

Territory and entrepreneurial performance
An exercise on some industrial Portuguese regions

Marisa Cesário, Maria Teresa de Noronha Vaz**

**Faculty of Economics, University of Algarve*

Correspondent author:

Marisa Cesário

Faculty of Economics, University of Algarve

Universidade do Algarve

Faculdade de Economia

Campus de Gambelas

8000 Faro

tel. 914624459

mariscesario@vizzavi.pt

Abstract

The present paper was motivated by the recent interest put on the regional context as having a major role tracing economic agents behaviours and inducing productive activity. Three main goals have been defined: to emphasise the relation between favourable regional factors for development and firm performance in the case of the most industrialised Portuguese regions; to distinguish in each region its own propensity for sustainable development and to evaluate if the region may be considered as intrinsic co-operative or resistant to co-operation.

Methodologically, the analysis followed three major steps: 1) selection of regions with industrial characteristics; 2) creation and use of the endogenous growth capacity indicators; 3) consequent analysis of the SMEs (small and medium size firms) behaviour's evolution.

Based on Multivariate Analysis, the following regions were selected: Ave, Entre Douro e Vouga, Baixo Vouga, Pinhal Litoral and Península de Setúbal. Basically, they represent the areas where industrial activity is predominant in Portugal.

When comparing the observed local environmental conditions of these regions with the results for the performance of their small firms, some conclusions could be achieved, regarding to three major issues: the relation between regional development factors development and firm performance; the regional propensity for sustainable development and the regional adequacy to networking.

Key words: *territorial systems of production; local endogenous capacities; SMEs performance.*

1. Introduction

The concept of territorial system emerges, to define the different forms of territorial organizations as environments for socio-economic agents. Considering that these environments are essential incubators for a dynamic economic activity, an important issue is to improve the understanding of how is the behaviour of small firms in such contexts.

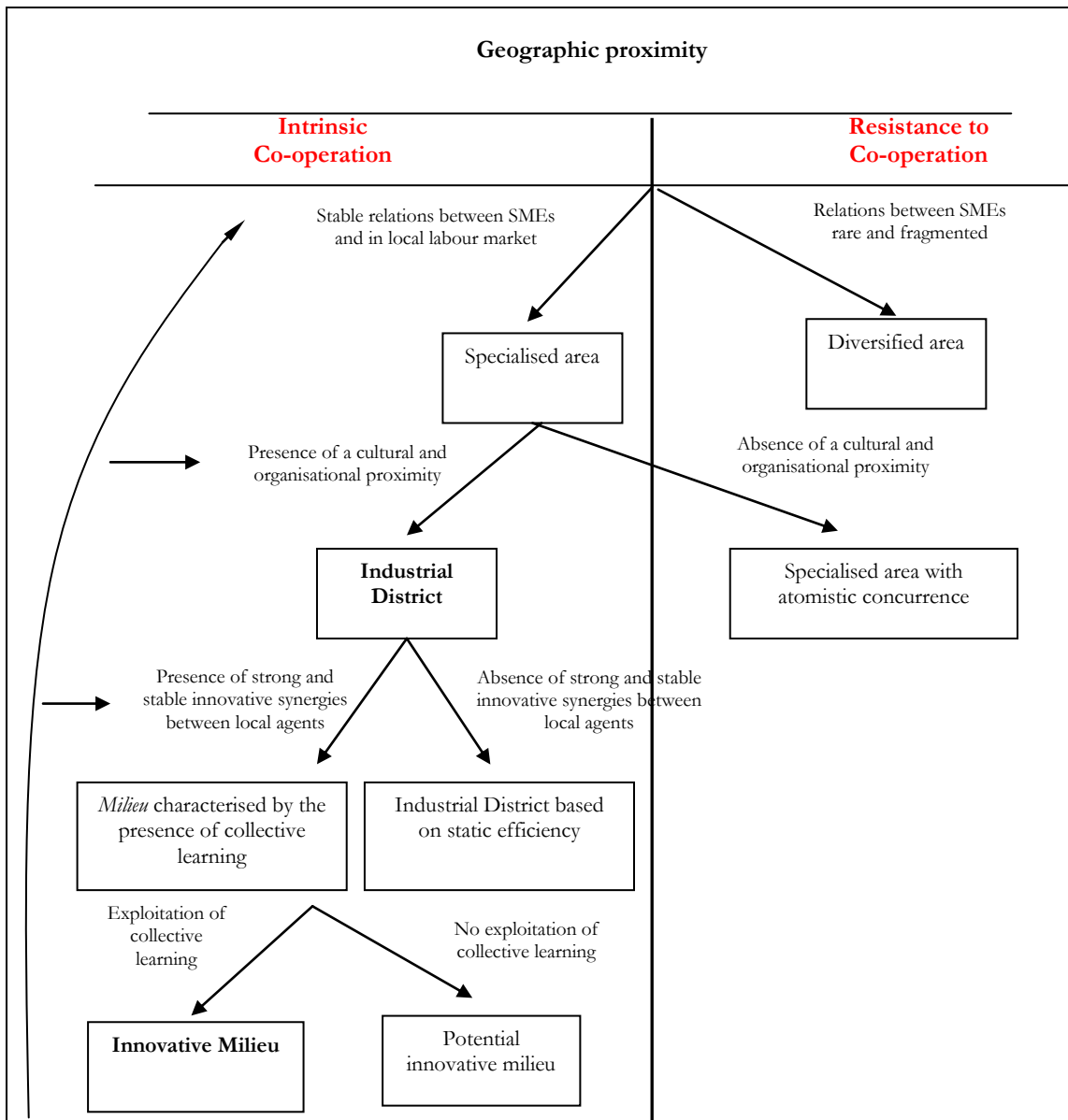
The systematic attempts to analyse and report new forms of productive system and organisation have originated a vast list of new concepts. Our paper suggests a simplified bibliographic base that avoids the existing of confusing notions as pointed out by Markussen (1999). It suggests the importance of the regional effects upon the efficiency of firms. The base is supported by the concept of territorial systems of production (TSP), introducing some clarification on this subject: 1) Maillat (1996) summarised it making reference to homogeneous territories, specialised in certain productive activities and whose characteristics make them compatible with firm's small dimensions. The used inputs in such productive activities are specific to the territory and the relationships between agents based essentially on mutual trust. 2) Storper and Harrison (1991) had previously contributed, arguing that the TSP concept embrace Input – Output structure (set of interconnected productive units), a governance structure (authority and power) and territoriality (whether being dispersed or concentrated). 3) Capello (1999) added to the concept of geographic proximity the need to include different forms of productive organization.

