Regional attractability to business An empirical application to Southern European regions

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Abstract

The main objective of this paper is to analyse the entrepreneurial attractivity capacity of a range of South European regions.

The methodology is based on multivariate statistical analyses in order to evaluate quantitatively the existence of appropriate conditions in the allocation of dynamic enterprises.

Résumé

Le principal objectif de ce travail est d'analyser la capacité d'attraction entrepreneuriale d'un certain nombre de régions de l'Europe du sud.

La méthodologie est basée sur les analyses statistiques multivariées afin d'évaluer en termes quantitatifs l'existence de conditions appropriées dans l'allocation d'entreprises dynamiques.

1. Introduction

The phenomenon of globalisation has had a profound impact on economic activity, particularly at the business organisational level. The most visible aspect of this changing process is the advent, adoption, expansion and globalisation of entrepreneurial companies, whose characteristics deeply influence changes in industrial space. With globalisation, boundaries no longer hold meaning to firms, especially to those whose more salient characteristics feature geographical flexibility and a dichotomised working adaptability. As such, traditional regional sectors become more vulnerable to competition from such firms and as a result, either stagnate or collapse.

This fact has given rise to much debate among regions in terms of the stationing of these dynamic enterprises, whose dynamics and capacity for innovation stimulate development. The issue focuses on creating attractive conditions within regions: more transportation and communication network, a more qualified workforce that is specialised and flexible and an environment that is innovative and dynamic. In other words, conditions necessary to firms in order to compete in the global markets.

On the other hand, not all regions have the capacity to face this tough battle, which looks to create better conditions of business attractivity, particularly in the EU zone, where increased integration between Member States renders weaker national and regional economies vulnerable to fiercer and stronger economies. The implementation of a regional policy to minimise regional asymmetries, by means of structural funds, has been adopted with irregular level of success.

In this study, we attempt to identify patterns that explain the entrepreneurial attractivity capacity of several South European regions against different phases of economic development.

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2. Theoretical framework

2.1 Changes on business organisation

In terms of the changes of the business organisation, traditional Taylor-type business (characterised by a hierarchical arrangement and a commitment to large-scale productions of standard products) is making room for dynamic enterprises. The change began in the 70s when markets began to stagnate and consumer preferences to diversify, thus dividing markets into hundreds of niches, whose product competitiveness was increasingly measured by its quality and difference than by its price (Becattini and Rullani, 1995).

According to Hamilton (1995), dynamic enterprises characterise themselves on: innovation, prompted by an open management system, emphasis on core business, flexible production systems, efficient processes, just-in-time productions, synchronic product development and total quality management.

Dynamic enterprises are also characterised by their commitment to core business practice. As Penrose (1959) states, although bigger firms benefit from expanding economies, they are unable to benefit from all the opportunities due to limitations in their growth rate linked to diseconomies of scale. If firms focus on the primary area of business, i.e. core business, they will obtain sustained growth and competitiveness, and thus profit from all arising opportunities for expansion, becoming more efficient as well as specialised. In this way, market niches are reserved for small and medium enterprises to explore, allowing them to dynamically grow based on complementing corresponding sector business or based on competitiveness. It is worth notice that core business was uncommon until the end of the 70s. Existing external business

stability, market expansion and unthreatening did not prompt the need for change. Only after the 70s did some firms begin to observe core business as the best strategy for competitiveness. The factors that led to the change in mentality of some top managers followed from the petroleum conflicts, stagnation of markets, change in consumer tastes and strong Japanese competition (an indication that Western world markets had excess capacity that would impair competitiveness).

Still, many firms pointed to direct high labour costs and low labour productivity as the causes for loss of competitiveness. As a consequence, firms looked for other solutions other than core business, that would address the problem: to decrease production, to abandon labour intensive manufactories, to relocate production to regions or countries whose labour costs were lower, and to diversify internal production through mergers or take-overs.

