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Competitiveness and Public-Private Partnerships: Towards a More Decentralised Policy

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COMPETITIVENESS AND PUBLIC-PRIVATE PARTNERSHIPS: TOWARDS A MORE DECENTRALISED POLICY

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In this contribution, we analyse the pattern of the so-called PIP (Partnerships and Public Initiatives) that have been approved between 2000 and mid-2003 in the POE¹ framework. In particular, we will evaluate the extent of decentralisation that this new instrument has generated in competitiveness policy.

Partnership approaches are a relatively recent phenomenon, but partnerships have received widespread attention and support from economic and political agents, including policy makers at national, regional and local levels. In fact, the term “public-private partnership” covers a wide range of concepts and practices. In our contribution, we will focus on partnerships in a competitiveness policy framework.

In a first section, we discuss briefly the meaning and the extent of what we call competitiveness policy. Then, in a second section, we focus our attention in public-private partnerships as a specific instrument for policy. In particular, we make a first assessment on the distinctive principles that differentiate public-private partnerships from more traditional instruments such as direct investment in public agencies or direct subventions to firms. We follow the perspective that these principles, mainly decentralization of policy, may contribute to a greater effectiveness of policy, because a more decentralised policy is supposed to increase focus and accountability and to involve agencies with specialized skills and a more narrow range of objectives. But, also, we will refer that some inefficiencies and some lack of equity may arise from the use of private-public partnerships instrument.

Finally, in the main section of this contribution, we will analyse the above-mentioned questions considering the case of the 131 PIP projects approved and financed by the POE between 2000 and mid-2003. As the major part of the variables used are nominal, and in order to define the decentralization pattern induced by this new instrument, we will use multivariate data analysis techniques in order to establish associations between several variables linked to decentralisation criteria and, also, to identify clusters of projects.

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1. COMPETITIVENESS AND POLICY

Competitiveness means the capability of economic unities (firms, territories, countries) for increasing their shares in global markets. So, competitiveness has to do, first of all, with firms of the tradable goods sectors: in order to be or remain competitive, firms that are submitted to international competition must increase their efficiency by improving their organization and by innovative activities. However, firms competitiveness relies on a set of factors that exceeds either the firm sphere or the tradable goods sectors.

First, these factors include the conditions in primary input markets. An adequate provision of primary inputs that can be accumulated such as capital and equipments, human capital and knowledge, and efficient markets for these inputs, are usually considered as the main aspects of competitiveness and growth conditions. Neoclassical growth theory (Solow, 1956; Lucas, 1988; Romer, 1990) or standard factorial and neo-factorial theories of international trade are focused on this dimension of competitiveness factors.

Second, competitiveness also relies on an adequate provision of public goods or services. The relevance of public goods for competitiveness and growth has been pointed out by pioneers such as Aschauer (1989) and justified by externalities generated by public investment in infrastructures. More recently, neoclassical authors also called the attention for the impact in growth of institutional and politic conditions, namely those that afford the respect for proprietary rights (Barro, 1991). Krugman (1991) also stressed the importance of an adequate provision of public goods and its relation with the performance of the tradable goods sector.

More distant from neoclassical perspectives, a set of relevant contributions focus on what we will call collective entrepreneurship. These last perspectives see entrepreneurial and institutional resources as a main factor of competitiveness and, at the same time, they consider the relevance of network relationships between firms and / or other related institutions. Networks and clusters are a source of positive externalities for firms, because they favour not only firms specialisation but also the access to specialized services and the reduction of transaction costs. In terms of dynamic efficiency, clusters and networks are also effective in uncertainty reduction and, in doing so, they favour innovation and diffusion. Although with quite different perspectives, we can find main references for the role of collective entrepreneurship in competitiveness in pioneers like Porter (1990; 1998) or Becattini (1979), the first one

with his “clusters” analysis and the second one proposing the “industrial district” as a major category for understanding competitiveness.

