweden is producing a broad spectrum of measures to promote local entrepreneurship (Rader Olsson & Westlund 2011). At local government level, expenditures for business promotion activities were on average about €30 per inhabitant in 2009, with a variation between €0 and €490 ([www.kolada.se](http://www.kolada.se)).

The entrepreneurship concept is increasingly being used in a number of areas outside its “core” of foundation of new businesses (see Westlund 2011). Being aware of these broader interpretations of the concept, in this paper we limit ourselves to analyzing entrepreneurship in the form of startups.

The bulk of the entrepreneurship literature focuses on its determinants or on its effects and studies firms and their emergence and growth. Only a small proportion of the literature deals with spatial aspects. The few empirical studies of the determinants of spatial variations in startup rates are most often based on regional data as the availability of comparable national data is much more limited (Gries & Naudé 2008). Early contributions in this area focused on describing regional variations in startups (Johnson 1983, Keeble 1993) and their causes (Storey & Johnson 1987).

In line with the views of Saxenian (1994), Markusen (1996) and Johannisson (2000) that entrepreneurship is a collective phenomenon, it can be argued that regional variations in the rate of startups are connected to variations in their *entrepreneurial social capital (ESC)* (Westlund & Bolton 2003). In this perspective, the propensity to start new firms is (among other things) a function of regions’ entrepreneurial social capital. This local/regional entrepreneurial social capital can be viewed as a spacebound asset that contributes to the “place surplus” (Bolton 2002, Westlund 2006) of a place or a region, which spurs entrepreneurship and makes the place attractive for investors, migrants and visitors.

Research on the determinants of entrepreneurship has traditionally been focusing on individual qualities of the entrepreneur, or a *dispositional* approach (Thornton 1999, Autio & Wennberg 2009). However, during the last 10-15 years a *contextual* approach, strongly connected to what some scholars call “institutional factors” (Raposo et al. 2008, Lafuente et al. 2007) seems to have strengthened its positions considerably (see for example Aldrich 1999, Sørensen 2007).

Due to lack of register data, the main bulk of empirical research on both the dispositional and the contextual approach has been based on samples of individual firms and data have been collected by interviews and questionnaires. However, recent Swedish research has gained access to detailed, de-identified register data on individual self-employed/employers and their environments (for example Delmar et al. 2008, Eklund & Vejsiu 2008). A regional perspective has mainly been lacking in

these studies. One exception is Eliasson & Westlund (2012) that differ between urban and rural areas in Sweden. Another Swedish contribution is Pettersson et al. (2010) that study effects of startups in the agricultural sector on the rest of the economy.

In contrast to most of the existing literature on entrepreneurship on regional level, we in this paper focus on the local government (municipality) level. The reason is that in Sweden the municipalities are the most important policy actors concerning promoting local entrepreneurship. By focusing on the municipalities we focus on the level where entrepreneurship most clearly can be influenced by policy measures.

## ***2. Empirical Research on Social Capital and Entrepreneurship***

In a meta-analysis of 65 studies of impacts of social capital on economic performance, Westlund & Adam (2010) showed that the literature that focused on economic growth of countries and regions predominantly used aggregated “trust in other persons” or “associational activity” as measures of social capital.<sup>1</sup> Studies having firms as their object of investigation had a larger variety of social capital measures, as e.g. firms’ networks and relations to various actors. The meta-analysis found that while a vast majority of the firm level studies showed positive impacts of social capital on firms’ performance, the results for regional and country levels were mixed. At national level, a vast majority of the studies using “trust” as a measure of social capital showed positive results, but studies using associational activity mainly showed negative impacts. At regional level, most studies showed positive results both for trust and associations, but when the studies of Italy were excluded there was no preponderance for positive or negative impacts.

Just one of the 65 studies analyzed by Westlund & Adam (2010) had starting up a new venture as the dependent variable, while the other had sales (in the cases of firms) or general economic indicators as e.g. GDP, income or investment per capita (when the studied objects were countries or regions). The exception was De Clerk & Arenius (2003) who used data from the Global Entrepreneurship Monitor (GEM) surveys on individuals’ social networks and found that knowing an entrepreneur had a positive impact on launching a new venture during the last 42 months.