Figure 1 describes the distinctions between different territorial systems appealing to the main characteristics behind the concepts of the Industrial Districts or Innovative Milieu, the figure also allows perceiving two distinct situations regarding firm's positioning in their local environments: what could be called an "intrinsic co-operative attitude" and "resistance to co-operation". These are two different behavioural paths that can be explained throughout historical factors.

The efforts expressed above may be considered as expressing a need to integrate in a sole concept the notion of the environmental impact and co-operation. Indeed, in a recent article Arena and Romani (1998), mentions Marshall to call the attention to the fact those firms, small or big ones, depend on the historical and institutional environment in which they integrate. This means that considerations related to the way how the productive units rely on the possibility to find external economies exist since a long time ago. They have been initially understood as highly linked to organisational capacity and labour

specialisation. Also the present research on innovation dynamics has added elaborated ideas to explain the concept underlying spatial embeddedness and its impact upon changes in the production forms (M.T.N. Vaz, 2004). In this work we followed this theoretical line but have modest goals: 1) to emphasise the relation between favourable regional factors for development and firm performance in the case of the most industrialised Portuguese regions, 2) to distinguish in each region its own propensity for sustainable development, 3) to evaluate if the region may be considered as intrinsic co-operative or resistant to co-operation.

Figure 1
Definition of Territorial Systems



Source: Based on Capello, 1999.

2. Spatial embeddedness and learning

Avermaete (2004) pointed out the many aspects to take in account when spatial embeddedness is discussed: the proximity among other related units of production, human capital performance and perception of regional, national or international facilities. In those cases knowledge creation is has been referred as the common factor and the main condition for innovation to take place (Nonaka et al., 2000).

The presented figure 1 hides a very complex reality and the notions of innovative milieu or industrial districts are too simple to express the reality when embeddedness and coordination integrate.

It is possible that the concept of networking, used to describe an organizational agreement between several partners, allowing them to use complementary resources and to increase the efficiency of their organizational abilities (Maillat, 1993, cited in Nicolas and Vaz, 2002), have developed in order to deal with the new forms of economic complexity. Recently, phenomena such as informal relations, direct contacts, co-operation agreements, strategic sub-contracting and alliances gained relevance. Such forms of relationship aim, above all, to reduce the uncertainty of economic contexts. But in the process they also improve territorial competitiveness (Bramanti, 1999, p. 644). While the local milieu (thus assigned by the GREMI) has, mostly, a role of promoting local synergy, the networking capacity appears as the opportunity of opening to the exterior.

Recognising that knowledge and learning are determinant factors to the performance of economies, regions and firms and generate different networking dynamics, a better perception of the different aspects of embeddedness can be obtained distinguishing codified knowledge from tacit knowledge. While the first one promotes standardised communication, the second one is intrinsic to individuals and organizations, helping in the exchange of informal interactions. It concerns experience and insights (Nightingale, 1998).

Recent developments in information and communication technologies have made codified knowledge easily available regardless of location (Malmberg and Maskell, 2002), while tacit knowledge tends to concentrate in certain geographic spaces. For this reason while codified knowledge hardly is a source of competitive advantage, tacit knowledge is becoming an increasing factor of industrial attraction and firms tend to spatial proximity

to benefit from this gain. This circumstance should be also considered while taking into account the capacity of firms to belong to networks.