FIGURE 1: COMPETITIVENESS FACTORS – SYSTEMIC PERCEPTION

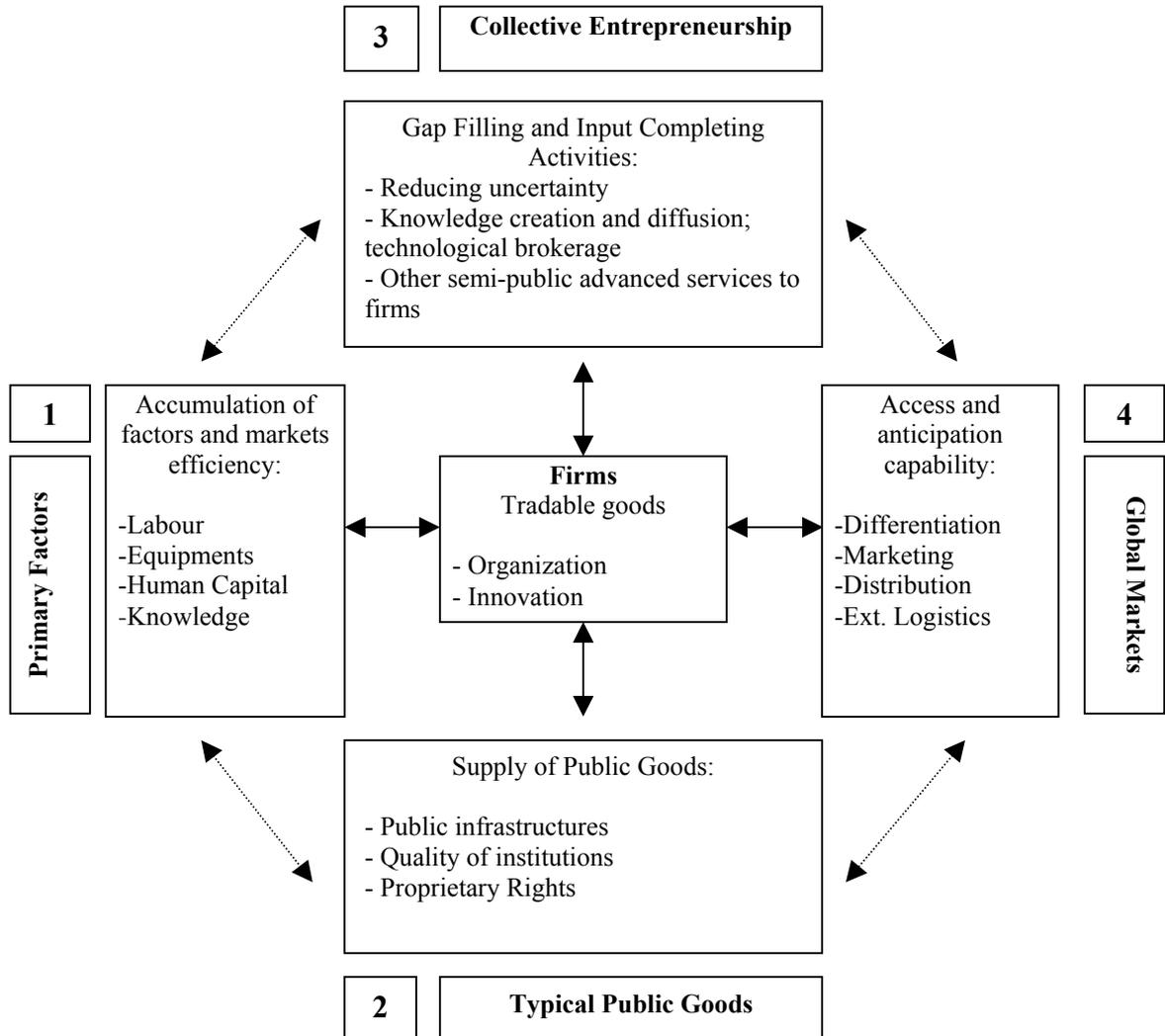


Figure 1 resumes this systemic vision of competitiveness factors, considering additionally that, with today’s increasing globalisation, competitiveness also implies firms’ capability for directly deal in global markets.

If we accept this systemic vision, competitiveness policy will include a lot of things. For instance, conventional public investment in education, health or justice will also be part of competitiveness policy even if these actions are addressed to wider social objectives. The same can be argued about market regulation policies. However, in this contribution we will focus on interventions that are specifically directed to the promotion of collective entrepreneurship and we will identify these last actions with competitiveness policy in a more narrow sense.

The relevance of collective entrepreneurship and of entrepreneurial and institutional networks has to do with the need to overpass market failures. For instance, if knowledge was a typical private and tradable input, firms could simply buy it in the market. On the contrary, if knowledge were a typical public good, with an automatic diffusion, then conventional public intervention would be the main instrument to allow firms to access knowledge. But, as we know, a major part of knowledge has a tacit nature and its creation results from a cumulative process that cannot be dissociated from productive experience. That's why clusters and networks favour the creation and diffusion of knowledge.

Others examples of market failures can be found in international marketing services. If firms want to have a direct access to markets, to buy international marketing services can't be the general solution because this is in conflict with the direct access objective. On the other hand, a global public intervention is restricted to some services that are typically public, like for instance the promotion of the external image of the country. So, in a great extent, an active international marketing policy must rely on firms efforts. However indivisibilities are often very important in this field and uncertainty is high; that's why the best solution can rely on co-operative actions, involving several firms and specialised institutions.

So, collective entrepreneurship can be seen as the carrying on of gap filling and input completing activities, these activities being central to entrepreneurship definition as Leibenstein (1966) pointed out. The collective nature is linked to the fact that these actions concern clusters of firms with similar productive interests and also public and semi-public agents like specialised agencies, local governments or entrepreneurial associations.

2. PUBLIC-PRIVATE PARTENERSHIPS

Partnership approaches are a relatively recent phenomenon, but partnerships have received widespread attention and support from economic and political agents, including policy makers at national, regional and local levels. As Osborne (2000) pointed out, the 1990s has seen the establishment of public-private partnerships (PPP) as key tool of public policy. This quick diffusion of PPP instrument was supported by the idea that PPP are a cost-efficient and effective mechanism for the implementation of public policy across a range of policy agendas; but, following Osborne, PPP have also

been articulated as bringing significant benefits in their own right – particularly in terms of developing socially inclusive communities.

