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EFFECTS OF POLICY AND PUBLIC-PRIVATE INTERACTION ON NEW FIRM FORMATION

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Abstract

What is the effect of local politics on new firm formation? In this paper, we analyze the effects of policy and innovation governance through public-private interaction on entrepreneurship in the Swedish IT-sector. The data comes from all 290 Swedish local governments concerning the extent to which they have university-industry cooperation on innovation and PPPs for 2004 and 2008. The findings show that entrepreneurship is pushed in areas with higher unemployment or with Social Democratic government majorities shaping the policy. Further, entrepreneurship is pulled in areas with more industrial agglomeration or where the government cooperates with higher educational institutions. However, with regard to the amount of public spending that is invested in policy and public-private interaction locally in order to enhance entrepreneurship and innovation, the overall effect is somewhat limited.

**EFFECTS OF POLICY AND PUBLIC-PRIVATE INTERACTION ON NEW FIRM
FORMATION**

1. Introduction

What is the effect of local politics on new firm formation? Studies of entrepreneurship find that sub-national variation in new firm formation is mainly explained by demographic factors linked to urbanization and agglomeration of firms within an industry (Reynolds et al. 1994, Armington & Acs 2002). Other studies mainly link entrepreneurship to unemployment and innovation (Scorsone et al. 2006, Fritsch and Mueller 2007a, 2007b). Recent analysis of new firm entries after the 2008 recession in the U.S. indicates that unemployment is an important driver of entrepreneurship (Fairlie 2010). Agglomeration, unemployment and innovation, as well as other demographical variables, are thus natural suspects as contributors to entrepreneurship in high tech industries. But because the lack of systematically collected data and large scale studies about the local effects of policy and public-private interaction, we still know quite little about the impact of local politics on entrepreneurship and innovation. This paper uses unique data on local governments' university-industry cooperation on innovation, as well as official statistics on party political domination in government, in order to identify effects of public-private interaction and policy on the entry of new firms in the Swedish IT sector.

More than ever before, governments at all levels – be it local, regional national or supranational, like the EU – invest a lot of time, efforts, and not the least tax-payers money, in implementing both government policies and governance through public-private interaction, with the objective to enhance innovative entrepreneurship in high tech industries. Most of these policy and public-private interaction programs are implemented at the local level. But in contrast to the traditional form of the national state trying to *push* entrepreneurship through local and regional interventionist industrial policy, politics implemented during the last decade has focused on developing entrepreneurship through governance based on different

kinds of university-industry-government relationships (Marton 2010), with the intention to *pull* the entry of innovation-based new small to medium-sized companies in medium to high tech industries. Quite often, the logic behind these government policies and governance initiatives is to create locally and regionally based industrial clusters (Sölvell 2009).

Hence, although research has shown that both unemployment and agglomeration of companies within an industry contribute to the entry of new firms at the local and regional level, to the best of our knowledge, there are no systematically conducted longitudinal studies based on quantitative methods which reveal the additional power of government policy and public-private interaction on new firm entry.

This study is novel in at least three ways: First, although there is a long tradition in studying the impact of local and regional industrial policies *per se*, few, if any of these studies systematically control for economic variables, such as industrial agglomeration and unemployment. Secondly, studies of local and regional industrial policy implementation seldom control for the additional impact of governance through public-private interaction on innovation and entrepreneurship. Third, most studies that try to link policy and governance to innovation and entrepreneurship are performed as case studies, which limit the ability to draw any general conclusions about various types and effects of government policy and innovation governance interaction on entrepreneurship, controlling for additional sources of explanation, like for example local agglomeration and other important variable such as employment.

The article contributes to the emerging literature on policy and public-private interaction innovation effects on entrepreneurship. The analysis is based on a unique dataset collected in 2008–2009 containing information from all the Swedish 290 local governments about their

cooperation on innovation with university and business actors, as well as their involvement in PPP:s (Public Private Partnerships).

The article is organized as follows: in the next section (2), we discuss the theoretical background of the analysis. In section 3, we present the empirical setting of the analysis. Section 4 gives the econometric results regarding economic and political effects on entrepreneurship in the Swedish IT sector. Section 5 concludes the article with a summary and discussion of our findings.