These measures proved effective only in the short term and, in effect, produced long-term damage as a direct result of substantial increases in indirect costs, inducing lower scale revenue as a consequence.

Flexible production systems developed as a consequence of strategic focus on core business practice that integrated planning and performance at the basic level. This redefined the role of labour and management, and urged consultive support from suppliers. As a result, the implementation of this productive system eliminated many job posts at the middle hierarchical level, which lowered indirect costs and increased productivity.

The implementation of a flexible production system also allowed small and medium enterprises to directly compete with big enterprises since this system did not depend on large-scale production (Julien, 1995). In accepting a growing importance of agglomerated economies, inherent losses of smaller scale economies were compensated. However, some scale economy sectors remain predominant, as in the production of high technological products, standardised components, petrochemicals, chemicals, siderurgy and paper. The implementation of the just-in-time production, another characteristic of dynamic enterprises and a central requirement in core business, offers enterprises the possibility of producing a vast array of economically-made products (in response to the needs of diversified consumer preferences) and short rotation periods, thus delivering cost savings and stock reduction. Associated to the just-in-time production is the phenomenon of group suppliers that track firms, in this way giving rise to industrial districts. Only after the 80s did quality start to become a concern for the majority of firms. Until then, captive markets, relatively insatiable, did not prompt particular interest for quality production. The presence of computerised systems also allowed for an objective assessment on the quality of the products, significantly changing entrepreneurial philosophy.

2.2 Implications at the organisational level of industrial space

When considering the contribution that technological influence has played towards the division of production processes and division of labour, we verify changes at the mass level of the industrial space. The units of vertical large scale production that often lead to regions specialising in a given sector of high industrial density, are progressively generating more segment production lines. These are undertaken by sectors that exhibit increased geographical flexibility, that is, greater spatial distribution of work linked across regions, countries and even worldwide through several management ties, information and transactions. The result is that specialised industrial regions, dictated by markets, are quickly vanishing.

As such, most big enterprises and a rising number of small and medium enterprises are changing the architecture of their spatial organisation, from a single geographical location to multiple geographical locations in various regions and countries.

As a consequence of management decentralisation and non-productive specialised jobs, wider integration in networking, research, marketing and services (that are spatially and internationally spread) are required.

The advent of dynamic enterprises has given local areas, regions and countries of both entrepreneurial and workforce capacity, a geographical advantage in the building of active enterprises. The adoption of such systems, as flexible production and just-in-time production systems, implies major changes in spatial organisation. Its application together with co-operative consulting across the production chain will often lead to production systems that are regionally grouped. However, if this is already the general norm, differences between sectors and specific production phases will be evident given the nature of the products themselves.

Despite the general tendencies, enterprises often look for discrete locations for their manufacturing plants, either in small cities or in the suburbs of bigger ones, in order to avoid competition between enterprises in terms of labour, a factor that could render scarce qualified labour more costly.

As more firms focus on core business and become involved in more complex extra – business networks, competitive efficiency becomes more important to individual enterprises as they begin to rely on other firms to absorb specific stages of the production process. On the other hand, this transition is changing the cost structure of enterprises (Eliasson, 1990), whereby production and assembly costs are being reduced to make room for technological advances. Resulting from the obsolescence of products and processes is the adoption of a flexible production system. While the internationalisation of products causes a rise in costs related to external marketing and logistics,

better transportation conditions and the adoption of the just-in-time production system, on the other hand, generates a decrease in transportation and stock management costs. Greater commitment in the understanding, value and importance of core business has increased costs related to research and development (R&D).

We are concern to evaluate under this context how is the regional capacity to attract firms within the Southern Europe.

3. Methodology of applied analysis to Southern European regions

3.1. Choice of variables

In order to analyse region's capacity to attract entrepreneurial activity, we sampled 43 South European regions from Portugal, Greece, Spain and France. We clustered variables considered as main factors of regional dynamics and concluded a selection on those ones that have been real positives contributes to regional attractability for firms.