OCDE (2001) also stresses a growing number of European experiences: networks of partnerships flourish in most parts of Europe, under the impetus of the European Union, whose funding programmes have both favoured projects agreed in partnerships and stimulated partnerships experimentation since the late-1990s. Experiences reported in OCDE (2001) cover partnerships aimed at improving social inclusion at regional or local level but also, and increasingly, PPP are assigned a broader role in “integrated” development. For instance, in Italy, partnerships are central to the participatory planning exercises conducted across different levels of government to design and implement more integrated and effective development policies.

The case studied in next section concerns PPP in a competitiveness policy framework. In this case, PPP are mainly an instrument to implement what we call collective entrepreneurship. This means that PPP aim, in first hand, to assure the provision of relevant services to firms; these services (namely technological, commercial and information services) are crucial to improve firms competitiveness, but simple market mechanisms do not afford an adequate provision of them.

This market failures view is an argument that justifies public intervention in general, either conventional interventions or partnerships. Market failures arise from the existence of externalities that generate a public or semi-public nature for some goods and services. So, without public intervention, the provision of these goods will be below the social optimal level. Market failures are also induced by the existence of co-ordination malfunctions (see Hoff and Stiglitz, 2001). These co-ordination failures mean that private investment decisions are interdependent. Co-ordination within a sector, for instance, may accelerate the growth of the sector and generate an earlier move towards lower long run costs, because co-ordination will allow the use of more specialised equipments and skills.

In fact, specific arguments in favour of PPP are, in a great extent, associated to the idea that this instrument is particularly adequate to solve co-ordination failures, because partnerships correspond, by definition, to a collaborative effort between public agencies and several private agents, these last including private collective institutions such as entrepreneurial associations.

So, in comparison with more traditional instruments such as direct funding of public agencies or direct subventions to individual firms, PPP rely on some distinctive

principles: strategic coordination between several agents but also (i) contractual funding, (ii) subsidiarity and decentralisation and (iii) institutional sustainability. We will discuss briefly these principles and the way in which they may contribute to a greater effectiveness of policy.

PPP are an instrument based on a contractual relationship established between Government and a set of partners, in order to carrying on a specific project. This means that public funding is no more made on an annual budget basis but, on the contrary, funding is linked to a specific intervention and to a set of specific objectives. This contractual dimension confers to PPP an innovative character in public management and can improve efficiency in the use of public resources. McQuaid (2000) also considers the advantages of partnerships in resource availability, because partnerships are important mechanisms to achieve complementary, avoid wasteful duplication of effort and pooling resources so that larger projects, or more aspects of a project, can be tackled than is possible for an individual agency.

In recent literature about partnerships, decentralisation is often seen as the major positive aspect induced by PPP, because a more decentralised policy is supposed to increase focus and accountability and to involve agencies with a more narrow range of objectives (McQuaid, 2000). In comparison with more conventional instruments, PPP will correspond to more targeted interventions; decentralisation will favour interventions designed for specific sectors and / or regions and conducted by institutions that are closer to the final recipients, i.e., firms. So, decentralisation will favour specialisation and proximity and this will act for more effectiveness and efficiency. That's why, as Carroll and Steane (2000) point out, the growth off PPP occur mainly at the local and regional, rather than national levels, though often initiated and funded by national governments.

Finally, partnerships can also be seen as a process of building institutions and, in consequence, a factor that increases sustainability of policy actions. Partnerships favour the creation and consolidation of institutional and firms networks and a cumulative experience of these institutions in conducting policy actions. The result of this learning-by-doing process must be considered an important specific asset that will be useful not only in present but also in future. We can apply to partnerships the concept of collective learning and the positive effects of this learning process in institutions capability to coordinate different skills and to integrate different technological trajectories (on this, see Prahalad and Hamel, 1990; Foss and Knudsen, 1996).

Despite the aspects analysed above, policy instruments based on partnerships can also bring some new problems prejudicial to efficacy, efficiency and equity. First of all, policy decentralisation induced by PPP can act in favour of the more prepared to access this instrument. This means, for instance, that regions or sectors with a stronger institutional framework will be more able than others to propose partnerships projects. So partnerships will not favour equity and, in this case, we will have a trade-off between equity and efficiency.

Another main problem is directly linked to the relation between institutional specialisation and effectiveness (efficacy and efficiency). As McQuaid (2000) points out, an apparent paradox can exist in partnerships when the multifunctional nature of policies needed to deal with complex issues conflicts with the single-functional natures of the organizations. So, this potential conflict concerns "...the fragmentation of publicly funded agencies and the multifaceted nature of issues that government must deal with" (McQuaid, 2000, p. 10). As we will assess later, this conflict will have a greater relevance when policy objectives comprise structural change.

Finally, efficiency linked to PPP internal organization is still in an initial state of evaluation. More frequent problems can emerge from unclear goals, resource costs, unequal power, cliques usurping power, impacts upon other "mainstream" services or differences in philosophy between partners (McQuaid, 2000). OCDE (2001) compares PPP to a black box because inputs and outputs are visible, but the mechanisms enabling the transformation from input to output are not. In particular, the degree of utilisation of the various sources of funds, the distribution of responsibility in programme implementation, the role of the various local actors and the extent of institutional involvement are often unknown parameters. Therefore, it is difficult to assess the efficiency of partnerships, and to draw proper comparison with other governance instruments such as government services operating programmes within conventional public management frameworks.