The concepts of learning economy and learning region (this later resulting from the transposition of the earlier to the regional level) emerge offering the theoretical basis to better understand the environments where the processes of learning take a central place (Maillat and Kebir, 1999, p. 430).

Regions have, indeed, a fundamental role in the new era of learning. The passage to capitalism based on intensive knowledge, goes behind individual firm strategies and emphasises firm dependency to regional elements. Contrarily to what could be expected, the globalisation process (mainly based on specific resources, as know-how and skills) doesn't mean the extinction of territories contributing to the emergency of new forms of spatial organisation as certain types of knowledge and information are easier exchanged in environments based on the proximity and concentration of firms.

Florida (cited in Maillat and Kebir, 1999) define learning region as an environment that allows an easy flow of ideas and offers the crucial inputs to a knowledge intensive economy: a network of suppliers, human capital, communication infra-structures, financial capital and a governance structure.

This context of discussion takes particular interest when the interaction between small firms and learning region is perceived. In contrast to big companies, SMEs interact intensely with the territory where they are located. They provide not only a suitable market to their production, but also the necessary information to perceive the development of marketing tendencies (competition, political changes and consumer's behaviour changes). In contrast to big companies, that use their power to control uncertainty and risk, SMEs use the elements of its space to do it (Julien, 1995, p. 135). Learning is therefore for them of crucial importance.

To note, however, that the process is not unilateral: the more the territory offers to small firms, the more dynamic they become and the more they offer the territory. Maillat (1991) argues that, regarding the already mentioned concept of territorial systems of production, the role of SMEs is strategic. Using the relations (commercial or not) that they keep with other local companies, the SMEs contribute for the dynamism of regions. The fact that they behave on a territorial logic, makes their efficiency dependent on its environment.

3. Methodology

Methodologically, the analysis followed three major steps: 1) selection of regions with industrial characteristics; 2) creation and use of the endogenous growth capacity indicators; 3) consequent analysis of the SMEs (Small and medium size firms) behaviour's evolution.

3.1. Selection of regions

The first step of the empirical analysis corresponds to the selection from the 28 Nuts III Portuguese regions with industrial characteristics. So that the analysis can be the most complete as possible, such selection was carried out using clustering methods in order to group under an extended base of indicators. Those are able to reproduce each one of the regional productive structure. The list of chosen indicators is presented in **Annex 1** with indication over the time periods.

The aggregation criteria used was the *Average Linkage between Groups*, defining the distance between two groups, i and j, as being the average of distances between all pairs of individuals from the two groups.

To validate the results and to determine the appropriate number of clusters, the agglomeration matrix, the vertical icicle and the *dendogram* will be used as elements of analysis. The 28 regions result grouped as described in table 1.

The *Discriminant Analysis* will allow characterising with detail each one of the resulting clusters, verifying the variables that most contributed to the differentiation between groups. The discriminant method Stepwise was used and the selection criteria for the chosen variables were based on the values of the *Wilks Lambda* statistics¹.

¹ The application of this analysis goes through the following steps:

- 1) Definition of the method for the attainment of the discriminant functions: Stepwise method was used, entering in the function the variables that in each moment minimize the indicator given by the following ratio: sum of the squares of the distances inside groups / total sum of the square of the distances;
- 2) Analysis of univariate statistics: the analysis of these statistics, developed for each variable individually, is made through the matrix of averages and standard deviations of each variable and by cluster. From this matrix, tests to the ighality of group averages are developed, indicating the level of variability between groups. There are three kinds of tests: the Wilks Lambda test, the F test and the significance level test. Low values for the Wilks Lambda and significance level (<0,05), as well as high values for the F test (>3,84) indicate a higher variability between groups and a smaller variability inside each group. This means that these values indicate satisfactory group homogeneity. In the

Table 1
Grouping regions according to their productive structure

<i>Cluster</i>	Regions
1	Serra da Estrela, Beira Interior Norte, Beira Interior Sul, Oeste, Cávado, Cova da Beira, Dão Lafões, Pinhal Interior Sul, Tâmega, Pinhal Interior Norte, Minho Lima, Baixo Mondego, Médio Tejo, Grande Porto, Grande Lisboa, Lezíria do Tejo, Alto Alentejo, Alentejo Central, Algarve.
2	Entre Douro e Vouga, Baixo Vouga, Pinhal Litoral, Península de Setúbal, Ave.
3	Douro, Baixo Alentejo, Alto Trás os Montes, Alentejo Litoral.

Source: Own elaboration.

For a three clusters starting situation, (k clusters), the discriminant analysis give us two functions (k-1) that allow to identify the variables with higher discriminatory weight between groups. In the **first discriminant function**, the variables with higher correlation coefficients were: **PRODUTIV2** (positive correlation), **FEDERIND**, **EMP2** (both with negative correlation) and **EMP1** (positive correlation). Given the behaviour of these variables, and taking into account that the positive correlation associated to regional productivity in secondary sector can be due to the lower proportion of employment in this sector, we can tell that this first function is mostly related to the **primary sector in the regions**. In the **second discriminat function** we have: **FEDERIND**, **EMP2**, **PRODUTIV2**, **VREXP** (all with positive correlation) and **EMP1** (with negative correlation). In this case we have a function that clearly indicates the **weight of secondary sector in the regions**.