This work is based on a combination of variables that observe the degree of regional development, the potential for development and the geographical stationing of dynamic enterprises, i.e., agents of regional growth. Thus, variables such as the quantity and quality of access routes, workforce and workforce flexibility, personnel number, R&D expenditure and jobs, the distribution of gross added value (GAV) and Gross Domestic Product (GDP) per capita, were considered important in characterising the different regions under study. The variables were analysed in relative terms in order to eliminate the effect of different regional dimensions regarding geographical, demographic and economic conditions. As such, we turn to the railway network density (DCAMFERR) and the motorway network density (DAUTOEST) both in kms and per km2, to determine the number of access routes available. In order to obtain some idea of the quality of access routes, road density was considered a relevant variable in measuring against motorway density. However, given the shortage of data for French regions covered by this study, a comparison could not be made. In order to better understand the type of workforce involved, we analysed the ratio of active population over total population (POPACTIV), population density (DENSPOP), non-active population ratios (PNATPA) and non-active 16 years and more (PNAM15PA) over actives for each region. The later will help us determine the total number of non - actives that are over 15 and ascertain the weight they place on each active, since inactives rely on the resources actives generate for subsistence. In terms of quality labour, we turned to the number of students attending school at each stage of the education process (given the difficulty in collecting figures that represent the qualifications held by each active) in relation to the total population. The education process comprises: primary education (EPEPRIMA), lower secondary education (EPEESMI), upper secondary education (EPEESMS) and higher education (EPEESUP). Figures show that effort is being conducted to generate workforce, and inference can be made as to the availability of labour in the future. Population was divided as follows: young individuals under 25 years (JOVENS), adults between 25 and 64 years (ADULTOS) and seniors over 65 years (IDOSOS). Although most regions of developed countries are gradually ageing, this process is more advanced in some regions than in others. The last figure represents the workforce and the ratio between part-time workers and actives (PARTIMPA), indicative of the degree of workforce flexibility. However, this figure may hold a two-fold significance, that is, a representation of either a high number of workers in insecure jobs (thus constituting a negative indicator in the assessment of regional development) or a representation of a high number of overqualified workers who, by the nature of their qualifications/skills, render services to various companies or have part-time jobs, a good indicator of regional development. These figures should therefore be analysed with caution and taken in conjunction with other figures in order to determine the truer context. In terms of the effort provided by R&D, we consider R&D expenses in GDP percentage terms for each region as well as R&D's job percentage of actives. Further, a distinction was made between the genesis of the job and R&D expenses, i. e. business sector (EMPIDEMP, DIDEMP), state (EMPIDEST, DIDEST) and higher state education (EMPIDESU, DIDESU).

Lastly, we use the GAV distribution (VABSECT1, VABSECT2, VABSECT3) as well as per capita GDP (PIBPCAPI) as an indication of the degree of current regional development, that is, the situation various regions actually find themselves in, irrespective of their potential for development (perhaps identifiable from other variables). As already mentioned, other variables, bearing a clearly significant contribution to our analyses, could have been included. These include considering such variables as the Gross Fixed Capital Formation, social well-being, average business size, and inter and intra-regional exchanges. However, difficulties in obtaining desegregated data at Nuts II level imposed certain earlier unsuspected. A further limitation involved being unable to profit from all the variables relative to the corresponding years. This was a factor that could affect the conclusions here drawn.