3. PUBLIC INITIATIVES AND PARTNERSHIPS IN THE PORTUGUESE COMPETITIVENESS POLICY

The Portuguese experience concerning the use of PPP in the field of competitiveness policy is quite recent but also quite rich. This new instrument of policy has been tested, for the first time, between 1994 and 1999 in the PEDIP 2² framework and explicitly adopted and standardised in POE between 2000 and 2003.

The evaluation of PEDIP 1³ led to the conclusion that the traditional instruments of competitiveness policy, namely direct funding of central public agencies and direct subventions to firms, were not enough to remove the factors hampering a faster modernisation of the Portuguese industries and a great increase of their competitiveness.

To reach these objectives, it was needful to persuade enterprises to change their conduct concerning some critical field (e.g.: R&D, design, fashion, marketing, human capital, networks) and chiefly to promote their relations with associations and other institutions (e.g.: universities, technological agencies) concerned with the development of common strategies and projects.

It was in this context that a more voluntarist kind of policy was created in the PEDIP 2 based on the idea of partnership. Later, in 2000, POE also developed a framework that supported public-private partnerships, by the creation of a new instrument called “Partnerships and Public Initiatives” (PIP). As the name indicates, PIP can contemplate two main types of projects distinguished primarily by the protagonist of its execution: (i) *partnership projects* that are proposed by one or several private non-profit institutions but are compulsorily developed in cooperation with one or more public agencies under the umbrella of the Ministry of Economy and (ii) *public initiatives projects* that are proposed and executed by public agencies with or without other institutions.

Looking to the original version of POE, we find PIP in seven of the twelve measures that composed this programme, which attest the importance that was given to this instrument. The initial budget affected to PIP for the period 2000-2006 ascended to 341,4 millions of Euros, representing 11,2% of the total POE budget. In the last version of the POE, this budget was reduced to 271,3 millions of Euros, representing 6,6% of the total POE budget.

Universe of Projects and Available Data

Our aim is to analyse the pattern of PIP that has been approved between 2000 and the 30th June of 2003 within the POE framework. The data was provided to us by Portuguese authorities⁴, in the context of the POE middle-term evaluation, and concerns 151 approved projects of that kind. These projects represent a total investment of 351,6 millions of Euros and a public subvention of 268,4 millions of Euros. For our present evaluation purposes, the 151 projects have been consolidated in 131 because some of them were individualised only for administrative reasons as they referred either to

different components of a same action conducted by the same promoter or to consecutive editions of the same action.

Original variables available in the database concern aspects such as the nature of project (public initiative or partnership), the name and nature of promoters, the number of partners, the nature of the project in terms of its competitiveness dimension (i.e., entrepreneurship, technology, internationalisation, etc.), the investment and subvention amounts, the sector incidence, the spatial incidence (national, regional, local) and some others. It also contains some qualitative information (such as the name and description of the project) that helped to codify variables on several categories. The table presented in Appendix A provides the summary of the variables available that were taken in to account, their nature and the way they were codified.

Defining Clusters of Projects: Statistical Data Analysis Methodology

In order to identify possible patterns of policy decentralisation that arise from the use of PIP as a policy instrument, our approach is based on the identification of clusters of projects. For this purpose, we begin by considering an *ab initio* typology defined by crossing variables concerning project type (public initiatives or partnerships) and the nature of promoters.

This previous typology allows us to classify the 131 projects in 6 categories in respect to promoter type: one is coincident with the set of public initiatives (because in this case it is mandatory for the first promoter to be a public agency or administration); the other five correspond to partnerships promoted, respectively, by entrepreneurial associations, technological agencies or universities, public agencies or central administration, other private associations and, finally, formal networks of firms.

The other three variables used to identify clusters are related to the degree and dimension of decentralisation: the number of partners, the sectoral incidence (including the possibility of multisectoral projects) and the regional incidence (including the possibility of non-regionalized projects).

Table 1 presents the distribution of projects by categories of the set of variables under analysis. Considering the type of projects, we find a notable dominance of partnerships promoted by entrepreneurial associations and of public initiatives. In relation to the number of partners, it is evident the preponderance of projects with two partners. By sector of incidence, it is visible that the majority of projects was directed to the industry or are multisectoral. Finally, in terms of regional incidence, we identified

an equitable distribution between regionalized (i.e., projects that concern a specific region) and non-regionalized projects.