It is necessary to highlight the fact that this analysis does not catch tertiary sector's behaviour, since all variables related to it did not register a significant discriminatory weight.

Figure 2 allow observing each cluster's behaviour regarding the two functions. Synthetically:

- **Cluster A:** medium weight of sector I / low level of industrialization;

present case, the variables that registered a significant discriminatory power were: secondary sector productivity, the amounts of ERDF participations in industry and the proportion of employment in primary and secondary sectors.

3) Interpretation of the discriminant function's coefficients: in order to better measure the relation between each variable and the related function, one should use the correlation coefficients, that give us simple correlations, independent from the other variables effects. From the values for the correlation coefficients (also called structural coefficients) we can interpretate each function, being even possible to name it based on the most important variables .

- **Cluster B:** low weight of sector I / high level of industrialization;
- **Cluster C:** high weight of sector I / medium level of industrialization.

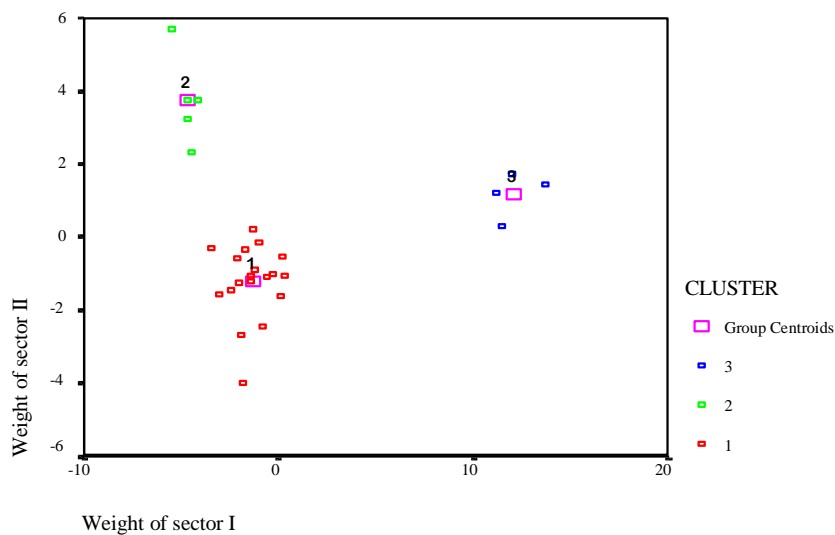
In detail, we have in group A regions that are in some way, atypical, where none of the three sectors is salient: a primary sector with reduced weight, even if higher than registered in group B, and the lowest industrialization level among the three groups.

In group B we have the regions where, in fact, secondary sector is very important, being the primary sector very insignificant. These are the regions that most have benefited from ERDF to industry in the period 1994-1999, also the regions with higher proportion of employment in secondary sector and where this same sector registered the better level of regional productivity. We should also emphasise the positive behaviour of exports, with a growing tendency between 1995 e 1998.

In the third group we have the regions where the primary activity is mostly salient and with the lowest level of industrialisation.

According to our objectives, the group to be used in the following analyses is the group B, composed by: **Entre Douro e Vouga, Baixo Vouga, Pinhal Litoral, Península de Setúbal e Ave.**

Figure 2
Clusters evaluated by discriminant functions



3.2. Endogenous growth indicators

The next step of the study includes the analysis of regional indicators to allow the better understanding of the regional endogenous growth capacity. The variables are related to the level of accessibility, disposability and qualification of labour force and demand patterns, in a total of 27 indicators (19 static and 8 dynamic). The choice of indicators, limited to the availability of statistical information, reflects the local attraction conditions of regions as incubators of economic activities. Next table sums up that information.

