

REGIONAL AND SECTORAL LOCATION PATTERNS OF NEW FIRMS: THE CASE OF GREECE

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Abstract

This paper analyses the relationship between entrepreneurship and the external environment of firms. Entrepreneurship is approximated by start-ups in four industries, namely manufacturing, commerce, services and tourism. Agglomeration economies and state incentives to promote entrepreneurship at certain locations are the main environmental factors analysed here. Results support the argument that localization and urbanization economies affect different sectors in different ways. In such a context, the observed positive effect of state incentives upon entrepreneurship at certain locations might be counterbalanced by the presence of negative localization effects as suggested by the present findings regarding manufacturing start-ups.

JEL Clasification: R30, R10

Key words : regional location, new firms, Greece

1. Introduction

A thorough understanding of the effect of external factors, those related to the location or the environment of firms, upon entrepreneurship is missing despite the widely accepted idea that the lack of entrepreneurship inhibits economic growth (Acs and Audretsch, 2003). The need to better understand entrepreneurship and the formation of regional location patterns draws from the argument that the birth of firms outweighs in importance the corresponding deaths. Entrepreneurship is viewed as a successful mechanism for the allocation of capital and employment to new uses and the exploitation of market opportunities and new knowledge (Reynolds et al., 2004). In line with such views, entrepreneurial activity in the EU has received increased attention at all levels of

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policy design (Felsenstein and Taylor, 2001). Nonetheless, the role of locations as mere hosts of entrepreneurship is challenged. According to Polese and Shearmur (2006) some regions are 'destined' to decline and, there are limits to the ability of small and medium sized enterprises to overcome this trend. Thus, negative trends might not be reversed by mere policies supporting firm and household location (Polese and Shearmur, 2006). Evidence regarding the initiatives in favour of entrepreneurial activity in Greece supports this argument (Liargovas, 1998). As Devereux et al. (2007) suggest, state incentives to promote location do attract investments in specific areas, yet firms are less responsive to government subsidies in areas where there are fewer existing plants in their industry. The present study analyses the location of start-ups in four industries in Greece and the effect of state incentives to promote entrepreneurship at certain locations.

2. Analytical framework

There is wide consensus on that entrepreneurship is a complex notion with multiple empirical manifestations (Schutjens and Wever, 2000). This draws from the multiple-level interaction of a number of factors. It is indicative that entrepreneurship dynamics are studied in various disciplines ranging from economics and economic geography to sociology and psychology. The factors that affect entrepreneurship might be typically distinguished between three groups referring to firm-specific factors, the characteristics of the entrepreneur and the external environment (Schutjens and Wever, 2000).

Empirical research regarding the effect of each of these sets of factors upon the entrepreneurial process continuously grows. However, existing knowledge is still fragmented, providing partial explanations mainly with regard to the role of the entrepreneur or firm-specific characteristics (Tamasy, 2006). The spatial dimension of the entrepreneurial process is yet little analysed despite widespread consensus on that 'the regional context matters' (Sorenson and Audia, 2000). This is particularly important in light of recent findings suggesting that negative trends pointing to the decline of certain regions might not be reversed by mere policies supporting firm and household location (Polese and Shearmur, 2006). According to Polese and Shearmur (2006) some regions are 'destined' to decline

and thus there are limits to the ability of small and medium sized enterprises to overcome this trend. In other words, regional development is not linearly dependent upon the inflow of capital and entrepreneurs. That, in turn, points to more specialised and highly informed measures required in order to achieve regional competitiveness and development.

Following the above, regional competitiveness is also a non single-dimension linear process and thus, while it is true to argue that nations can not 'go out of the market' (Krugman, 1994), the same might not be assumed in the case of regions. Indeed, support to SMEs which form the 'backbone' of entrepreneurial activity in the EU has received increased attention at all levels of policy design under the commonly shared view that it is also regions that compete in the international arena of trade and not only nations (Felsenstein and Taylor, 2001). The substantial changes observed in the economic environment of almost all developed countries have increased the effect of the external environment upon firm operation, a factor that has grew in importance in contrast to the internal economies of scale and other typical factors affecting the entry and survival of new firms (Gordon and McCann, 2000). As Gordon and McCann (2000) argue, macroeconomic and structural developments in most developed countries require innovative spatial policy approaches in order to stimulate endogenous growth in peripheral areas. In line with that argument, a renewed interest over the concept of spatial concentration of economic activities is observed owing to the possibilities it offers for a more effective public policy in local economic development (Castells and Hall, 1994).