TABLE 1: DISTRIBUTION FREQUENCY OF OBJECTS BY SET OF VARIABLES

Variables	Marginal Frequency	
	Number	Percentage
<i>Type of Project</i>		
1- P-EA	65	49,6%
2- P-TA&U	10	7,6%
3- P-PA&CA	5	3,8%
4- P-PRIVA	13	9,9%
5- P-CEA	1	0,8%
6- IP	37	28,2%
<i>Number of Partners</i>		
1- 1P	31	23,7%
2- 2P	78	59,5%
3- 3P	16	12,2%
4- 4P	3	2,3%
5- 5P	1	0,8%
6- 6P	2	1,5%
<i>Sector of Incidence</i>		
1- COM	10	7,6%
2- CONST	2	1,5%
3- ENERG	5	3,8%
4- MANUF	64	48,9%
5- MULTS	35	26,7%
6- SERV	1	0,8%
7- TUR	14	10,7%
<i>Regional Incidence</i>		
1- REG	68	51,9%
2- NREG	63	48,1%

The data analysis for clusters identification proceeds in two steps. In the first one, HOMALS (*Homogeneity analysis by means of alternating least squares*) is applied to identify and describe the pattern of the PIP that has been approved between 2000 and the middle-2003. In the second step, cluster analysis is used to validate the HOMALS results and to define groups of PIP considering characteristics regarding the four variables previously defined.

The choice of HOMALS as the statistical technique to analyse the pattern of PIP is justified by the fact that the main part of information about the projects approved in the context of PIP had qualitative/categorical nature. In fact, two multivariate data analysis techniques are available to understand and describe simultaneously the structure of

relations between the categories of a set of three or more categorical variables and conclude about this interrelated categories: the Multiple Correspondence Analysis and the HOMALS. Nevertheless the differences in the mathematical procedures supporting these techniques, they produce similar geometrical displays and, therefore, permit analogous conclusions regarding the data interpretation (Carvalho, 2000).

HOMALS may be described as a relatively free-method. It is basically an exploratory and descriptive technique, developed by American researchers of the University of Leiden in the early years of the 1990s, which uncovers and describes the associations between the categories of a set of nominal variables or variables treated as such (Geer, 1993). A fundamental characteristic of HOMALS is that it allows to present the results geometrically (as points within a low-dimensional space denominated perceptual map), which facilitates data interpretation. The relative position of the categories in the space translates the nature of relations among them. Therefore, categories with similar distributions will be represented as points that are close in the space and this means that they are associated and vice-versa. As a result, objects with similar profiles will be located close in the space and, thus, defining homogeneous groups (Carvalho, 2001).

For our empirical analysis, we decide to restrict the application of HOMALS to only two dimensions of analysis. We advance two reasons to justify this choice. First, the eigenvalues that we obtain from this technique drop down very quickly when we pass from one to two and three dimensions. Second, low-dimensional representations are easier to visualize.

TABLE 2: DISCRIMINATING MEASURES

Variables	Dimension	
	Dim 1	Dim 2
Type of Projects	0,8551	0,7348
Number of Partners	0,8056	0,4820
Sector of Incidence	0,4946	0,2426
Regional Incidence	0,2948	0,0112
<i>Eigenvalues</i>	0,6125	0,3677

Table 2 presents the discriminating measures for the two dimensions under analysis and the correspondent eigenvalues. As we can see, dimension 1 discriminates the project type and the number of partners from the sector and the regional incidence of

the projects. Dimension 2 discriminates mainly the project type from the regional incidence.⁵