The overall number of empirical studies on social capital’s impact on entrepreneurship seems very limited. Liao & Welsch (2005) used U.S. individual survey data (PSED I data) to test whether there were significant differences in social capital between nascent entrepreneurs and the general public (non-entrepreneurs). Based on Nahapiet & Ghosal (1998) social capital was measured in three ways: structural (networks); relational (trust); and cognitive (shared norms). Liao & Welsch found no significant differences in the three forms of social capital between entrepreneurs and non-entrepreneurs, but found that nascent entrepreneurs seemed to have a higher ability than non-entrepreneurs to convert structural capital to relational capital and thereby get access to various actors’ support. Their findings suggest that it is primarily relational capital that contributes to new business start. However, in a similar study, Schenkel et al. (2009) using newer U.S. survey data (PSED II data) of the same type as the former study, did neither find evidence of such transitions

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<sup>1</sup> Both measures were collected from the World Value Surveys (WVS) and similar, as e.g. the European Value Surveys (EVS).

between the different forms of social capital during the entrepreneurial process, nor support for a special role of relational capital among nascent entrepreneurs.

Doh & Zolnik (2011) used WVS data to study the impact of social capital on self-employment of 23,243 persons in 2005. They used a similar division of social capital as the abovementioned studies: trust, associational activity and civic norms, but also constructed an index, based on the three social capital types. After controlling for country factors and individual characteristics (age, sex), they found that the social capital index was significantly correlated to self-employment. However, generalized trust (trust in other people) was negatively significantly connected to self-employment, while generalized trust (in government and institutions) had a positive, significant sign.

Schulz & Baumgartner (2011) analyzed the influence of the number of different types of volunteer organizations 2009 on new firm foundation 1996-2006 in 254 rural Swiss municipalities. Their main finding was that there in general existed a positive relation between the number of organizations and startups, but that 'bonding' organizations did not have that effect.

Bauernschuster et al. (2010) studied the effect of social capital measured as club membership on the propensity to be self-employed one to five years before, using German individual survey data and compared small and large communities (<5000 vs. >5000 inhabitants). They find positive, significant values for social capital in both groups, but stronger in the small community group. However, as they argue: the positive relationship between club membership and self-employment might be a result of unobserved individual characteristics – but the difference between small and large communities should be interpreted as a sign of that social capital have a stronger impact on becoming self-employed in small communities.<sup>2</sup> The authors interpret this as an indication of that the social capital in the small communities substitutes for the lack of formal institutions.

To sum up this limited amount of studies, only one of the above referred studies, Bauernschuster et al. (2010) has explicitly employed a spatial perspective and compared smaller and larger communities. Another and more important problem is that they all seem to suffer from two shortcomings. First, they all seem to have an endogeneity problem as the dependent variable (entrepreneurship) in several cases in time precedes the independent variable (social capital) and in the other cases it is not made clear whether the social capital measure in time is preceding the measure of entrepreneurship. In studies using the GEM surveys, entrepreneurship is measured by "nascent" entrepreneurs that can have started their business up to three and a half year before the survey. In the Schulz & Baumgartner (2011) study, new firms are counted up to thirteen years before the measurement of social capital. Even if it can be argued that social capital is a sluggish variable in a short or mid-term perspective (although this is not discussed in any of the studies), from a cause-and-effect perspective, the hypothesis that the cause-and-effect chain is the reverse cannot be rejected. Second, in other studies entrepreneurship is measured by self-employment, which in principle

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<sup>2</sup> This corresponds well to the results of Eliasson, Westlund and Fölster (2005) who investigated the impact of local business-related social capital on income growth per capita of the Swedish municipalities and found indications of decreasing importance of local social capital with increasing municipality size.

can have lasted for decades. This too causes endogeneity problems. Moreover, at least from a Schumpeterian view, self-employment cannot be considered a valid measure of entrepreneurship.

Against this background, this paper aims at analyzing the impact of entrepreneurial social capital (ESC) in 1999 and 2001 on startups per capita in the Swedish municipalities 2002-08. The analysis is performed for all startups and with startups divided in six industry groups. Also, the analysis is conducted for all municipalities and with the municipalities divided in two region types (urban and rural). Section 3 presents data and methods and contains a first test of the social capital measures. Section 4 contains the empirical analysis of the impact of social capital and control variables on startups. Section 5 contains some concluding remarks.

### **3. Data and Methods**

#### **3.1. Data Sources**

Data on startups were provided by the Swedish Agency for Growth Policy Analysis (*Tillväxtanalys*), the official provider of statistics on startups of new firms and bankruptcies in Sweden. To avoid effects of coincidental occurrences a certain year, the data covers the period 2002-08. Only genuinely new firms are included in the statistics. The number of startups is divided per capita and besides the total sum they are divided in six branch groups:<sup>3</sup>

- manufacturing
- construction
- trade, hotels and restaurants
- transportation and communications
- financial and business services (excl. real estate service)
- education, health and medical service, other public and personal service

Data measuring one aspect of local, entrepreneurial social capital (ESC) (see below) was downloaded from the Swedish federation of Enterprise (Svenskt Näringsliv, (<http://foretagsklimat.svensktnaringsliv.se/start.do>)). Data for the other ESC variable and for control variables were downloaded from Statistics Sweden ([www.scb.se](http://www.scb.se)).