Table 2
Endogenous growth capacity indicators

Indicator	Unit	Year	Ave	Entre Douro e Vouga	Baixo Vouga	Pinhal Litoral	Península de Setúbal
GDP per capita	10 ⁶	1998	1,6394	1,7113	1,9607	1,9163	1,5994
% GDP pc	%	1998	0,8517	0,8890	1,0186	0,9955	0,8309
Population density	10 ³	1998	0,3908	0,3114	0,2019	0,1330	0,4421
Total GAV / Employment	10 ⁶	1997	3,1848	3,2910	3,5389	3,3198	4,1002
Km of routes / area		1997	0,2536	0,2130	0,1882	0,1534	0,2139
Secondary level students / Pop. 25-64	%	1998	0,0674	0,0610	0,0812	0,0918	0,0937
Superior level students / Pop. 25-64	%	1998	0,0100	0,0083	0,0508	0,0393	0,0377
R&D expenses/ GDP a)	10 ⁶	1997	0,0038	0,0038	0,0063	0,0063	0,0081
% R&D public expenses a)	%	1997	0,5918	0,5918	0,6334	0,6334	0,6386
% Employment in inform. and R&D a)	10 ³	1998	0,0229	0,0229	0,0194	0,0194	0,0545
Exports / Imports		1998	1,5731	1,7629	1,1159	0,8045	1,4012
EFRD Science and Technology	10 ⁶	94-99	0,0479	0,0440	1,1738	0,1621	0,4691
EFRD Transports	10 ⁶	94-99	1,3592	1,6267	2,4513	1,1288	1,6049
Pop. <25 / Total Pop.	%	1998	0,3686	0,3442	0,3284	0,3198	0,3141
Pop. 25-64 / Total Pop.	%	1998	0,5292	0,5355	0,5287	0,5334	0,5567
Unemployment rate a)	%	1998	0,0488	0,0488	0,0249	0,0249	0,0608
Revenue per capita a)	10 ⁶	1995	1,0014	1,0014	1,0589	1,0589	1,3413
% Family basic expenses a)	%	1995	0,3102	0,3102	0,2996	0,2996	0,2907
% Family expenses in culture and leisure a)	%	1995	0,0410	0,0410	0,0410	0,0410	0,0451
Δ GDPpc	%	90/98	0,9028	1,0352	0,9406	1,0434	0,8780
Δ Population density	%	90/98	0,0530	0,0611	0,0411	0,0377	0,0502
Δ Productivity	%	90/97	0,9106	0,8450	0,8235	0,8207	0,6948
Δ Students	%	95/98	0,1105	0,1798	0,0863	0,1376	-0,0275
Δ R&D expenses a)	%	95/97	0,2150	0,2150	0,2874	0,2874	0,2456
Δ Employment IR&D a)	%	95/98	-0,3059	-0,3059	0,5210	0,5210	-0,1359
Δ Pop. 25-64	%	95/98	0,1692	0,1509	0,1070	0,0911	0,0827
Δ Unemployment rate a)	%	95/98	-0,2246	-0,2246	-0,3777	-0,3777	-0,3315

Source: Own elaboration from INE data. a) Values referring to the correspondent Nuts II.

3.3. Small firm's performance

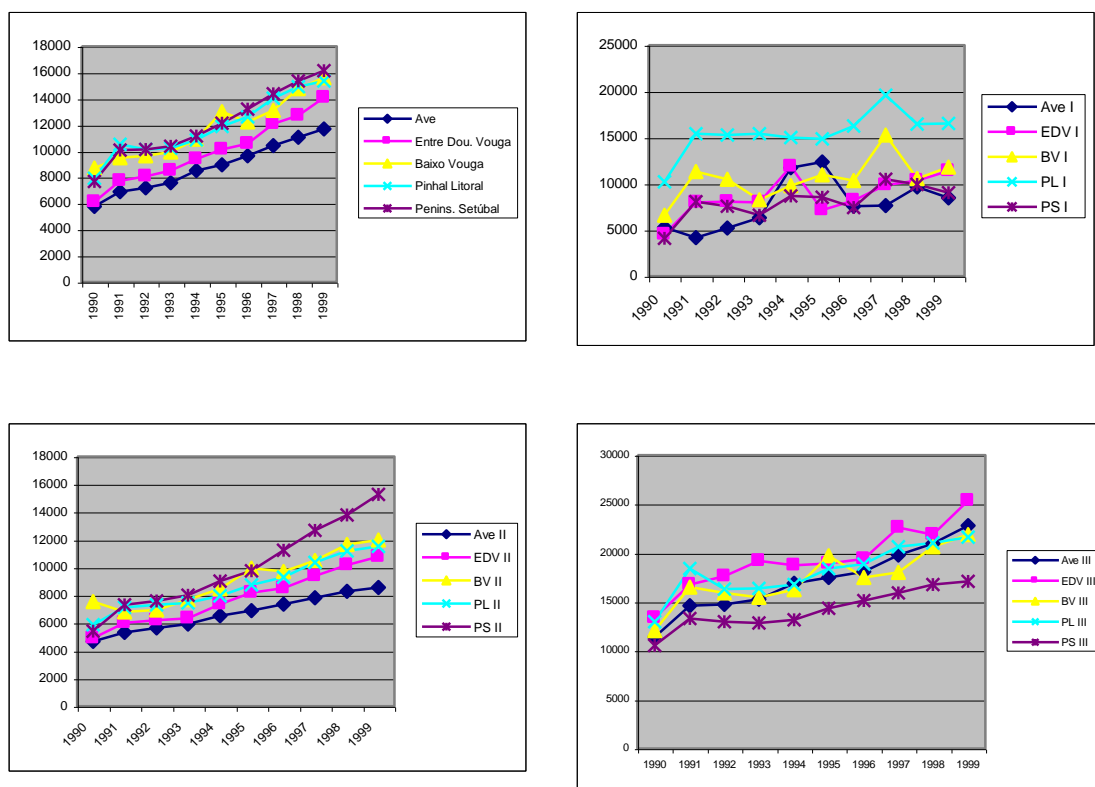
This point is an exercise to observe SMEs' performances related to regional and sectorial productivity (see detailed description of sectors in **annex 2**). Not being possible to use the productivity indicator (as data for GAV are not available at the Nuts III level of desegregation), we use the proxy given by the ratio: turnover / employment, as an entrepreneurial performance indicator. Comparing such indicators at Nuts III level with the previous data, we are able to detect the potential adequacy of certain regions to eventually generate better entrepreneurial environments.