FIGURE 2: PERCEPTUAL MAP FOR CATEGORIES OF PIP VARIABLES

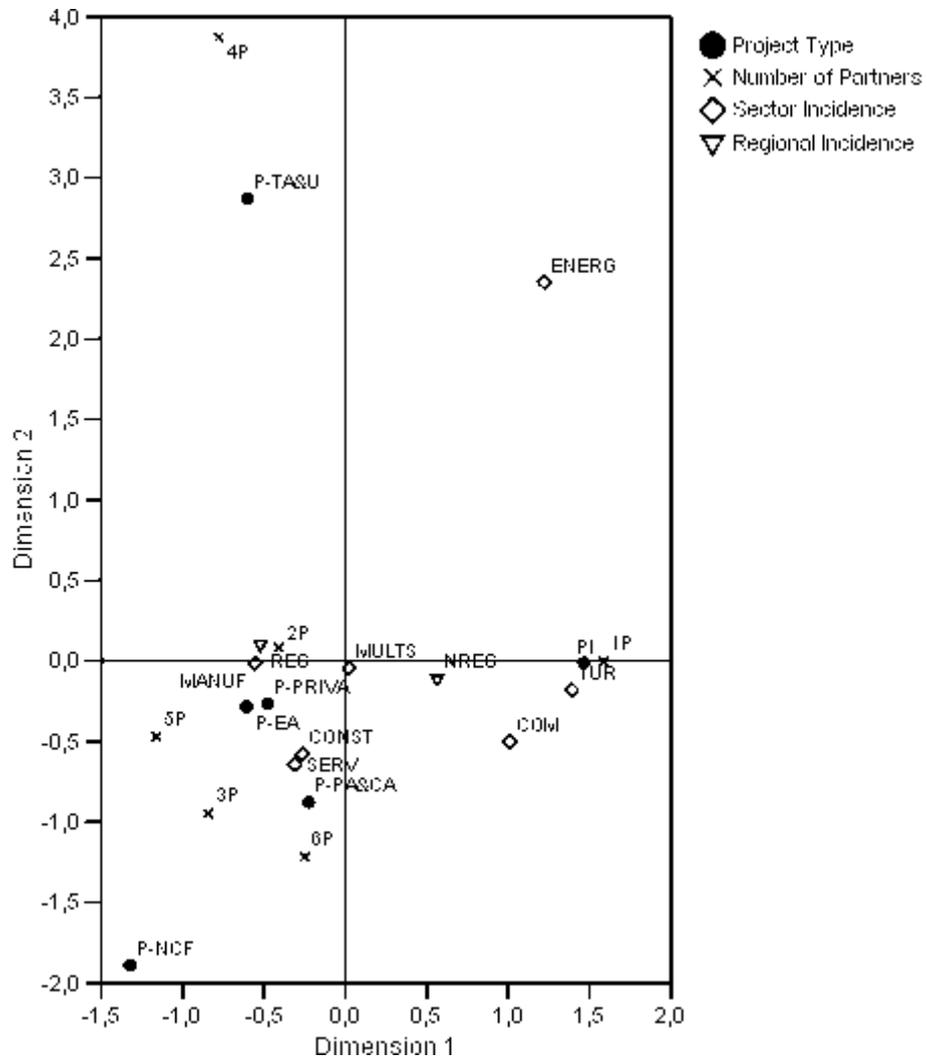
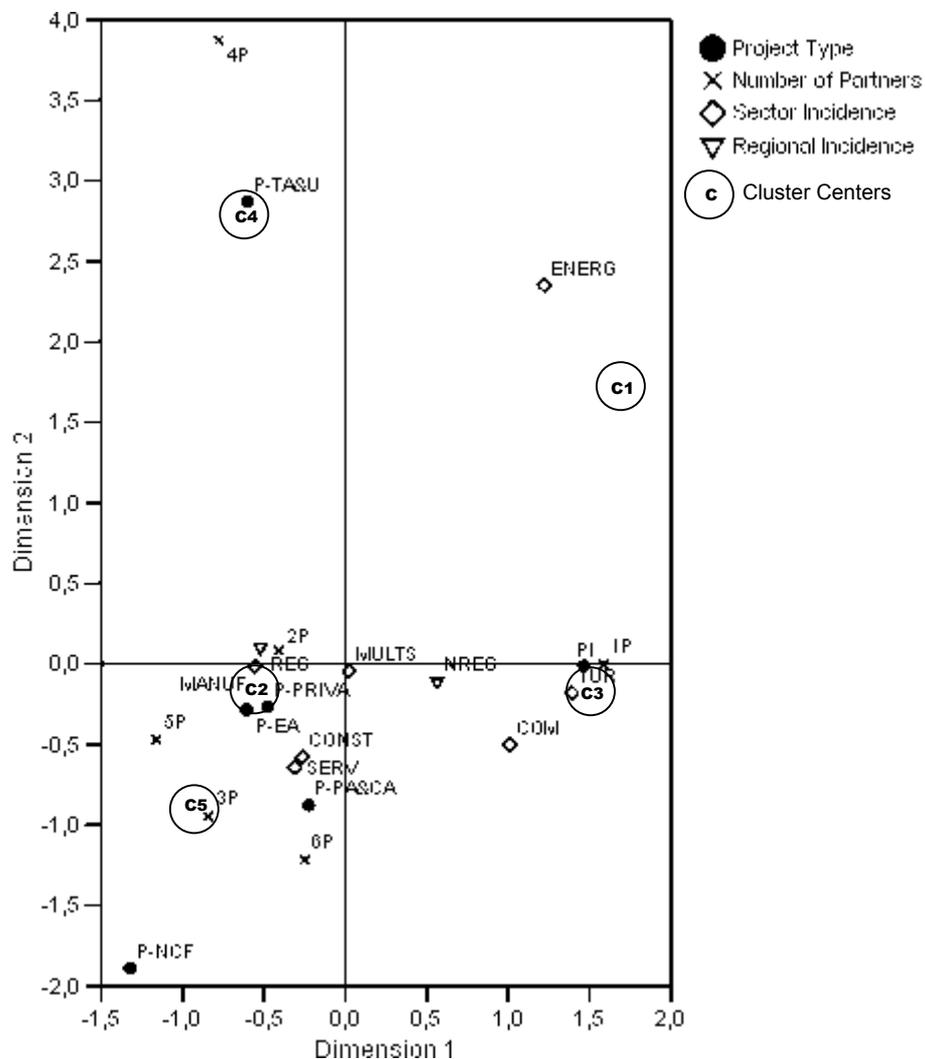


Figure 2 presents the perceptual map produced by HOMALS (via SPSS, version 12.0) when applied to the 131 PIP approved between 2000 and mid-2003. This map shows the level of associations between the various categories of these projects. In a preliminary analysis, we identify two large clouds of projects. One of them incorporates public initiatives with only one partner (the promoter), mainly non-regionalized and with incidence in tourism and commerce sectors or with multisectoral incidence. The other includes mostly partnerships promoted by entrepreneurial associations and private agencies, with only two partners, directed at manufacturing, construction and service sectors and largely regionalized. Obviously, there are some categories distant from these

two clouds (e.g.: partnerships promoted by networks of complementary firms, projects with incidence in energy sector, projects promoted by technological agencies or universities) that eventually suggest the existence of other clouds of projects.