#### **3.2. What measure of social capital should be used?**

As reported in the former Section, Westlund's and Adam's (2010) meta-study gave ambiguous results on social capital's impacts on countries', regions' and firms' economic performance. They concluded that one explanation to the contradictory results probably was that trust in other persons and associational activity in the civil society were insufficient measures of social capital; in particular regarding the social capital that should be expected to influence economic indicators. Instead, measures of networks, relations and trust connected to the business sphere should be developed. Such measures were used in the firm level studies and showed with few exception significant, positive results.

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<sup>3</sup> Comparable data for the primary sector were not available.

It seems reasonable to agree with Westlund and Adam in questioning to what extent trust and associational activities of only the civil society should have an impact on general, macroeconomic indicators. However, when it comes to an activity on micro level like starting a new firm, it can be argued that the impact of values and opinions of the (local) civil society should have a significant impact. Schumpeter (1934, p. 86) stressed e.g. "...the reaction of the social environment against one who wishes to do something new..." as an entrepreneurship-inhibiting factor. Reformulated, this would mean that variations in local public opinion on entrepreneurship should influence startup rates. Other local factors that might have an impact on entrepreneurship could be local politicians' and public officials' attitudes to entrepreneurship, to what extent existing companies' take initiatives to improve local business climate, and how the local business climate is in general.

The question of course arises: do such measures of local social capital that can be assumed to influence entrepreneurship really exist? The answer is yes – at least in Sweden. Since the year 2000 (yearly from 2002) the Federation of Swedish Enterprise (*Svenskt Näringsliv*) has presented results of a survey among at least 200 firms in each of Sweden's 290 municipalities.<sup>4</sup> Questions about the abovementioned factors are included in the survey. It should be noted that the survey only contains executives' opinions on these topics, i.e. neither public opinion's nor potential entrepreneurs' views. Executives' views on public opinion's view on entrepreneurship might not be exactly the same as public opinion's own view. However, regarding the impact on starting new ventures, it can be argued that it is more important how public opinion's view is perceived in the local business sphere, than public opinion's view on itself. The very best measure would of course be how potential entrepreneurs perceive the local public opinion, but such a measure is unfortunately not available. Similar arguments can be made regarding politicians' and officials' attitudes and the overall local business climate – it is more important how these opinions are perceived in business life than by the politicians and officials themselves.

Table 1 shows a correlation matrix of five alternative measures of social capital from the survey 1999-2001 and average startups per year 2002-08 in Sweden's 290 municipalities. All the five social capital variables show significant correlations with entrepreneurship. Firms' view on public opinion's attitudes towards entrepreneurship has the strongest correlation with 0.45 (0.00 sig). Three of the social capital measures are very strongly correlated: the overall judgment and politicians and officials attitudes respectively, while the two other variables show a little lower correlation with the other three and with each other. The results give support to the hypothesis that ESC measured in different ways in the survey influences entrepreneurship. Also, the abovementioned assumption that it is foremost business life's perception of civil society's public opinion on entrepreneurship that has an impact on startup rates is supported.

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<sup>4</sup> The survey is conducted during September-November the year before they are presented, i.e. the data being used in this study are collected 1999 and 2001. The selection of companies is made by Statistics Sweden from their company register and is based on size classes. In larger municipalities the sample is higher than 200 firms; in Stockholm it is 1200. The survey comprises a number of questions on companies' opinion on the local business climate. Combined with statistics on startups, employment, size of private sector, etc the survey forms the base for a yearly ranking of the Swedish municipalities' business climate. Here, only the replies of certain questions are used.