2. Theoretical background

It is known that groups of firms in a particular industry tend to concentrate and grow in numbers at particular locations due to the diversity of resources in local environments and agglomeration economics. In the industrial era, firms congregated near transportation hubs and sources of raw materials and the effects of firms being agglomerated create public goods, such as a flexible labour market for technical specialists, and knowledge spillovers that support the growth and consequent industrial specialization in an agglomeration (Stuart and Sorenson 2003, Jaffe 1989). Contemporary firms in high technology industries, such as IT are not primarily dependent on resources, such as localised raw materials or specific transportation facilities for production, for their creation but rather on human capital, technical know-how, and financial capital in addition to the effects of proximity of established similar firms (Krugman 1991, Saxenian 1996).

Empirical studies have shown that the production of new technology based firms concentrate where key knowledge resources can be obtained, and that knowledge spills over locally and

takes time to diffuse geographically (Audretsch & Feldman, 1996, Jaffe et al 1993). The evidence is that they develop rapidly in certain organizational environments, such as information technology in Silicon Valley, forming industrial subpopulations characterized by different developmental patterns (Kenney 2003, Kogut 2003, Norton 2001).

This implies that the particular local conditions governing new firm entries are a key factor in shaping an industry's evolution. Consequentially, some locations might attract firms or cause them to be developed through locally specific non-firm organizations and political institutions, as well as knowledge resources, such as universities developing new technology and training engineers in its use. These factors facilitate the creation of new firms (Breschi and Malerba 2001, Feldman 2001). Hence, local and regional policy in general, and the effect of innovation governance in the form of university-industry cooperation initiatives in particular, would seem to be a key factor in explaining the effect of policy on entrepreneurship in addition to the effects of resource availability and agglomeration effects.

In the Nordic Welfare states, the tradition of local self-government is strong. This means that many local governments since the 1980s – many of them under the rule of the Social Democratic Party – have carried out local industrial and economic development directed policies (Pierre 1992, Szücs 1995). More recently conducted studies show that both public-private interaction, as well as local government policies carried out in this area is perceived as increasingly strong and effective across time (Szücs & Strömberg 2006, 2009). Hence, local policy and public-private interaction in the form of university-industry cooperation initiatives on innovation (i.e. innovation governance) would seem to be a key factor in explaining entrepreneurship, in addition to the effects of resource availability and agglomeration effects.

The research strategy used in this paper assumes that there are some underlying factors at work that promotes entrepreneurship (new firm formation) in an industry. The concept of entrepreneurship has evolved as it has been incrementally developed from different perspectives over time. It has been defined as innovation in different contexts (Schumpeter, 1934, Nelson and Winter, 1982); the exploitation of future products, or the creation of new businesses (Gartner 1989). In this paper we define entrepreneurship in a contemporary Swedish setting as the creation of new businesses as a result of the discovery of opportunities under the influence of factors of industrial specialization combined with specific government and governance arrangements.

Additional underlying factors represent environmental conditions, such as unemployment, which determine the availability of manpower to an industry; and industrial agglomeration which determine the production of public goods and knowledge spillovers relevant to entrepreneurship of an industry (Jaffe 1989, Reynolds et al 1994, Davidsson et al 1994). Previous research has linked the existence of agglomerations to local development in terms of increased foundings of new technology-based firms, a lower disbanding rate of firms, and increased growth (Rocha 2004). Other factors represent the presence of support structures for entrepreneurship and local knowledge creation as governed by politics for promoting entrepreneurship (Breschi and Malerba 2001, Busenitz et al 2004, Wagner and Sternberg 2004). The last factor – local politics – is the focus of the research presented here. Although all politics dealing with improving entrepreneurship and innovation is local in practice, most previously done research has focused on national differences (Reynolds et al 1994, Burke et al 2000, Bauguhn and Neupert 2003, Stevenson and Lundström 2001, Lundström and Stevenson 2005) or regional variation of firm formation within countries (Audretsch and Fritsch 1994, Guesnier 1994, Hart and Gudgin 1994). Thus, quite few studies have focused specifically on

public policy and public-private interaction effects on entrepreneurship and innovation (see, for example, North et al 2001, Hoffman 2007).

The approach used in this paper to analyse the effects of regional variation and local policy and public-private interaction effects on entrepreneurship is described in Figure 1. The aim of the research is to propose and test regression models to determine whether governance and government contribute to entrepreneurship, while controlling for known environmental factors in the local, regional and national context.