Whatever the sub-configurations spanned by the core dimensions of the HOMALS perceptual map represent theoretically consistent groups, it is recommended nevertheless to confirm their definition through the application of a classification method such as cluster analysis. Moreover, the complementary use of both multivariate data analysis tools is justified because HOMALS suggests the existence of some groups in the data but doesn't enable to operate with them (Carvalho, 1998).

FIGURE 3: PERCEPTUAL MAP FOR CATEGORIES OF PIP VARIABLES CLUSTERS OF PIP



The application of cluster analysis will generate a new categorical variable indicating the final cluster membership of each object. In this sense, it is possible to

quantify the qualitative information provided by the HOMALS geometrical displays and to obtain a better understanding of the data structure.

Since the purpose is to validate the HOMALS solution regarding the existence of a few groups and to characterise these groups, we proceed by applying a cluster analysis using the k-means cluster optimisation method (Hair et al., 1995). Specifically, we produce the grouping of PIP in two steps. First, we use the hierarchical grouping method of Ward (1963). And, in fact, the analysis of the calculated fusion coefficient suggests the existence of not two but five groups or clusters of PIP projects. Second, we use the non-hierarchical grouping k-means method to define the composition of the five clusters suggested.

Figure 3 exhibits the perceptual map provided by HOMALS and the position of the five identified clusters illustrated by the centroids C1, C2, C3, C4 and C5.

Clusters and Decentralisation Pattern

Table 3 presents the frequency distribution of the four original variables in the five clusters solution and confirms that this cluster solution is helpful to characterise the policy decentralisation pattern generated by the use of PIP instrument in alternative to the conventional intervention of central government.

Clusters C1 and C3 are composed by public initiatives projects. In these clusters, projects have almost always only one partner (i.e., the promoter). In fact, C1 corresponds to 3 public initiatives addressed to energy sector, two of them promoted by DGE (Directorate-General for Energy) and the other by INETI (a public technological agency for industry). In C3, the 32 public initiatives concerns a more large spectrum of economic sectors (commerce, tourism, manufacturing) or are multisectoral; in this cluster, ICEP (a public central agency for promotion of foreign trade and internationalisation) is the promoter in 18 cases and IAPMEI (a public central agency for support to investment and to small business) is the promoter in 7 cases.

Clusters 2, 4 and 5 concern, with a few exceptions, partnerships. C2 is the largest cluster, with 66 projects, and it is characterized by the fact that the promoters are mainly private entrepreneurial associations. In 21 cases, these associations have a sectoral nature and in 10 cases a regional / local nature. The number of partners is two, in all cases, and reflects a pattern that associates the private promoter with a public central agency, like IAPMEI or ICEP, as a second partner. In this cluster, projects are addressed largely to manufacturing or have a multisectoral nature.

TABLE 3: FREQUENCY DISTRIBUTION OF ORIGINAL VARIABLES IN A FIVE CLUSTERS SOLUTION

Variables	Clusters				
	Cluster C1	Cluster C2	Cluster C3	Cluster C4	Cluster C5
<i>Type of Project</i>					
1- P-EA	0,0%	75,8%	0,0%	9,1%	73,7%
2- P-TA&U	0,0%	0,0%	0,0%	90,9%	0,0%
3- P-PA&CA	0,0%	4,5%	0,0%	0,0%	10,5%
4- P-PRIVA	0,0%	16,7%	0,0%	0,0%	10,5%
5- P-NCF	0,0%	0,0%	0,0%	0,0%	5,3%
6- IP	100,0%	3,0%	100,0%	0,0%	0,0%
<i>Number of Partners</i>					
1- 1P	100,0%	0,0%	87,5%	0,0%	0,0%
2- 2P	0,0%	100,0%	12,5%	72,7%	0,0%
3- 3P	0,0%	0,0%	0,0%	0,0%	84,2%
4- 4P	0,0%	0,0%	0,0%	27,3%	0,0%
5- 5P	0,0%	0,0%	0,0%	0,0%	5,3%
6- 6P	0,0%	0,0%	0,0%	0,0%	10,5%
<i>Sector of Incidence</i>					
1- COM	0,0%	4,5%	18,8%	0,0%	5,3%
2- CONST	0,0%	3,0%	0,0%	0,0%	0,0%
3- ENERG	100,0%	0,0%	0,0%	18,2%	0,0%
4- MANUF	0,0%	54,5%	21,9%	54,5%	78,9%
5- MULTS	0,0%	31,8%	25,0%	27,3%	15,8%
6- SERV	0,0%	1,5%	0,0%	0,0%	0,0%
7- TUR	0,0%	4,5%	34,4%	0,0%	0,0%
<i>Regional Incidence</i>					
1- REG	33,3%	59,1%	21,9%	72,7%	68,4%
2- NREG	66,7%	40,9%	78,1%	27,3%	31,6%
Number of Projects	3	66	32	11	19
% of Total	2,3%	50,4%	24,4%	8,4%	14,5%

Cluster 4 includes 11 partnerships with 2 or 4 partners and with a sectoral incidence that follows the pattern of C2 (although also includes some projects in energy). The main characteristic that discriminates C4 from C2 concerns the nature of the promoter: C4 projects (with a single exception) are lead by technological agencies (private agencies in 6 cases) or universities.