**Table 1. Correlations between various measures of entrepreneurial social capital (ESC) 1999/2001 and startups 2002-08 in Sweden's 290 municipalities.**

		Startups /capita	Loc. gov. officials' attitudes	Loc. politician s' attitudes	Publics' attitudes	Business ' own initiatives	Summar y of loc. business climate
Local government officials' attitudes	Pearson Correlation	<b>.173**</b>					
	Sig. (2-tailed)	<b>.003</b>					
	N	<b>290</b>					
Local politicians' attitudes	Pearson Correlation	<b>.201**</b>	<b>.952**</b>				
	Sig. (2-tailed)	<b>.001</b>	<b>.000</b>				
	N	<b>290</b>	<b>290</b>				
Publics' attitudes	Pearson Correlation	<b>.451**</b>	<b>.734**</b>	<b>.763**</b>			
	Sig. (2-tailed)	<b>.000</b>	<b>.000</b>	<b>.000</b>			
	N	<b>290</b>	<b>290</b>	<b>290</b>			
Business' own initiatives	Pearson Correlation	<b>.125*</b>	<b>.621**</b>	<b>.637**</b>	<b>.638**</b>		
	Sig. (2-tailed)	<b>.034</b>	<b>.000</b>	<b>.000</b>	<b>.000</b>		
	N	<b>290</b>	<b>290</b>	<b>290</b>	<b>290</b>		
Overall judgment of local business climate	Pearson Correlation	<b>.224**</b>	<b>.928**</b>	<b>.937**</b>	<b>.828**</b>	<b>.743**</b>	
	Sig. (2-tailed)	<b>.000</b>	<b>.000</b>	<b>.000</b>	<b>.000</b>	<b>.000</b>	
	N	<b>290</b>	<b>290</b>	<b>290</b>	<b>290</b>	<b>290</b>	

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Firms' perception on politicians' and officials' attitudes correlated strongest with the overall judgment, which indicates that the overall judgment primarily was based on the perception of politicians' and officials' attitudes and not on public opinion. A possible interpretation of this is that existing firms assess business climate firsthand by their perception of local policies and government, whereas the strongest correlation, that between the perception of public opinion on entrepreneurship and startups, indicates that potential entrepreneurs primarily are affected by the public opinion of the civil society among the social capital variables. Based on the results in Table 1, the variable measuring firms' view on public opinion's attitudes towards entrepreneurship will be used as the measure of entrepreneurial social capital (ESC) of the civil society in the rest of this paper.

In addition to this civil society measure of ESC, a more business related measure of ESC was used: local small firm tradition. This is measured by the share of firms having less than 50 employees of the total number of firms. A high share indicates a community with small firm tradition and thus lower barriers for startups to entry, compared with communities dominated by one or a few big employers where the share of small firms are low and the barriers for entry are higher. The basic assumption here is that this small firm tradition is an expression of the historical, business related entrepreneurial social capital.



### 3.3. Control variables

What else than entrepreneurial social capital (ESC) can be expected to influence startup frequencies at local level? The answer is of course: many things. Here, we focus on three factors of which some comprise a number of more detailed factors:

- local/regional market's strength
- local human capital
- local employment share of labor force

The strength of the local/regional market is measured by the municipalities' logarithmic accessibility to purchasing power in the form of incomes 2001. It can be assumed that higher accessibility to purchasing power spurs demand of more specialized goods and services and thereby improves the incentives for starting new ventures. As accessibility to purchasing power is strongly connected to the location of people and labor, it can also act as a proxy for density in general and relative access to private and public services, infrastructure and public transportation.

The accessibility measure used is the product of three market potential measures, each discounted by time travelling distances. The three components are local, intra-regional, and inter-regional accessibility:

$$Accessibility_i = AW_{iL} + AW_{iR} + AW_{iOR}$$

where

$$AW_{iL} = x_i \exp^{-\lambda_L t_{ii}}, \text{ internal accessibility to total wage earnings of municipality } i,$$

$$AW_{iR} = \sum_{j \in R_i} x_j \exp^{-\lambda_R t_{ij}}, \text{ intra-regional accessibility to total wage earnings of municipality } i,$$

$$AW_{iOR} = \sum_{k \notin R_i} x_k \exp^{-\lambda_{OR} t_{ik}}, \text{ inter-regional accessibility to total wage earnings of municipality } i,$$

where each municipality is situated in one of Sweden's 81 functional regions (R), and where time-distances  $t_{ii}$ ,  $t_{iR}$  and  $t_{iOR}$  are measuring average commuting times within each municipality, within regions and outside of regions, respectively. The distance-decay parameter  $\lambda$  is based on commuting flows and is estimated in Johansson, Klaesson and Olsson (2003). The measure represents a continuous view of geography, and apart from capturing market potential originating outside of each municipality, it also alleviates the problems involved with using observational units of different sizes.

Human capital is measured by the share of the municipalities' labor force having three years or more of university education 2001. In today's knowledge economy, it can be assumed that the higher share of university educated in the labor force, the higher is the potential for emergence of new firms in the fast growing, knowledge intense sectors. Even if one characteristic of the knowledge economy is increasing shares of knowledge workers in all sectors, there are clear differences in the knowledge contents of products from various sectors. Therefore, the share of university educated is also an indication of the knowledge intensity, and thus modernity, of the local/regional labor market.