FIGURE 1 ABOUT HERE

According to our model in Figure 1, first we assume that there is an influence of regional variation within Sweden on entrepreneurship, as well as more exactly defined demographic variables (such as unemployment) and institutional capabilities (such as the presence of technical university faculty) – derived from the local and regional contexts – that effect new firm formation within the IT sector during 2009. Secondly, we assume that the level of industrial agglomeration in the municipality (2005) within this industry further and independently affects new firm formation (H1). Third, we expect that local governments' with policies based on a party or coalition of parties in power in council generate additional explanatory power in determining the level of entrepreneurship (H2). According to the model we also test this relationship based on the assumption of a lagged effect, i.e. that it is the policy by governments in power between 2002 and 2006 (and not the policy of governments in power 2006-2010) that provide the best additional explanation of policy on

entrepreneurship. Finally, according to our model, we assume that public-private interaction on innovation through local government's innovation cooperation with industry, university, as well as the general presence of public private partnerships (PPP) locally, provides an independently additional explanation to entrepreneurship in some locations (H3). Precisely as in the case of the anticipated relationship of government policy in hypothesis 2, we assume in hypothesis 3 that the effect on entrepreneurship is lagged. This hypothesis can be tested based on the availability of two separately conducted surveys (performed 2004 and 2008) on local government's cooperation on innovation with university and industry and the presence of PPPs in the community.

3. The research setting

Some scholars have pointed out that the institutional underpinnings of growth in IT, such as the degree of standardization in Internet technologies, vary from location to location (Kogut, 2003). The IT industry developed differently in the United States compared to Europe and Asia: though the technological uncertainties – and opportunities – were the same across the board, institutions and markets were not. Hence, there is not one IT industry, but rather several local IT populations as dictated by different institutional conditions. Consequently, each realization of the industry has its own organizational population characterized by its own dynamics. In the Swedish setting we can distinguish two periods in the development of its IT industry: a period of growth and decline, driven by deregulation 1990–2004, and a second period of rebound 2005–2009.

The net growth of the Swedish IT industry from 1990 to 2004, was a period when 7,921 new firms were founded. We also note that IT industry growth leveled out in the early 1990s, only

to revive in the decade's two final years. For purposes of comparison, only some 5,000 firms were founded in the industry over the 10 years before 1990. At the beginning of 1990, the Swedish IT industry comprised of 4,090 firms, but there were some 7,693 at the end of 2004, when the industry again started to grow, reaching above 9,000 firms during the year 2009. Earlier research seems to corroborate these observations, describing that the IT industry growth in the 1990s was facilitated by the existence in Sweden of certain institutions (e.g., relevant technical standardization and coordination bodies) and a fledgling venture capital industry that emerged when industrial growth took off in the early 1990s (Glimstedt & Zander 2003: 136). This growth was possibly enabled by local institutions as well as by growth dynamics related to the rapid increase in the number of IT firms (Braunerhjelm 2000:73, Glimstedt & Zander 2003, Zaring & Eriksson 2009).

4. Method

Dependent Variable – new firm entries

We obtained data for the dependent variable from Statistics Sweden's (*Statistiska Centralbyrån*) yearly census of corporations, which contains data concerning all firms in the IT industry in Sweden. To cover all firms active in the IT industry, we have merged firms classified according to a number of different Standard Industrial Classification codes at the 2-digit level (25, 26, 33, 46, 58, 62, 63, and 95). We limited the study to new entrants for 2009; the data used cover 4,463 new firm entries. The dependent variable is calculated as the number of new firm entries during 2009 per municipality divided by the total number of entries in Sweden in the information technology industry. The variables applied in the analysis are displayed in Table 1.

TABLE 1 ABOUT HERE

Control variables

Regional affiliation is measured by dummy variables where the local governments are grouped into nine regions of Sweden, as suggested by the governmental commission on sustainable societal organization and governance for development and growth (SOU 2007:10, SOU 2007:13). South of Sweden, Scania (Blekinge K county and Skåne M county=1 else=0); Småland and the Islands (Jönköping F county, Kronoberg G county, Kalmar H county and Gotland I county=1 else=0); West Sweden (Västra Götaland OPR county and Halland N county=1 else=0); East mid Sweden (Uppsala C county, Södermanland D county, Östergötland E county, Örebro T county and Västmanland U county=1 else=0); Stockholm region (Stockholm AB county=1 else=0); North Mid Sweden (Värmland S county, Dalarna W county and Gävleborg X county=1 else=0); Mid Lapland (Jämtland Z county and Västernorrland Y county); North Lapland (Västerbotten AC county and Norrbotten BD county=1 else=0).

Population density is a variable that measures the percentage of people living in dense populated areas 2004.