The bulk of entrepreneurial activity involves small and medium sized enterprises and thus most countries place increased attention to designing measures able of fostering SMEs activity. Nonetheless, experience, at least from the EU countries, so far provides signs of limited effectiveness of homogeneous policy measures towards SMEs (Liargovas, 1998). Analysing the Greek national policies in favour of SMEs Liargovas (1998), argues that copying successful instruments for SMEs in advanced countries, without appropriate modifications, can be most dangerous for less developed countries. It follows that, understanding regional location patterns at the country and industry level is an important ingredient

of coping with the challenge of regional social cohesion among the EU countries.

Existing empirical research regarding regional location patterns in Greece is limited. Louri (1988) and Louri and Anagnostaki (1994) utilize an Athens vs the rest of the Greece comparative model to analyse the spatial concentration of new manufacturing firms in Greece. Their findings suggest that urbanization economies largely explain the location of manufacturing industries in urban centres (Louri, 1988; Louri and Anagnostaki, 1994). These findings are also supported by evidence suggesting that the survival rates of firms increase through successful location choices (Fotopoulos and Louri, 2000). Further, empirical findings regarding the spatial variation of new firm location in Greece indicate that agglomeration economies are present featured by population density, small firm structures, local economic conditions, local production links and regional specialization (Fotopoulos and Spence, 1998; 1999). Filippaios and Kottaridi (2004), provide more recent information on the topic through an analysis of industry specific firm location determinants at NUTS II level in Greece.

Within that context, the present study places emphasis in determining plausible localization and urbanization effects at the regional and industry level. The importance of such analysis lies upon identifying regional characteristics and industry-specific dynamics that might sustain greater spatial variation of firm births.

3. Empirical model and data

The hypothesis that regional characteristics exercise different effects upon the location of start-ups belonging to different industries is tested using data for the regional location of 4,151 firms established in Greece within 2005. Data on the regional location of new firms are derived from a private company called ICAP, which maintains a database of all S.A. and Ltd. companies established by year. This annual edition provides basic information referring to the number of new firms per industry and the amount of capital invested at NUTS III level (prefecture). The ICAP directory uses the European Commission's definition regarding the birth of firms (Regulation No. 2700/98 of 17 December 1998, L344, 18/12/1998, p. 49-80) and thus

annual entries in the directory do not include firms that have been in any way created by existing firms, e.g. changes in the legal form, mergers, acquisitions, etc. Following the international practice ICAP records as new firms (one year of age) those officially established between January 1st and December 31st of each year. To that extent part of the sample refers to start-ups the latter defined as firms that have not published balance sheets within the year of their recorded birth. While data are not available regarding the labor generated under these investments they might be inferred to involve small firms based on the minimum levels of capital required for investments under the specific legal forms. According to the Greek Law (2190/1920 and its amendments) pertaining to the establishment of new S.A. and Ltd. firms the minimum required capital is set to 68.000 euros in the case of S.A. and 18.000 euros in the case of Ltd. firms.

Of the 4,151 new S.A. and Ltd. firms that have been established in the country within 2005, 13.4% involves manufacturing, 31.3% involves commerce, 50.3% involves services and 5.0% involves tourism companies. Based on these data, location quotients have been estimated at NUTS III level for the 51 Greek regions where applicable. Thus, the sample consists of $N = 43$ observations in the case of manufacturing, $N = 46$ observations in the case of commerce, $N = 47$ observations in the case of services, and $N = 33$ observations in the case of tourism new firms. Table 1 presents summary statistics of the estimated location quotients per industry.

Table 1. Summary statistics of industry specific location quotients

Industry	Number of regions			Sample (N)
	<i>LQ > 1</i>	<i>LQ < 1</i>	<i>No investments</i>	
Manufacturing	35	8	8	43
Commerce	18	28	5	46
Services	10	37	4	47
Tourism	27	6	18	33