Assuming that starting up a new business is a substitute to unemployment, the employment share of the labor force (the inverted measure of unemployment) can be expected to stand in a negative relation to startups per capita. Thus, municipalities with a low employment share should have a higher rate of startups compared with those having a higher share.

### **3.4. Spatial divisions**

The analyses are performed with all municipalities and with the municipalities divided in two types. We use the division elaborated by economists at the Swedish Board of Agriculture, according to which the municipalities are classified into four different groups: municipality type (MT) 1, 2, 3, and 4. (MT 1) metropolitan areas (N=46), (MT 2) urban areas (N=47), (MT 3) rural areas/countryside (N=164), and (MT 4) sparse populated rural areas (N=33). The four types of areas are defined as follows: Metropolitan areas (MT 1): Includes municipalities where 100 percent of the population lives within cities or within a 30 km distance from the cities. Using this definition, there are three metropolitan areas in Sweden: the Stockholm, Gothenburg and Malmö regions. Urban areas (MT 2): Municipalities with a population of at least 30 000 inhabitants and where the largest city has a population of 25 000 people or more. Smaller municipalities that are neighbors to these urban municipalities will be included in a local urban area if more than 50 percent of the labor force in the smaller municipality commutes to a neighbor municipality. In this way, a functional-region perspective is adopted. In practice, this group contains regional centers outside the metropolitan areas and their “suburb municipalities”. Rural areas/countryside (MT 3): Municipalities that are not included in the metropolitan areas and urban areas are classified as rural areas/countryside, given they have a population density of at least 5 people per square kilometer. Sparse populated rural areas (MT 4): Municipalities that are not included in the three categories above and have less than 5 people per square kilometer.

Due to the relatively small number of municipalities in MT 1, 2 and 4, we merge MT 1 and 2 to one metropolitan/city group and MT 3 and 4 to a rural group.

## **4. Analysis**

Are there differences in startup frequencies between urban and rural areas? In a recent study, Eliasson & Westlund (2012) used geocoded data to make a division of Sweden in urban and rural areas across administrative boundaries, based on population density of km<sup>2</sup> squares. They found that the ratio of self-employment entry was about 60% more frequent in rural areas (having a population density under 50 inhabitants per populated square kilometer) compared with urban areas. However, when firms in the primary sector and firms with unknown sector were omitted, self-employment entry was still a little higher in rural areas, but the differences between urban and rural areas were now almost negligible.<sup>5</sup>

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<sup>5</sup> It should of course be noted that Eliasson's & Westlund's measure of self-employment entry is based on data over individuals' source of income. Thus, it is a different measure of entrepreneurship than what is used in this paper.

Table 2 shows the measure being used in this study of startup frequencies for urban and rural municipalities, here presented in relation to the national average (Average=100). Urban municipalities' total startup rate is 27% higher than the national average. Rural municipalities have a startup rate higher than average only in one branch group, manufacturing. In three branch groups rural municipalities lay 6-8% below the average, but when it comes to the most knowledge intense branch group, financial and business services, rural municipalities lay 27% under average.

**Table 2. Relative startup frequencies 2000-08 (Average=100) in total and divided in the six branch groups, in urban and rural municipalities.**

	Urban	Rural
Total	127	87
Manufacturing	91	103
Construction	113	92
Trade, hotels and restaurants	110	94
Transportation and communications	121	93
Financial and business services	156	73
Education, health and other public and personal service	129	88

**Table 3. OLS-Model of variables' influence on startups, all municipalities and divided in two categories**

VARIABLES			
	ALL	METRO/CITIES	RURAL
Civil society ESC	101.6*** (5.089)	101.9** (2.149)	94.91*** (4.598)
In access. Purchasing power	19.03*** (3.055)	44.70*** (3.006)	4.189 (0.579)
Share Univ. Educated	1344*** (9.081)	1234*** (4.946)	938.0*** (4.084)
Business related ESC	5358*** (9.249)	4845*** (3.477)	4669*** (7.299)
Employment share	-389.0*** (-2.598)	-89.83 (-0.275)	-408.6** (-2.348)
Constant	-5511*** (-9.577)	-5830*** (-4.661)	-4436*** (-6.666)
Observations	287	92	195
R-squared	0.617	0.593	0.350
t-statistics in parentheses			
*** p<0.01, ** p<0.05, * p<0.1			

In Table 3 the results of the OLS-regression for all branch groups are shown for all municipalities and divided in the two spatial categories. When all municipalities are included, all the five explanatory variables are significant and they explain 61.7% of the total variations in startup rates. The model's explanatory value is clearly higher for

the metro/city municipalities. When the municipalities are divided in the two categories, civil society ESC shows a higher significance in the rural areas while the business related ESC stays highly significant in both areas after the division. The latter holds also for the share of university educated. Accessibility to purchasing power remains significant only in the metro/city municipalities, while the opposite holds for the employment share variable.