Number of inhabitants is a variable that measures the number of inhabitants within a municipality 2005.

Income per capita is a variable that measures the average income in thousands of SEK for 2003.

Unemployment is a variable that measures the percentage of people in a municipality actively seeking work, including those in some sort of unemployment program, in the age of 16 to 64 years of age 2005.

Higher education is a variable that measures the percentage with a three year long (or more) higher/ university education in the municipality 2003.

Technical faculty is variable that measures the presence of a higher education institutions (HEI) technical faculty in the municipality.

Independent variables

Industrial agglomeration is a measure of the number of companies in total 2005 per municipality divided by the total number of companies in Sweden in the information technology sector the same year. The information technology industry is unevenly distributed across Sweden's municipalities. The location quotient (LQ) is a standard measure of specialization used to identify the degree of industrial agglomeration (Norton 2001; Rocha 2004).

In the present paper, it is computed as the percentage of a given national industry present in a given municipality, divided by the percentage of that industry at the national level, as follows:

$$LQ_{ij} = \frac{\sum p_{ij} / p_j}{(\sum p_i / \sum p)}$$

where p = number of establishments, i = industry, and j = municipality.

A location quotient of 1.0 indicates that a municipality's share of an industry is the same as the national share of that industry; a location quotient above 1.0 indicates specialization and the presence of an agglomeration of firms in that municipality. Data from Statistics Sweden (SCB) are used in these calculations from 2005. In our analysis, we will use the word "presence" to refer to an industry being represented in a municipality. Agglomerations are referred to when the industrial presence in a municipality is specialized.

Policy/ Government majority of power in council is measured by four dummy variables showing whether power in government after the 2002 and 2006 local elections are based on a majority of the Social Democratic Party (Social Democratic power in government=1 else=0; Green Party balance of power (Green Party Balance=1 else=0); other balance (Other balance of power=1 else=0; or Moderate Party, Liberal Party, Center Party and/or Christian Democrats (Bourgeois power of Balance = 1 else=0).

Public-private Interaction is measured by three different variables indicating the presence in the area of a government that is involved in 1) public private partnerships (PPP) more generally, 2) cooperation on innovation with HEI, and/or 3) cooperation on innovation with business in particular. These three indicators are come from survey data collected in 2004 and 2008 with the leading politicians, administrators and union representatives in all 290 Swedish

local government municipalities. The response rate both in the 2004 and 2008 survey was 67 percent, with responses received from all Swedish municipalities. The variables are based on the following question in the questionnaire: “Over the past 30 years, a number of new organizational forms have been introduced by local governments in Sweden. Which organizational forms are present in your municipality today, or were present in the past?” where 100=local government has public private partnerships (PPP), cooperation on innovation with higher education institutions (HEI) and/or industry today; 67=have previously had public private partnerships (PPP), cooperation on innovation with higher education institutions (HEI) and/or industry; 33= local government has have discussed public private partnerships (PPP), cooperation on innovation with higher education institutions (HEI) and/or industry; and 0=local government has not discussed public private partnerships (PPP), cooperation on innovation with higher education institutions (HEI) and/or industry). In the analysis, the measures are based on the average response of the surveyed leaders in each municipality aggregated to the community level, ranging between 0 and 100.

5. Results

The initial bivariate correlation analysis displayed in Table 2 shows that entrepreneurship through new firm formation within the IT-sector is mainly determined by industrial agglomeration (0.46), followed by the proportion of higher education (0.44) and the presence of a technical faculty in the community, as well as other typical demographical factors such as population density, number of inhabitants and income per capita. Without control for the multivariate impact of the other variables, however, the effect of unemployment is weak and slightly negative.

Among the political variables, the analysis of bivariate relationships do indicate that policy, measured through the power of parties in local council, have some impact, especially among local governments effected by the Green Party balancing power in council (GP balance). The effect is lagged, because it is manly the policies performed by Green Party balanced local governments between 2002 and 2006 that have impact on new firm formation in 2009. A much stronger correlation is detected between local government's public-private interaction and new firm formation. The overall strongest effect is found in local governments that have some sort of cooperation with universities on innovation, both in 2004 and 2008. Thus, local political effects on entrepreneurship in the IT-sector mainly concern innovation governance performed through government-university interaction and to a somewhat lesser degree by strict public-private interaction.