The source of information was the Ficheiro Central de Empresas, from INE (data in **annex 3**), that considers the entrepreneurs with its seat in the region. Individual entrepreneurs were not included, being also excluded all firms with confidential data for turnover or employment. To note also, that this data does not correspond to a sample of firms referring to the entire universe of Portuguese small firms. We have considered as SMEs all firms with less than 200 employees.

The Graphic 1 give us the results of Productivity proxy indicator when aggregated for all economic sectors and desegregated to each sector of the economic activity.

Graphic 1

Turnover / Employment in SMEs (all sector, sector I, II and III) – 1990 a 1999



Source: Own elaboration based on FCE – INE data

4. Analyses of the results

4.1. Relation between regional factors for development and firm performance

Based on the list of endogenous growth indicators given above, an *attraction index* was created using the simple mean value for the set. Also, based on the results for firm's productivity (given on annex 3), the average growth rate for the period 1990-1999, was calculated, both for all sectors simultaneously and for each sector individually. Table 3 sums up these results, allowing an easier comparison of the regional performances.

Table 3
Regional factors for development versus firm performance

	Ave	Entre Douro e Vouga	Baixo Vouga	Pinhal Litoral	Península de Setúbal										
Regional Attraction Index	0,523193	0,547211	0,635226	0,527496	0,576274										
Firms productivity for all sectors	7,37%	8,94%	6,22%	7,23%	7,98%										
Firms productivity by sector	sector I 9,23%	sector II 6,33%	sector III 7,44%	Sector I 13,6%	Sector II 8,44%	Sector III 7,02%	sector I 9,67%	sector II 4,99%	sector III 6,92%	sector I 6,14%	sector II 7,14%	Sector III 5,94%	Sector I 12,3%	Sector II 11,3%	sector III 5,19%

Source: Own elaboration from INE data.

4.2. Regional propensity for sustainable development

From the list of endogenous growth indicators, a particular set has been selected in order to analyse the regional propensity for sustainable development. The selection was made considering those indicators that would better express the existence of a cultural or educational base able to induce tacit knowledge. The list can be observed in Table 4.

We have given a particular significance to regional expenses in all kinds of efforts in R&D and superior formation. We consider that it would have been very important to include in this list the number of engineers working at the region or firms directly investing in R&D. However, such variables were not available at such a desegregation level. We should note when observing the results that some deviations can be caused by the fact that the ratio private/public investment in R&D is not being supplied. Indeed we know that the multiplier effect of expenses in private R&D is generally much higher than in public R&D. Also, those regions that include universities or technical institutes may also concentrate such expenses.

Table 4
Regional propensity for sustainable development

Indicator	Unit	Year	Ave	Entre Douro e Vouga	Baixo Vouga	Pinhal Litoral	Península de Setúbal
Sec. level students / Pop. 25-64	%	1998	0,0674	0,061	0,0812	0,0918	0,0937
Sup. level students / Pop. 25-64	%	1998	0,01	0,0083	0,0508	0,0393	0,0377
R&D expenses/ GDP a)	106	1997	0,0038	0,0038	0,0063	0,0063	0,0081
% R&D public expenses a)	%	1997	0,5918	0,5918	0,6334	0,6334	0,6386
% Employment in Inf. R&D a)	103	1998	0,0229	0,0229	0,0194	0,0194	0,0545
EFRD S&T	106	94-99	0,0479	0,044	1,1738	0,1621	0,4691
Δ Students	%	95/98	0,1105	0,1798	0,0863	0,1376	-0,0275
Δ R&D expenses a)	%	95/97	0,215	0,215	0,2874	0,2874	0,2456
Δ Employment IR&D a)	%	95/98	-0,3059	-0,3059	0,521	0,521	-0,1359
Average			0,0848	0,0912	0,3177	0,2109	0,1538

Source: Own elaboration from INE data.

a) Values referring to the correspondent Nuts II.

4.3. Regional adequacy to networking

Table 4 lists those indicators related to accessibilities, regional income, opening to the exterior, young population and expenses in leisure and culture.