Table 4 show corresponding results with the startups being divided in the following six industry groups: manufacturing; construction; trade, restaurants & hotels; transportation & communications; business services; and education, health care and other public & private services.

Starting with all municipalities included, the model's explanatory values differ strongly between the branch groups, between 73.1% for business services and 13.3% for manufacturing. There is a striking difference between the model's explanatory value between the two more knowledge intense service groups and the other sectors. As was shown in Table 2, it was also in the two knowledge-intensive branch groups that the differences in startup rates between urban and rural municipalities were highest. This can be interpreted as that the model is best adapted to explaining startup frequencies in knowledge intense sectors.

**Table 4. OLS-Model of variables' influence on startups in six branch groups, all municipalities and divided in two categories**

	Manufacturing			Construction			Trade, hotels, restaurants			Transports & communications			Business services			Educ. Healthcare, & oth. serv.		
VARIABLES	ALL	Metro/city	Rural	ALL	Metro/city	Rural	ALL	Metro/city	Rural	ALL	Metro/city	Rural	ALL	Metro/city	Rural	ALL	Metro/city	Rural
Civil society ESC	5.516**	-2.620	7.528**	0.648	-22.04*	10.83**	32.71***	38.33***	31.46***	3.233*	-2.377	4.379**	45.03***	74.85***	29.31***	15.05***	16.67	12.21**
	(2.453)	(4.337)	(3.022)	(4.990)	(12.00)	(5.213)	(5.487)	(10.27)	(6.732)	(1.710)	(3.356)	(1.765)	(9.283)	(24.24)	(7.531)	(5.426)	(13.39)	(5.665)
In access. Purchasing power	-1.367*	-0.806	-0.594	7.678***	8.677**	6.534***	1.720	4.386	-1.616	0.688	6.501***	-2.648***	6.590**	18.79**	1.309	3.984**	7.247*	1.753
	(0.765)	(1.360)	(1.059)	(1.557)	(3.762)	(1.826)	(1.712)	(3.222)	(2.359)	(0.537)	(1.052)	(0.624)	(2.897)	(7.602)	(2.639)	(1.693)	(4.198)	(1.985)
Share Univ. Educated	-12.47	47.41**	-76.39**	-56.64	-68.65	11.35	9.862	-98.60*	98.19	31.09**	-32.06*	60.27***	1,036***	1,066***	609.8***	336.7***	324.0***	239.8***
	(18.20)	(22.82)	(33.62)	(37.01)	(63.11)	(58.00)	(40.71)	(54.05)	(74.90)	(12.69)	(17.66)	(19.67)	(68.86)	(127.5)	(83.79)	(40.25)	(70.43)	(63.03)
Business-related ESC	376.4***	517.0***	357.6***	1287***	1039***	1209***	913.3***	819.1***	838.5***	236.5***	41.91	236.4***	1699***	1778**	1221***	836.5***	612.5	814.4***
	(71.20)	(127.5)	(93.65)	(144.8)	(352.5)	(161.6)	(159.3)	(301.9)	(208.6)	(49.60)	(98.61)	(54.74)	(269.4)	(712.3)	(233.4)	(157.5)	(393.4)	(175.6)
Employment share	-2.743	-0.269	-12.82	2.145	136.0	-71.98	-239.5***	-246.2***	-219.5***	-39.45***	-19.49	-16.45	-42.07	55.75	-34.82	-69.77*	-13.19	-58.25
	(18.40)	(29.87)	(25.47)	(37.42)	(82.60)	(43.95)	(41.15)	(70.74)	(56.76)	(12.81)	(23.11)	(14.90)	(69.62)	(166.9)	(63.49)	(40.70)	(92.17)	(47.76)
Constant	-321.2***	-453.2***	-312.4***	-1375***	-1171***	-1260***	-775.8***	-743.9***	-650.0***	-217.1***	-148.4*	-168.5***	-1953***	-2513***	-1278***	-866.9***	-772.6**	-785.9***
	(70.73)	(114.4)	(97.40)	(143.9)	(316.5)	(168.0)	(158.2)	(271.0)	(217.0)	(49.24)	(88.54)	(56.88)	(267.6)	(639.6)	(242.8)	(156.5)	(353.2)	(182.6)
Observations	287	92	195	287	92	195	287	92	195	286	92	194	287	92	195	287	92	195
R-squared	0.133	0.219	0.137	0.295	0.311	0.288	0.250	0.247	0.209	0.174	0.336	0.234	0.731	0.726	0.372	0.500	0.443	0.200