TABLE 2 ABOUT HERE

Many of these political effects on entrepreneurship remain significant in the multivariate regression analysis as well. When the effect of the other local and regional variables on entrepreneurship is controlled for, as shown in Model 1 in Table 3, we find that the greatest impact of regional variation on entrepreneurship, less surprisingly, is found in the Stockholm and Gothenburg (West Sweden) regions. At the local level, additional explanatory power is credited to the level of higher education in the community, unemployment and presence of a technical faculty in the area. The variance explained by these local and regional demographic factors is 0.25. Thus, 25 percent of the variance in entrepreneurship is explained by pure demographic factors and unemployment in particular.

Thus, according to Model 1, when controlling for other contextual local and regional variables, the one major remaining explanatory factor of new firm formation in the IT sector rests on unemployment. This phenomenon seems to be extra pronounced during the times of a recession, and the global 2008 recession that hit many Swedish communities during 2009. As is recently shown by the Kaufmann Foundation, new firm entry in the U.S. in 2009 was marked by an increase, and being at its highest level in fourteen years (Fairlie 2010).

When industrial agglomeration is added to the analysis in Model 2, in addition to the strong explanatory power of local firm formation with an estimate of 0.28, among the local context control variables it is only unemployment that remains significant at the same level of impact as in the previous analysis (Model 1). Thus, while unemployment is a major explanatory factor of new firm formation in the IT industry in some communities, local agglomeration contributes to explain new firm formation in others.

Although these two explanatory factors are of economic nature, they are contradictory in the way that while local unemployment tends to *push* new potential entrepreneurs, local agglomeration of industry tends to *pull* new potential entrepreneurs. Nevertheless, the variance explained by the additional factor of agglomeration is 0.26, which means that this factor explains quite little on top of the controls.

In Model 3, we test the additional effect of policy through party or coalition of majorities in power of local government. As shown in Table 3, the only significant sign of an ideologically founded policy effect occurs in relation to municipalities with a social democratic majority in power of council between 2002 and 2006. The effect of this dummy variable on new firm formation is 0.14, thus barely significant at the 0.05 level, so the ideological factor of party driven policy seems quite modest, and the variance explained stays unchanged in relation to

the previous model, Model 2. Thus, today party and ideology driven policies at the local level tend to a very limited extent to push potential entrepreneurs forward.

TABLE 3 ABOUT HERE

Instead, among the political factors tested, it is the innovation governance factor introduced in Model 4, and local government's cooperation on innovation with the university in particular, that tends to effect new firm formation. Here, it is worth to note that rather than public-private interaction, it is the public-public interaction (government-university) that seems to work best among the tested alternatives. This, make sense also in relation to institutional logic theory (Lounsbury 2007), because Swedish local governance seems to consist of two separate institutional logics in organizing public sector reform (Szücs 2011). However, the effect is quite limited (regression estimate of 0.16) which is significant on 0.05 level. In terms of variance explained it adds one percent in explaining new firm formation beyond local unemployment rates and agglomeration of industry.

Thus, among the political explanatory factors of new firm formation, the political *pull* effect of public-private interaction is only slightly more effective compared to the *push* effect of local industrial and economic development policies (Figure 2). Further, it must be noted that both policy and public-private (and public-public) interaction rests on lagged effects.

FIGURE 2 ABOUT HERE

6. Conclusion and discussion

A basic level of new firm formation in the IT industry in an area depends on two separate economic factors. In some areas, this kind of entrepreneurship is explained by demographical variables including unemployment. The greater the unemployment rate is in an area, the higher the level of entrepreneurship is. In contrast, in other areas entrepreneurship is mainly explained by industrial agglomeration. The effect of industrial agglomeration is somewhat stronger than the unemployment rate. Hence, entrepreneurship is mainly determined by the *pull* of industrial agglomeration or the *push* of local unemployment levels. The 2008 recession most probably contribute to the relatively strong impact of local unemployment.

In addition, two separate political factors contribute to only somewhat further explain a higher level of entrepreneurship. First at hand there is the ideological factor of policy. Entrepreneurship is significantly higher in areas governed by Social Democratic party majorities in government. Secondly, we find that not only government, but governance as well matters for the level of entrepreneurship in an area. Contrary to the effects of the ideological *push* policy approach of social democratic dominated governments, we find that in other areas entrepreneurship is *pulled* by governance, through public-private interaction and cooperation on innovation between government and university actors in particular.

Thus, entrepreneurship is not only greater in areas with higher unemployment, more industrial agglomeration or with social democratic government majorities in power. It is also greater in areas in areas where the government cooperates with higher educational institutions. In practice, this means that cooperation on innovation between government and higher educational institutions are effective for creating entrepreneurship primarily in university areas.