Table 5
Regional adequacy to networking

Indicator	Unit	Year	Ave	Entre Douro e Vouga	Baixo Vouga	Pinhal Litoral	Península de Setúbal
Total GAV / Employment	106	1997	3,1848	3,291	3,5389	3,3198	4,1002
Km of routes / area		1997	0,2536	0,213	0,1882	0,1534	0,2139
Exports / Imports		1998	1,5731	1,7629	1,1159	0,8045	1,4012
EFRD Transports	106	94-99	1,3592	1,6267	2,4513	1,1288	1,6049
Pop. <25 / Total Pop.	%	1998	0,3686	0,3442	0,3284	0,3198	0,3141
Revenue per capita a)	106	1995	1,0014	1,0014	1,0589	1,0589	1,3413
% Family basic expenses a)	%	1995	0,3102	0,3102	0,2996	0,2996	0,2907
% Family expenses in culture and leisure a)	%	1995	0,041	0,041	0,041	0,041	0,0451
Δ Productivity	%	90/97	0,9106	0,845	0,8235	0,8207	0,6948
Average			1,0003	1,0484	1,0940	0,8829	1,1118

Source: Own elaboration from INE data.

a) value for the correspondent Nuts II region.

We believe that such indicators show evidence to external exposure and therefore may propitiate a higher capacity of regions to absorb new technologies, new life styles and new productive tendencies, inducing institutions to co-operate and better network inside in the regions.

5. CONCLUSION

When comparing turnover/employment ratios of the SMEs of the most industrialized Portuguese regions, we can observe that for the global economic activity these small firms do supply a higher contribution to the regional productivity in Peninsula de Setúbal. This results from the fact that Setúbal is the most industrialized region, benefiting from the proximity to the capital. An attentive observation of the data set shows the very interesting potentialities of the tertiary sector in Entre Douro e Vouga whose ratio increase was by far the highest. The fact that Setúbal is not accompanying the other regions in terms of productivity for the tertiary sector should constitute concern to governmental policy makers.

From the comparative ranking between small firms productivity in all sectors and the proposed regional attraction index, we have concluded that in spite of fact that Entre Douro e Vouga is the most productive region in terms of SMEs, the region that offers better regional conditions for SMEs is Baixo Vouga by far. It is interesting to observe that increases in the productivity of the primary sector are very significant in the case of most of the considered industrial regions. On the contrary, the firms' productivity in the tertiary sector is quite low suggesting the need for faster development of organizational innovation and the inclusion of new support services. Portuguese centralism and reduced dimension may explain that firms import support services from neighbour areas.

Under such condition we should observe what his the regional propensity for sustainable development. The analyses of the created index indicates a serious regional gap with a clear higher value for Baixo Vouga and Pinhal Litoral, determined by the influence of Aveiro, a middle size town.

Finally, we would like to conclude whether or not such regions are intrinsic co-operative or resistant to co-operation. However, the available indicators do not allow an adequate answer to this question. Indeed, firm entrepreneurial interchange and cooperation must be measured using primary data bases, enquiries. The context of this paper was not related with such empirical analytical method, so in order to try a possible reply we have considered a new index, that we have called the regional adequacy to networking. In this

case the Peninsula the Setúbal shows a higher capacity to interchange clearly justified by the existence of higher incomes but not by the existence of the best accessibilities or the youngest population.

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Annex 1 – Productive Structure Indicators

STATIC INDICATORS	YEARS	CALCULATION	OBTAINED INFORMATION
PRODUT1	1997	GAV sector I regional / Employment regional I	Regional productivity indicator - primary sector
PRODUT2	1997	GAV sector II regional / Employment regional II	Regional productivity indicator – secondary sector
PRODUT3	1997	GAV sector III regional / Employment regional III	Regional productivity indicator – tertiary sector
TXCOB	1998	Exports / Imports	Exchange terms indicator
FEDERCOM	1994 to 1999	(Amount of ERDF participations in Commerce in the period 94-99) / Total Pop. / 6 years	Community support indicator to regional development - Commerce - yearly average
FEDERIND	1994 to 1999	(Amount of ERDF participations in Industry in the period 94-99) / Total Pop. / 6 years	Community support indicator to regional - Industry – yearly average
FEDERSER	1994 to 1999	(Amount of ERDF participations in Services in the period 94-99) / Total Pop. / 6 years	Community support indicator to regional development - Services - yearly average
EMP1	1997	Employed Pop. in sector I / Total Employment	Weight of primary activity
EMP2	1997	Employed Pop. in sector II / Total Employment	Weight of secondary activity
EMP3	1997	Employed Pop. in sector III / Total Employment	Weight of tertiary activity
NOVAEMP1	1998	(Constituted firms from sector I – dissolved firms from sector I) / Total number of firms from sector I	Indicator of entrepreneurial activity dynamism - primary sector
NOVAEMP2	1998	(Constituted firms from sector II – dissolved firms from sector II) / Total number of firms from sector I	Indicator of entrepreneurial activity dynamism - secondary sector
NOVAEMP3	1998	(Constituted firms from sector III – dissolved firms from sector III) / Total number of firms from sector I	Indicator of entrepreneurial activity dynamism - tertiary sector
DYNAMIC INDICATORS	YEARS	CALCULATION	OBTAINED INFORMATION
VREXP	95/98	Growth rate	Exports growth indicator
VRIMP	95/98	Growth rate	Imports growth indicator
VREMP1	90/97	Growth rate	Employment growth indicator - primary sector
VREMP2	90/97	Growth rate	Employment growth indicator – secondary sector
VREMP3	90/97	Growth rate	Employment growth indicator - tertiary sector

Source: Own elaboration.