Regional sectoral concentration indices have been computed as follows:

$$QL_{ir} = (N_{ir}/N_{in}) / (N_r/N_n) \quad (1)$$

where, QL is the estimated location quotient of start-ups per industry i in region r , i refers to manufacturing, commerce, services and tourism start-ups, r stands for the regions and n stands for the country. Location quotients larger than one indicate that a region's share of start-ups in a specific industry is larger than the corresponding share of the country. In order to identify the regional determinants of these start-ups, we test the following specification for each of the four industries:

$$QL_{ir} = \beta'x_i + e_i \quad (2)$$

where, QL stands for the corresponding location quotient index, x is a vector of geographic, socio-economic and other region and industry-specific characteristics, β is a vector of parameters to be estimated and e stands for well-behaved error terms. Data on start-ups are derived from ICAP, while data on the characteristics of the Greek prefectures have been gathered from the National Statistical Service of Greece and the Hellenic Centre for Investment. These variables approximate the presence of localization and urbanization economies as well as the institutional environment and state incentives to promote entrepreneurship (Table 2).

Table 2. Definition and descriptive statistics of the variables used in the analysis of regional location of start-ups.

Variable	Definition	Mean (St.Dev)
Dependent variables		
QL_{man}	Estimated location quotients of manufacturing start-ups	2.118 (1.31)
QL_{com}	Estimated location quotients of commerce start-ups	0.959 (0.36)
QL_{serv}	Estimated location quotients of services start-ups	0.768 (0.30)
QL_{tour}	Estimated location quotients of tourism start-ups	3.527 (3.61)
PLAIN	Plain land as percentage of a region's total land	28.066

		(17.07)
SEMI-M	Semi-mountainous land, percentage of a region's total land	28.636 (14.39)
AGRIC	Agricultural land, percentage of a region's total land	47.505 (32.47)
D ₁	Distance from urban centre 1 – Athens (Km)	344.412 (209.7)
D ₂	Distance from urban centre 2 – Thessalonica (Km)	289.941 (200)
INSULAR	Dummy variable, 1 = the region is insular area	0.255
POPDENS	Population density	76.686 (136.8)
PCGDP	Per capita GDP	10885.6 (3677)
GDP _{prim}	GDP of primary sector	13.224 (5.99)
GDP _{secon}	GDP of secondary sector	18.263 (11.20)
GDP _{tert}	GDP of tertiary sector	68.514 (11.51)
EMPLOY _{secon}	Percentage share of employment in the secondary sector	16.476 (5.86)
FIRMS _{man}	Number of incumbent manufacturing firms	987 (1534)
FIRMS _{com}	Number of incumbent commerce firms	5241 (14332)
TURN _{man}	Turnover of manufacturing sector (million euros)	318.631 (1376)
TURN _{construct}	Turnover of constructions sector (million euros)	169.574 (768)
SIZE _{tour}	Number of hotel beds, proxy of the tourism's sector size	11162 (18813)
WINTER _{tour}	Dummy variable, 1 = the region has developed winter tourism infrastructure	0.294
LAND _{ip}	Land in industrial parks (stremmas, 1 ha = 10 stremmas)	159344.9 (666751)
FIRMS _{ip}	Number of firms located in industrial parks	27.673 (58.41)
TREND	Dummy variable, 1 = the region has experienced increase in the total number of	0.490

	firms within the past 5 years (2000-2004)	
TREND _{man}	Dummy variable, 1 = the region has experienced increase in the number of manufacturing firms within the past 5 years (2000-2004)	0.412
TREND _{serv}	Dummy variable, 1 = the region has experienced increase in the number of services firms within the past 5 years (2000-2004)	0.411
TREND _{tour}	Dummy variable, 1 = the region has experienced increase in the number of tourism firms within the past 5 years (2000-2004)	0.216
BANKS	Number of bank offices	53 (173)
HEALTH	Number of hospital beds	872.471 (3077)
EDUC	Dummy variable, 1 = at least one higher education institute (university) operates in the region	0.627
INVZONE	Dummy variable, 1 = the region belongs to the highest investment incentives zone under the Development Law 3299/2004	0.157