3.2 Cluster and Discriminant Analyses

Briefly, the methodology comprised several steps. In order to group different regions as homogeneously as possible, a cluster analyses was used. By standardising the variables, we attempted to control the difficulty resulting from the use of different scales of variables. To compare the proximity of all variable's value we used the Square Euclidean Distance. According to this technique, the dis-

Table 1. *The clusteed variables*

	Units of measure	Greece	Spain	France	Portugal
YOUTH	% of total population	1993	1993	1993	1993
ADULTS	% of total population	1993	1993	1993	1993
SENIORS	% of total population	1993	1993	1993	1993
DAUTOEST	km/km^2	1994	1994	1994	1994
DCAMFERR	km/km^2	1994	1994	1994	1994
DIDEMP	% of GDP	1993	1995	1995	1995
DIDEST	% do PIB	1995	1995	1995	1995
DIDESU	% do PIB	1995	1995	1995	1995
EMPIDEMP	% of active population	1993	1995	1995	1995
EMPIDEST	% of active population	1995	1995	1995	1995
EMPIDESU	% of active population	1995	1995	1995	1995
EPEPRIMA	% of total population	1991	1993	1993	1991
EPEESMI	% of total population	1991	1993	1993	1991
EPEESMS	% of total population	1991	1993	1993	1991
EPEESUP	% of total population	1991	1993	1993	1991
DENSPOP	Persons/km^2	1993	1993	1993	1993
POPACTIV	% of total population	1995	1995	1995	1995
PARTIMPA	Part-time/active population	1995	1995	1995	1995
PNAM15PA	Non active population > 15 years/actives	1995	1995	1995	1995
PNATPA	Total non actives/actives	1995	1995	1995	1995
VABSECT1	Sectorial GAV in % of total GAV	1992	1992	1992	1990
VABSECT2	Sectorial GAV in % of total GAV	1992	1992	1992	1990
VABSECT3	Sectorial GAV in % of total GAV	1992	1992	1992	1990
PIBPCAPI	Thousands of ECUS per inhabitant	1995	1995	1995	1995

tance between two cases (i and j) is defined as the sum of the squares of the values of i and j for all variables (v = 1,2,... ,p):

$$d_{ij}^2 = \sum_{v=1}^{p} (X_{iv} - X_{jv})^2$$

The aggregation method used was the Hierarchical Agglomeration. Based on Clusters, a Discriminant analyses was performed. For each given set of cases, whose cluster membership was identifiable, this analysis allowed us to determine which variables contributed most to the differentiation of each group.

4. Analysis of results

4.1 Cluster's characterisation

Through cluster analyses we were able to separate regions into three groups. The makeup of each cluster figures in table 2.

The first cluster comprises Greek regions except Attiki, the Spanish Baleares region and the Portuguese regions except Lisbon and Vale do Tejo. The second cluster consists of the regions Attiki, Lisbon and Vale do Tejo and the Spanish regions except Baleares. The last and third cluster represents the French regions.

Based on the analyses of the mean values for each of the three clusters, we can verify that cluster 1 corresponds to lagging regions, not showing the capacity to develop quickly and sustainedly. Cluster 2 represents those regions that are more developed and have greater potential for development than cluster 1 regions. Finally, cluster 3 comprehends those regions that have already reached a high level of development and, as such, will easily attract dynamic firms.

More detailed, the main characteristics of each cluster are summarised bellow.

Cluster 1 is composed of regions that exhibit weak access routes, both in terms of roads[1] as well as railways. Another distinctive characteristic these regions display is the low population density present, an indication that large urban centres do not exist and, so, lack attractivity. In fact, these regions lose their population given that they are drawn to more developed regions, where more job opportunities lay and better conditions offered. An example is the Alentejo region. In terms of R&D expenses, firms do not have the capacity or interest to go through with big investments in this area, a sign that the entrepreneurial fabric in such regions is insufficiently dynamic and innovative. On the other hand, R&D departments of bigger enterprises are located in larger urban centres or in suburbs, and not in underdeveloped regions, whose traditional industries are stagnant or, at most, only perform intensive labour for big firms. As for R&D expenses carried out by state and higher education institutions, these are superior to those carried out by private firms, though not significant given the lack of funding or technical and human means. In terms of employment connected to R&D in the entrepreneurial sector, firms from these regions produce low level of expenses, as would be fairly suspected. State sector employment connected to R&D, however, shows higher expenses. This is an indication that either there is inefficiency of human resources assigned to R&D or that insufficient funds undermine more demanding research. The same occurs in higher education where R&D related employment is moderate. In terms of education, in its various stages, figures show that these regions maintain a low student population percentage with the exception of the primary school sector. As a result, education tends to fall behind in these regions. The high level of children attending primary education may be an indication that there is very low academic success, which results in students later dropping out of school. In