Political implications

With regard to the amount of public spending on policy and public-private interaction in order to enhance entrepreneurship and innovation in high tech industries, the general effect suggested by the findings of this paper is somewhat limited. These findings do not conform to the ideas and models suggested by the advocates of cluster theories or theorists of regional innovation systems. In contrast to these theories, firm entry depends on both demographical and institutional preconditions in place, in order for policy and government interaction to be effective. For example, with regard to these findings, in areas with unemployment or a high level of industrial agglomeration, it is unnecessary (or less effective) for entrepreneurship to implement interventionist government policies (unless located in a left-wing governed areas) or to start governance initiatives to cooperate on innovation (unless located in a university area).

Limitations and future research

Nevertheless, in order to pinpoint the more exact effects, more research is needed on the actual content of local and regional policy programs as well as more precise data on the public-private-university interactions at hand in a country. Further, in order to study the long-term effects of policy and governance, a third retake of the survey on public-private interaction is needed in order to analyze trends of democracy and local governance. Finally, in this study the data on entrepreneurship is limited to one year (2009) after the 2008 global economic recession. At the very best, the analysis should be based on several years in order to control for the effects of economic cycle.

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Table 1. Sample statistics

Variable and statistics	Mean	Std. Dev.	Min	Max	N (Dummy =1)
Entrepreneurship	0.7026	0.47013	0.00	3.28	290
South Sweden	0.1310	0.33802	0.00	1.00	290 (38)
Småland, Gotland, Öland	0.1172	0.32226	0.00	1.00	290 (34)
West Sweden	0.1897	0.39271	0.00	1.00	290 (55)
East mid Sweden	0.1793	0.38428	0.00	1.00	290 (52)
Stockholm region	0.0897	0.28618	0.00	1.00	290 (26)
North mid Sweden	0.1414	0.34901	0.00	1.00	290 (41)
Mid Lapland	0.0517	0.22185	0.00	1.00	290 (15)
North Lapland	1.000	0.30052	0.00	1.00	290 (29)
Population density	73.51	15.368	0.00	100	290
Number of inhabitants	31181.60	59769	2573	771187	290
Income per capita	216.07	23.044	178	393	290
Unemployment	6.757	2.3411	2.4	17.5	290
Higher education	12.19	6.100	5	48	290
Technical faculty	0.0379	0.19136	0.00	1.00	290 (11)
Industrial agglomeration 2005	0.61211	479458	0.080	2.685	290
Social democratic 2002	0.3724	0.48428	0.00	1.00	290 (108)
Social democratic 2006	0.2414	0.42866	0.00	1.00	290 (70)
Green Party balance 2002-2006	0.0690	0.25383	0.00	1.00	290 (20)
Green Party balance 2006-2010	0.0310	0.17371	0.00	1.00	290 (9)
Other balance of power 2002-2006	0.2172	0.41308	0.00	1.00	290 (63)
Other balance of power 2006-2010	0.3241	0.46886	0.00	1.00	290 (94)
Bourgeois 2002-2006	0.3414	0.47499	0.00	1.00	290 (99)
Bourgeois 2006-2010	0.4034	0.49144	0.00	1.00	290 (117)
Innovation cooperation industry 2004	63.4458	29.8345	0.00	100.00	290
Innovation cooperation industry 2008	61.4130	28.5886	0.00	100.00	290
Innovation cooperation HEI 2004	60.7050	29.2478	0.00	100.00	290
Innovation cooperation HEI 2008	52.1816	30.8112	0.00	100.00	290
Public private partnerships 2004	35.6763	30.8495	0.00	100.00	290
Public private partnerships 2008	30.1784	29.2703	0.00	100.00	290