Business related ESC, the share of small firms, is significant for all six branch groups, while the civil society ESC shows significant results for all branch groups but construction. Accessibility to purchasing power and the share of university educated are both positively significant for three branch groups, among them in both cases the two knowledge intense ones. Employment share is significant in three cases too.

When the municipalities are divided, civil society ESC is positively significant for all branch groups in the rural areas, but only for two branch groups in the metro/city group. Business related ESC is significant for all branch groups in the rural municipalities and in four branch groups in the urban ones. These results indicate that social capital exerts a stronger influence on startups in rural than in urban areas and supports the results of Eliasson et al. (2005) and Bauernschuster et al. (2010). Accessibility to purchasing power has significant impact on construction in both urban and rural areas, while where it is positively significant in other branch groups it is only in the urban areas. The share of university educated show strong significance in both urban and rural areas for the two knowledge intense sectors, whereas the results for the other branch groups are contradictory. Employment share is the variable having least significance when the municipalities are divided; it is only for trade, hotels and restaurants that it shows a significant value in urban and rural areas.

All in all, entrepreneurial social capital, measured by local firms' assessment of local publics' attitudes to entrepreneurship, and by the share of small firms, seem to exert a positive and significant influence on local startup rates in both urban and rural municipalities in Sweden. When startups are being divided in six branch groups, the two forms of entrepreneurial social capital keep their significance for all branches in rural areas, while they stay significant for two and four of the groups, respectively, in urban areas.

Finally, we have two strong reasons to believe that our results are not driven by spatial autocorrelation. First, as noted by Andersson & Gråsjö (2009), the problem may itself be viewed as a symptom of the fact that the model lacks proper representation of some phenomenon; they conclude by showing that inclusion of spatially lagged variables alleviate problems with spatial dependency. The accessibility measure used in our regressions is such a variable. Second, even though Moran's I indicates possible existence of spatial dependency, neither spatial lag nor spatial error models produce results that upsets the conclusions in this paper.

## ***5. Concluding Remarks***

Based on a unique database over entrepreneurial social capital and with spatially detailed data on genuine new ventures this paper has been able to analyze the influence of local entrepreneurial social capital on the forming of new ventures, without any obvious endogeneity problems. Moreover, it has been possible to analyze this influence in urban and rural municipalities respectively, and in six branch groups. To our knowledge, this has not been done before.

The results support the hypothesis that social capital, measured both as business life's perception of publics' attitudes to entrepreneurship in the local civil society, and the

share of small businesses are influencing startup propensity in general, i.e. when all local government areas and all branch groups are included. Also, former results that social capital has a stronger influence in rural than in urban areas are being supported. The model showed large variations in explanatory power for the various branch groups and also clear differences between urban and rural municipalities. This suggests that further analyses perhaps should test branch specific and region type specific explanatory variables.