Annex 2 – NACE Codes (Portuguese terminology)

CAE Rev 1 from 1973:

- 1 - Agricultura, silvicultura, caça e pesca
- 2 - Indústrias extractivas
- 3 - Indústrias transformadoras
- 4 - Electricidade, gás e água
- 5 - Construção e obras públicas
- 6 - Comércio por grosso e a retalho; restaurantes e hotéis
- 7 - Transportes, armazenagem e comunicações
- 8 - Bancos e instituições financeiras; seguradoras; operadores sobre imóveis e serviços prestados às empresas
- 9 - Serviços prestados à colectividade, serviços sociais pessoais
- 0 - Actividades mal definidas

Note:

Sector I – 1

Sector II – 2+3+4+5

Sector III – 6+7+8+9

CAE Rev 2 from 1992:

- A - Agricultura, produção animal, caça e silvicultura
- B - Pesca
- C - Indústrias extractivas
- D - Indústrias transformadoras
- E - Produção e distribuição de electricidade, de gás e de água
- F - Construção
- G - Comércio por grosso e a retalho; reparação de veículos automóveis, motociclos e de bens de uso pessoal e doméstico
- H - Alojamento e restauração (restaurantes e similares)
- I - Transportes, armazenagem e comunicações
- J - Actividades financeiras
- K - Actividades imobiliárias, alugueres e serviços prestados às empresas
- L - Administração pública, defesa e segurança social obrigatória
- M - Educação
- N - Saúde e acção social
- O - Outras actividades de serviços colectivos, sociais e pessoais
- P - Famílias com empregados domésticos
- Q - Organismos internacionais e outras instituições extra-territoriais

Note:

Sector I – A+B

Sector II – C+D+E+F

Sector III – from G to Q

Annex 3 - Turnover / Employment

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Ave	5794	6878	7212	7575	8494	8948	9621	10421	11068	11686
sector I	5281	4165	5192	6352	11756	12364	7550	7653	9649	8458
sector II	4665	5309	5643	5909	6515	6893	7337	7833	8260	8571
sector III	11400	14576	14746	15260	16870	17471	18080	19803	20977	22827
Entre Dou. Vouga	6107	7706	8083	8517	9395	10138	10569	12062	12709	14111
sector I	4511	8019	8061	7993	11871	7152	8190	9869	10363	11372
sector II	4884	6005	6192	6359	7374	8210	8498	9407	10165	10783
sector III	13338	16786	17632	19214	18715	18922	19366	22571	21848	25374
Baixo Vouga	8706	9502	9624	9950	10901	13018	12236	13132	14771	15597
sector I	6596	11302	10514	8232	9768	10975	10343	15300	10543	11800
sector II	7559	6824	6961	7675	8490	9962	9709	10495	11645	11983
sector III	12065	16500	15887	15467	16216	19685	17500	17994	20663	21900
Pinhal Litoral	7918	10540	10107	10217	10857	11884	12616	14039	14901	15341
sector I	10225	15396	15297	15403	15018	14874	16216	19578	16431	16515
sector II	5869	7111	7332	7471	7968	8732	9300	10382	11207	11535
sector III	12997	18416	16290	16368	16754	18431	18850	20620	21042	21609
Penins. Setúbal	7698	10064	10147	10348	11136	12124	13195	14383	15356	16154
sector I	4067	8025	7597	6564	8658	8572	7436	10495	9935	9050
sector II	5418	7334	7594	8019	9031	9753	11262	12679	13796	15288
sector III	10570	13292	12988	12863	13159	14362	15160	15939	16775	17114

Source: Ficheiro Central de Empresas, INE.

Note: individual entrepreneurs were not included, not either firms with confidential data for turnover or employment.

Annex 4 – Productive Structure Indicators

Indicator	Unit	Year	Ave	Entre Douro e Vouga	Baixo Vouga	Pinhal Litoral	Península de Setúbal
Total GAV / Employment	10 ⁶	1997	3,1848	3,2910	3,5389	3,3198	4,1002
GAV I / Employment I	10 ⁶	1997	0,3343	0,5140	0,7616	0,5161	2,5374
GAV II / Employment II	10 ⁶	1997	3,2374	3,5429	3,6795	3,1045	4,9657
GAV III / Employment III	10 ⁶	1997	3,9837	3,9598	4,8896	5,0096	3,7651
% Employment I	%	1997	0,0924	0,1249	0,1821	0,1809	0,0598
% Employment II	%	1997	0,6188	0,5714	0,4951	0,4603	0,3403
% Employment III	%	1997	0,2889	0,3037	0,3228	0,3588	0,5999
% New firms I	%	1998	0,0746	0,0133	0,0512	0,0563	0,0486
% New firms II	%	1998	0,0865	0,0688	0,0724	0,0745	0,0975
% New firms III	%	1998	0,1151	0,1039	0,0826	0,0965	0,0969

Source: Own elaboration from INE data.