4. Empirical Results

Least squares regression results for the four industries under study are presented in Table 3. The location of manufacturing start-ups is positively affected by plain land, the amount of land engaged in agriculture and proximity to the country's main urban center. Low accessibility, which characterizes insular areas, negatively affects manufacturing start-ups. Localization effects are primarily negative. However, the presence of industrial parks and co-location in them, favors the location of manufacturing start-ups. Urbanization effects are largely positive, with population density being the only factor exercising negative effects. Manufacturing start-ups are positively affected by state investment incentives. The location of commerce start-ups is positively affected by proximity to the country's second in size urban centre, while low accessibility negatively affects commerce start-ups. Localization effects are negative whereas urbanization effects are largely positive, with the turnover generated

from manufacturing being the only factor that negatively affects commerce start-ups. The location of services start-ups is favoured by semi-mountainous land and low accessibility. Localization effects are diverse. The same holds for urbanization effects, where positive effects in terms of welfare indicators and infrastructure are observed while inter-industry activity generates negative effects for services start-ups. Services start-ups are positively affected by state investment incentives. Tourism start-ups are negatively affected by plain land and distance from the second in size urban centre of the country. Localization effects are positive while urbanization effects are diverse. A non-anticipating finding relates to the negative effect of health care infrastructure.

Table 3. OLS coefficient estimates of the regional location of start-ups in Greece.

	Manufacturing		Commerce		Services		Tourism	
	β	t-stat	β	t-stat	β	t-stat	β	t-stat
Constant	2.306	2.39	1.128	3.60	-0.248	-1.56	18.552	3.62
PLAIN	0.020**	2.58					-0.087**	-2.26
SEMI-M	-0.021*	-1.81			0.008***	3.18		
AGRIC	0.013**	2.37	0.002	1.50				
D ₁	-0.002**	-2.42						
D ₂			-0.001***	-3.12			-0.009***	-3.43
INSULAR	-2.520***	-5.43	-0.863***	-4.53	0.202**	2.27	-0.555	-0.56
POPDENS	-0.004***	-3.25	0.002	1.06	0.000***	3.70		
PCGDP	11.025***	6.05	1.780*	1.77	2.149***	4.34	-6.432	0.66
GDP _{prim}	-0.045	-1.53						
GDP _{secon}	-0.024*	-1.80						
GDP _{tert}			0.002	0.52				
EMPLOY _{secon}							-0.389***	-4.00
FIRMS _{man}	0.001***	-						

		2.87						
FIRMS _{com}			-0.001***	-3.82			0.001**	2.13
TURN _{man}			-0.002**	2.73	-0.001***	-2.85		
TURN _{construct}			0.196*	1.75				
SIZE _{tour}							0.001***	3.34
WINTER _{tour}					0.158**	2.02	1.409*	1.80
LAND _{ip}	0.000*	1.90	0.000***	4.60	0.000*	1.99		
FIRMS _p	0.001**	2.15	0.001***	3.03				
TREND			-0.187**	-2.01			-5.064***	-4.54
TREND _{man}	0.286	1.11						
TREND _{serv}					0.266***	4.96		
TREND _{tour}							0.869	1.17
BANKS			0.017***	4.27	-0.007**	-2.54		
HEALTH	0.176*	1.94			0.000***	2.82	-0.611**	-2.33
EDUC	0.603**	2.47						
INVZONE	0.859**	2.13	0.019	0.16	0.348***	4.20	1.502	1.29
Adjusted R ²	0.612		0.424		0.569		0.528	
F-test	5.14		3.37		6.52		3.98	
Breusch-Pagan ? ² (df)	12.216 (16)		10.557 (14)		6.319 (11)		28.851 (12)	
N = regions	43		46		47		33	

Three, two and one asterisk indicate significance at 1%, 5% and 10%, respectively.

5. Conclusion and policy implications

The estimated models are characterised by very satisfactory levels of fit to the data and explain a significant part of the observed variation in the regional location of start-ups. The results provide support to the argument that there exists significant diversity of agglomeration economies, as shown by the presence of industry sensitive localization and urbanization effects. Evidence is provided on the positive effect of industrial parks on different industries, as their presence favours the location of commerce and services start-ups as well as of manufacturing start-ups. As regards the effect of government subsidies, results indicate that the location of start-ups in the manufacturing and services sectors are responsive to government

subsidies. Nonetheless, to the extent that the positive effect of state subsidies co-exists with negative industry concentration trends, questions the overall effectiveness of the former.

The present study focuses on the micro-regional determinants of entrepreneurship in the case of the Greek regions. To that extent, important policy insights are generated with regard to entrepreneurship, on the one hand, and the role of the regions' industrial mix and state policies to encourage entrepreneurship, on the other. The findings of the present study provide support to the argument that entrepreneurship might be more effectively fostered if policy initiatives are designed to account for the regional industrial mix and are thus, more sensitive to the presence of regional forces that might enhance or counteract towards the incentives they offer.

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