## References

- Aldrich, HE (1999) *Organizations Evolving*. Newbury Park, CA: Sage
- Andersson, M., & Gråsjö, U. (2009). Spatial dependence and the representation of space in empirical models. *The Annals of Regional Science*, 43(1), 159-180.
- Autio E & Wennberg K (2009). Social Interactions and Entrepreneurial Activity. Paper presented at the Academy of Management Meeting, Chicago, August 7-11, 2009
- Bauernschuster S, Falck O & Heblich S (2010) Social capital access and entrepreneurship. *Journal of Economic Behavior & Organization*, Vol 76, pp. 821-833
- Bolton R (2002) Place Surplus, Exit, Voice, and Loyalty. In: Johansson B, Karlsson C, Stough R (Eds) *Regional Policies and Comparative Advantage*. Edward Elgar, Cheltenham
- De Clerk D, Arenius P (2003) Effects of Human Capital and Social Capital on Entrepreneurial Activity. Working Paper Steunpunt OOI (in progress): June 2003
- Delmar F, Folta T & Wennberg K (2008) The dynamics of combining self-employment and employment. Working paper 2008:23. IFAU, Institute for Labour Market Evaluation, Uppsala
- Doh S & Zolnik EJ (2011) Social capital and entrepreneurship: An exploratory analysis. *African Journal of Business Management*, Vol 5(12), pp 4961-4975
- Eklund, S & Vejsiu, A (2008) Incentives to self-employment decision in Sweden: a gender perspective. Ministry of Industry, Stockholm
- Eliasson K & Westlund H (2012) Attributes Influencing Self-Employment Propensity in Urban and Rural Sweden. *Annals of Regional Science* (forthcoming).
- Eliasson K, Westlund H and Fölster, S (2005) Does Social Capital Contribute to Regional Economic Growth? Swedish Experiences. In Kobayashi, K., Westlund, H. and Matsushima K. (Eds.) *Social Capital and Development Trends in Rural Areas*. Kyoto: MARG, Kyoto University, pp. 221-230.
- Gries T & Naudé W (2008) *Entrepreneurship and Regional Economic Growth: Towards a general theory of Start-Ups*. Helsinki: United Nations University UNU-WIDER, Research Paper no. 2008/70
- Johannisson B (2000) 'Modernising the Industrial District – Rejuvenation or Managerial Colonisation', in M. Taylor and E. Vatne (eds.), *The Networked Firm in a Global World: Small Firms in New Environments*, ch. 12
- Johansson, B., Klaesson, J., & Olsson, M. (2003). Commuters' non-linear response to time distances. *Journal of Geographical Systems*, 5(3), 315-329.
- Johnson PS (1983) New Manufacturing Firms in the U.K. Regions, *Scottish Journal of Political Economy*, 30:1, 75-79.
- Keeble, D (1993) Regional patterns of small firm development in the business services: Evidence from the United Kingdom, *Environment and Planning A*, 25, 677-700
- Lafuente E, Vaillant Y & Rialp J (2007) Regional Differences in the Influence of Role Models: Comparing the Entrepreneurial Process of Rural Catalonia. *Regional Studies*, 41(6): 779-795
- Liao J & Welsch H (2005) Roles of Social Capital in Venture Creation: Key Dimensions and Research Implications. *Journal of Small Business Management*, Vol. 43(4) pp. 345-362
- Pettersson L, Sjölander P & Widell LM (2010) Do Startups in the Agricultural Sector Generate Employment in the Rest of the Economy? - An Arellano-Bond Dynamic Panel Study. In Kobayashi K, Westlund H & Yehong H (Eds) *Social capital and development trends in rural areas*, Volume 6. Kyoto: MARG, Kyoto University
- Rader Olsson A & Westlund H (2011) Measuring political entrepreneurship: An empirical study of Swedish municipalities. Paper presented at the 51<sup>st</sup> Congress of the European Regional Science Association, Barcelona, August 30 – September 3, 2011.
- Raposo MLB, Matos Ferreira JJ, Finisterra do Paco AM & Gouveia Rodrigues RJA (2008) Propensity to firm creation: empirical research using structural equations. *International Entrepreneurship Management Journal*, 4(4): 485-504
- Saxenian, A (1994) *Regional Advantage: Culture and Competition in Silicon Valley and Route 128*, Cambridge, MA: Harvard University Press
- Schenkel MT, Hechavarria DM & Matthews, CH (2009) The role of human and social capital and technology in nascent ventures. In PD Reynolds & RT Curtin (eds.) *New Firm Creation in the United States*, Berlin, Heidelberg, New York: Springer, pp. 157-183
- Schumpeter Joseph A., 1934, *The Theory of Economic Development*, Cambridge, MA: Harvard University Press.

- Sørensen JB (2007) Bureaucracy and Entrepreneurship: Workplace Effects on Entrepreneurial Entry. *Administrative Science Quarterly*, 52(3): 387-412
- Storey, DJ and Johnson S (1987) Regional Variations in Entrepreneurship in the U.K. *Scottish Journal of Political Economy*, 34:2, 161-173.
- Thornton PA (1999) The sociology of entrepreneurship. *Annual Review of Sociology* Vol. 25: 19-46
- Westlund H (2006) *Social Capital in the Knowledge Economy: Theory and Empirics*. Springer, Berlin, Heidelberg, New York
- Westlund H (2011) Multidimensional Entrepreneurship: Theoretical Considerations and Swedish Empirics. *Regional Science Policy and Practice*, Vol. 3, No. 3, pp. 199-218
- Westlund H, Bolton RE (2003) Local Social Capital and Entrepreneurship, *Small Business Economics*, 21, 77–113
- Westlund H Adam F (2010) Social Capital and Economic Performance: A Meta-analysis of 65 Studies. *European Planning Studies* Vol. 18, No 6, pp. 893-919