Table 2. Correlations

Variable and statistics	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1. Entrepreneurship	1																					
2. Population density	0.34	1																				
3. Number of inhabitants	0.26	0.36	1																			
4. Income per capita	0.34	0.46	0.14	1																		
5. Unemployment	-0.74	-0.15	-0.06	-0.51	1																	
6. Higher education	0.44	0.47	0.47	0.69	-0.35	1																
7. Technical faculty	0.25	0.21	0.57	0.02	0.01	0.42	1															
8. Industrial aggl. 2005	0.46	0.61	0.44	0.72	-0.39	0.80	0.31	1														
9. Social dem. 2002	0.01	0.08	-0.06	-0.18	0.44	-0.23	-0.04	-0.17	1													
10. Social dem. 2006	-0.03	0.04	-0.12	-0.14	0.43	-0.29	-0.07	-0.20	0.67	1												
11. GP balance 2002	0.16	0.18	0.38	0.09	-0.06	0.36	0.52	0.32	-0.21	-0.12	1											
12. GP balance 2006	0.08	0.09	0.24	-0.01	0.05	0.15	0.38	0.08	0.07	-0.10	0.26	1										
13. Other balance 2002	-0.08	0.06	-0.02	-0.07	-0.01	-0.05	-0.10	-0.02	-0.41	-0.26	-0.14	-0.09	1									
14. Other balance 2006	-0.02	0.01	0.03	-0.13	0.03	-0.04	-0.06	-0.02	-0.09	-0.39	-0.13	-0.12	0.53	1								
15. Bourgeois 2002	-0.03	-0.23	-0.13	0.20	-0.40	0.09	-0.14	0.02	-0.56	-0.39	-0.20	-0.13	-0.38	-0.30	1							
16. Bourgeois 2006	0.02	-0.16	-0.01	0.25	-0.42	0.24	-0.02	0.17	-0.52	-0.46	0.14	-0.15	-0.25	-0.57	0.67	1						
17. IC with industry 2004	0.16	0.09	0.23	0.00	0.03	0.11	0.20	0.14	0.03	0.01	0.14	0.06	-0.11	-0.02	-0.01	-0.01	1					
18. IC with industry 2008	0.16	0.15	0.24	0.04	-0.07	0.13	0.16	0.11	0.08	0.04	0.07	0.13	-0.09	-0.06	-0.04	-0.03	0.27	1				
19. IC with HEI 2004	0.22	0.24	0.29	-0.10	0.12	0.10	0.26	0.10	0.09	0.03	0.10	0.11	-0.06	0.07	-0.08	-0.13	0.64	0.25	1			
20. IC with HEI 2008	0.23	0.28	0.32	0.03	-0.01	0.22	0.24	0.16	0.13	0.04	0.10	0.18	-0.10	0.06	-0.10	-0.16	0.14	0.59	0.31	1		
21. PPP 2004	0.17	0.23	0.30	-0.02	0.06	0.14	0.14	0.14	0.11	0.01	0.15	0.06	-0.06	0.08	-0.14	-0.11	0.24	0.16	0.29	0.30	1	
22. PPP 2008	0.12	0.16	0.23	-0.05	0.01	0.09	0.16	0.08	-0.03	-0.02	0.10	0.25	0.11	-0.01	-0.12	-0.06	0.16	0.34	0.20	0.31	0.34	1

Comment: N=290.

Note: bold type = significant at 0.05 level

Table 3. Least squares regression analysis of lagged political economic effects on entrepreneurship 2009 (standardized OLS coefficients)

Variable and statistics	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>		<i>Model 4</i>	
			2000-2004	2006-2008	2000-2004	2006-2008
Controls (regional affiliation)						
South Sweden	.24**	.22**	.26**	.25**	.26**	.27**
Småland, Gotland, Öland	.24**	.25**	.29***	.29***	.25**	.27**
West Sweden	.27**	.25***	.29***	.29**	.27**	.27**
East mid Sweden	.17*	.13	.15	.15	.12	.13
Stockholm region	.32***	.21*	.23*	.24*	.21*	.25*
North mid Sweden	.26***	.25***	.27***	.27***	.24**	.25**
Mid Lapland	.12	.11	.10	.11	.07	.10
North Lapland (reference)						
Controls (local contexts)						
Population density	.09	.03	.00	.00	-.06	-.03
Number of inhabitants	-.02	-.03	-.03	-.03	-.06	-.06
Income per capita	.13	.10	.09	.08	.14	.11
Unemployment	.24**	.25***	.23**	.22**	.22**	.24**
Higher education	.27**	.15	.18	.20	.15	.15
Technical faculty	.13*	.12	.12	.11	.11	.12
H1 Industry 2005						
Industrial agglomeration		.28**	.30*	.28*	.30*	.28*
H2 Policy/ Government after 2002-2006 elections						
Social democratic			.14*	.09	.13	.07
Green Party balance			.00	.00	.01	-.02
Bourgeois			.04	-.02	.03	-.01
Other balance of power (reference)						
H3 Public-private Interaction 2004 and 2008						
Government Innovation cooperation industry					-.03	.07
Government Innovation cooperation HEI					.16*	.07
Government involved in PPP					.04	.03
R-squared	.28	.29	.30	.30	.32	.31
Variance explained (Adj. R ²)	.25	.26	.26	.26	.27	.26
Model significance (Anova)	.000	.000	.000	.000	.000	.000

Comment: N=290.