[1] Only motorways were considered in this study, though it is our belief that the number and quality of other roads are also inferior in these regions).

these regions, workforce flexibility is also not very high given the low qualifications and the lack of specialised labour skills. Indeed, the value generated by the PARTIMPA variable seems to be a direct result of the insecurity jobs hold in these regions rather than the lack of qualifications or skills available. Another distinctive feature these regions display is low per capita GDP, a more evident indicator of slow development. In terms of GAV, there is a high percentage of the primary sector, clearly revealing that these regions remain significantly behind in development. Also, the GAV structure shows a proportion in the services twice the proportion in industry. This is due to the fact that various regions highly depend on tourism, as in the case of Algarve, Madeira and Baleares.

Cluster 2 is composed of regions that have good access routes, particularly roadways, and maintain a high population density. These regions have some large urban centres that attract population from more deprived regions by offering better living conditions and more job opportunities. The R&D effort carried out in these regions is important, although R&D expenses practiced by the entrepreneurial sector remain significantly lower than those practiced by firms from more developed regions, that is, those forming cluster 3. However, it can be observed that entrepreneurial sector from these regions are visibly becoming aware of R&D's importance, a sign that these regions are beginning to develop entrepreneurial firms that regard R&D as fundamental in terms of success and competitiveness.

On the other hand, the State and institutions of higher education belonging to these regions replace those firms that do not yet have a strong capacity to invest in this area, namely developing technological centres that run searches and provide results to interested firms. R&D employment are in tune to the amount of expenses carried out, though the higher education sector reveals excessively high, possibly as a result of lack of efficiency. In terms of education, these regions display good results concerning the number of students that attend the higher stages of education. The values for elementary and intermediate stages of education are satisfactory, an apparent indication that the failure rate is not high. Workforce flexibility is somewhat average, supporting the idea that the level of flexibility remains weak and needs to reach the same levels of more developed regions. In terms of per capita GDP, these regions show to be intermediary, illustrating an average level of development. Lastly, the GAV distribution shows a very weak proportion of the primary sector, but a strong weight of the tertiary sector (almost twice as much as the secondary sector), evidence that GAV is nearing values from more developed regions.

Cluster 3 is comprised of those regions that offer good access routes, in particular railways, which exhibit less costly in the transport of goods and generate less traffic problems. As expected, France was shown to possess a higher number of motorways and shown to maintain railways as a traditional and effective form of transport and networking. However, oddly, the population density is low. Still, if we take into account the fact that these regions surround Île-de-France, which bears the French capital, Paris, then this low population density results from the capital's pole of attraction. In terms of R&D expenses, these are significantly high, mainly arising from private sector. It is also due to this that a majority of entrepreneurial companies choose the location they do, focusing on competitive product quality and innovation. There are advantages when private sector develops R&D instead of the public sector, since these are bound to be performed more efficiently and rationally in research areas of greater need. In turn, these regions are characterised according to a better-qualified labour force, and thus naturally circumvent the need of hiring an excess of highly qualified workers as required in cluster 2 regions. As such, with exception of lower secondary education, these regions present average figures for the different schooling stages and can be tied to the low failure rate in schools. These regions also seem to prefer more technical education, whereby more job specialisations are available and job responsibilities delegated earlier to young people without the need to attend higher education. Supporting strong qualifications and job specialisation in these regions, is the high flexibility that is evident. In terms of per capita GDP, this is naturally superior, while the distribution of GAV is identical to those regions belonging to cluster 2. The small difference weighing the primary sector is related to the sparkling wines weighing heavily in the Champagne-Ardenne region.