Note. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

Figure 1. Conceptual model for the empirical analysis

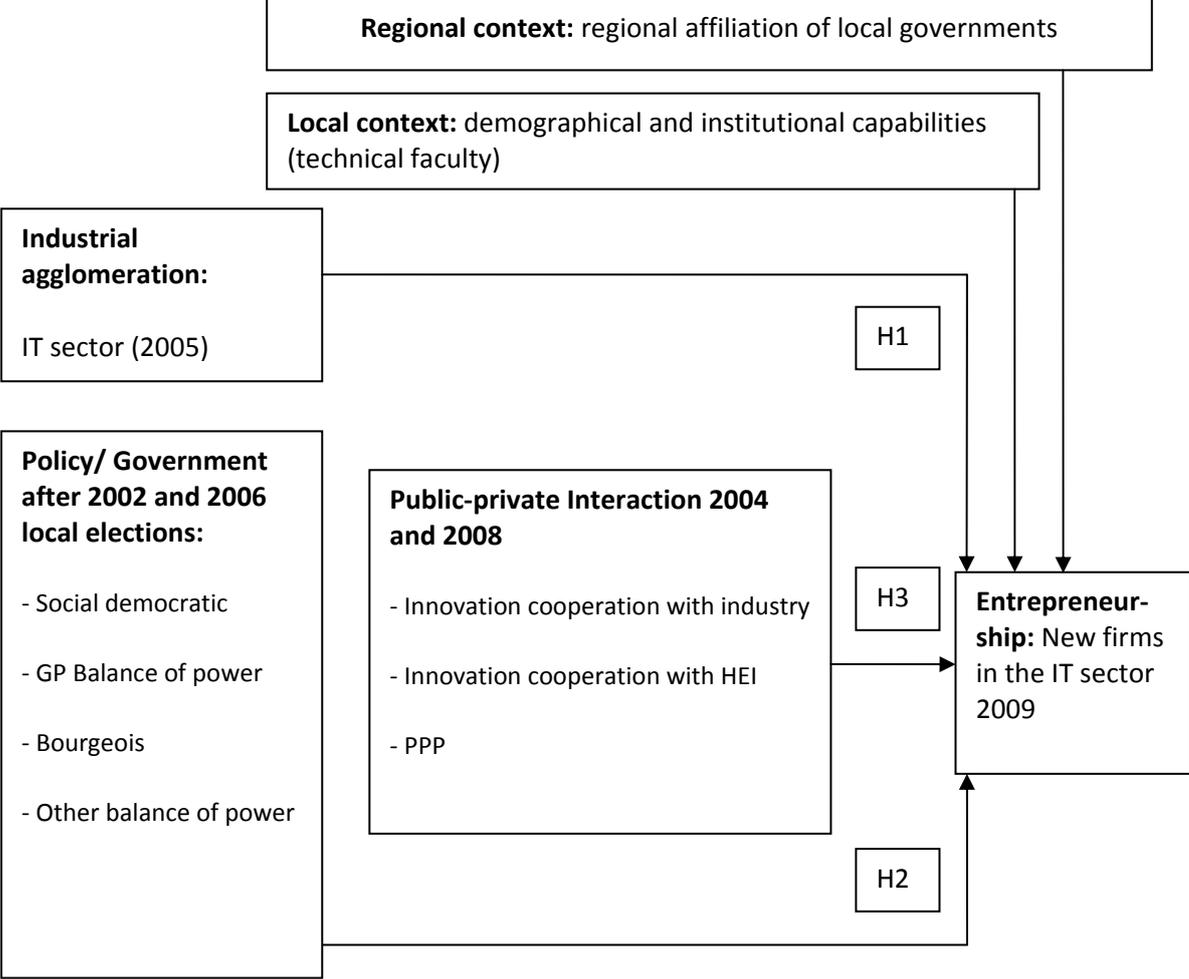


Figure 2. Driving forces of Entrepreneurship in Different Contextual Settings

	<i>Economic</i>	<i>Political</i>
<i>Pull</i>	1. Agglomeration	2. Governance
<i>Push</i>	3. Unemployment	4. Policy