Table 2. *Regions by cluster groups*

Cluster 1	Cluster 2	Cluster 3
Anatoliki Makedonia, Thraki	Attiki	Champagne-Ardenne
Kentriki Makedonia	Galicia	Picardie
Dytiki Makedonia	Asturias	Haute-Normandie
Thessalia	Cantabria	Centre
Ipeiros	Pais Vasco	Basse-Normandie
Ionia Nisia	Navarra	Bourgogne
Dytiki Ellada	Rioja	
Sterea Ellada	Aragón	
Peloponnisos	Madrid	
Voreio Aigaio	Castilla-León	
Notio Aigaio	Castilla-La Mancha	
Kriti	Extremadura	
Baleares	Cataluña	
Norte	Comunidad Valenciana	
Centro (P)	Andalucia	
Alentejo	Murcia	
Algarve	Canarias	
Açores	Lisboa e Vale do Tejo	
Madeira		

4.2 Possible restrictions to the results

Upon further analysis, it was clear that the results achieved were negatively influenced by the choice of regions. In fact, the regions chosen prompted that only French regions considered in this study were representative of developed patterns. By forming a cluster based solely on similar regions of the same country, influenced the findings of the analysis. These regions displayed certain very specific characteristics, which are clearly

not representative of the general characteristics of more developed regions. More specifically we refer to the density of motorways, population and the number of students enrolled in the various stages of education. In terms of motorways density, viewed as low in comparison to those displayed by regions belonging to cluster 2, it can still be argued that these regions are in a more developed state if priority is given to railway transportation, lower costs and fewer problems relating to traffic and pollution. As such, this variable ends up possessing a negative standardised coefficient, whereby those regions whose motorway density is high, resulting in a lower discriminatory first function value causing the classification in Cluster 3 less likely, when the contrary should be the case. For this reason, the correlation between this variable and the first discriminatory function is low (a correlation coefficient of 0.025 as opposed to 0.292 for the second function), that is, this variable, in effect, has almost no influence in the classification of a region whether belonging to cluster 3 or not.

On the other hand, the population density is also significantly lower than would be expected, and can be inferred from previous results. Thus, the population density, similar to the motorway density, loses importance in the classification of a region, as one belonging or not to cluster 3.

Finally, we have the number of students enrolled at different schooling stages. It would also be expected that the number of students attending more advanced stages of schooling in this regions be greater than in other regions. It seems that the distribution of the student population depends upon the particularities these regions exhibit. These are regions near Île - de – France, bear the nation's capital and thus constitute a strong pole of attraction to young students wishing to study in the capital, whether it be due to better quality of teaching institutions, whether it be due to a belief that more job opportunities exist or a better quality of life is offered. In this way, in choosing these regions that display this particularity, non – standardised coefficients of variables EPEESMS and EPEESUP are negative for the first discriminatory function (-0,612 e -0,519, respectively). Regions that have a greater number of students at this schooling stage hold, in effect, a lower value in the first function, in which the probability of being classified as belonging to cluster 3 is lower. That is, regions in which the number of students in the stages of higher education is larger, will have a lower probability of being classified as belonging to developed regions, and as such lacks some logic, though some of the justifications earlier proposed lessen this incongruity.

5. Conclusion

The present work constitutes a reflection on the determining factors of regional development and, in particular, the conditions deemed as favourable (or not) for entrepreneurial attractability. The discussion centres on the concept of milieu or territorial environment and is applied to a group of South European regions, many of which bear peripheral characteristics. The possibility in quantitatively assessing the degree of importance of some determining factors is being developed (Vaz and Morgan, 2002). It allows for a better vision of the tools of regional policy and, as such, the intervention of public policies.

The present study could be enriched with the inclusion of a further number of regions, the availability of more variables and the introduction of dynamic variables, through the use of time series.

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