Finally, Cluster 5 is composed by 19 partnerships similar to those of C2 in terms of the nature of the promoter and also largely focused in manufacturing or, with less relevance, multisectoral. What discriminates C5 from C2 projects is mainly the number of partners: in C5 we have partnerships with 3 to 6 partners.

Considering all the 131 projects, there is an equitable distribution between regionalized (i.e., projects that concerns a specific region) and non-regionalized projects (68 e 63 projects, respectively). But there is a clear association between regional incidence and the type of projects (Pearson Chi-Square test presents a p-value of 0,000): public initiatives are mainly non-regionalized and 63% of partnerships correspond to regionalized projects. Regional decentralisation in partnerships would appear even greater if we consider the characteristics of the non-regionalized projects that concerns manufacturing: a part of them have a sub sectoral incidence and are promoted by national sectoral associations, but they concern industries that are largely regional or local clusters.

Note that the two main decentralisation criteria (sectorial and regional decentralisation) show some degree of association (Pearson chi-square test applied to the variables considered in table 4 presents a p-value of 0,017). PIP in manufacturing represent 49% of the global number of projects and they correspond to the sectoral category that is more regionalized. On the contrary, multisectoral projects presents also a less decentralised pattern in terms of regional incidence. The other economic sectors are much less represented, showing a weak access to PIP instrument. For tourism, energy, construction and services sectors, PIP projects have mainly a national non-regionalized incidence. Projects concerning commerce follow an equitable distribution between regionalized and non-regionalized projects.

TABLE 4: NUMBER OF PROJECTS BY SECTOR AND REGIONAL DECENTRALISATION

	Commerce	Construction	Energy	Manuf	Services	Tourism	Multisector	PIP
Regionalized	5	0	1	43	0	4	15	68
Non-regionalized	5	2	4	21	1	10	20	63
PIP	10	2	5	64	1	14	35	131

These elements show clearly that a greater decentralisation is linked to partnerships. In fact, public initiatives are closer to the conventional pattern of public intervention because they typically involve one single public agency such as ICEP or IAPMEI. Also, public initiatives are more often addressed to national non-regionalized interventions. This means that public initiatives follows more a principle of contractual funding within central public administration, as they correspond to a model in which the funding of public agencies is based on contracts addressed to specific interventions instead of global budget transfers.

On the contrary, partnerships are mainly promoted by private associations and they include, with a greater frequency, projects addressed to specific sectors and to specific regions. The 43 projects that are simultaneously regionalized and addressed to manufacturing are quite representative of this decentralisation pattern. They represent 33% of the total of projects and a global investment of 158,4 millions of Euros (45% of total investment); also, in 32 cases, they are addressed not to manufacturing as a whole but to specific sub sectors.

As argued before, policy decentralisation induced by instruments like PIP can improve the effectiveness of policy, because interventions will be more focused in specific targets (sectors, regions, competitiveness dimensions) and will be conducted by more specialised agencies. An increase in effectiveness will also arise by the fact that decentralised policies will allow the accumulation of experience in institutions that are closer to firms, like entrepreneurial associations, and this will contribute to greater sustainability of policy impacts. We will try to assess some specific aspects concerning these questions.

Effectiveness and Specialisation

It is quite clear that decentralization as favored specialization. As analyzed in precedent paragraph, projects in clusters C2, C4 and C5 are mainly focused in specific sectors and / or in specific regions, being conducted by private agencies that have mainly a sectoral or regional nature. This pattern has concerned mainly the manufacturing sector.

Considering all the set of 131 projects, manufacturing is by large the economic sector more represented, since 64 projects are specific oriented to it. In terms of sectoral incidence, the second more frequent category corresponds to multisectoral projects (35 cases); the other economic sectors present a small number of projects: tourism (14), commerce (10), energy (5), construction (2) and services (1).

Note that POE/PRIME has a potential incidence in almost all non infrastructure economic sectors, excluding agriculture and fisheries, financial activities and some segments of transports. But the access to PIP instrument by target sectors of the programme other than manufacturing is very weak. This can be partially explained by the fact that in official precedent programmes (PEDIP 1 and PEDIP 2) manufacturing was the only eligible sector and these pasted experiences had conferred to industrial

associations (universal, sectoral or regional) an higher level of organization and a extended capability to take advantage of public programmes.

Specialisation will be also reflected by the distribution of projects in terms of POE measures and competitiveness dimensions. In POE architecture, we find PIP instrument available in seven of the twelve total measures that have been defined. However, as two of them do not have been regulated, the 131 PIP approved are focused only in five measures: Measure 2.1 - Supporting products and activities with strategic dimension, Measure 2.2 - Mobilising new ideas and new entrepreneurs, Measure 2.4 - Promoting new spaces of economic development, Measure 3.3 - Supporting associations and the entrepreneurial information and Measure 3.5 - Promoting the country and the internationalisation of the economy.

Table 5 exhibits the distribution of PIP by cluster and POE measure. Internationalisation (measure 3.5) corresponds to the main area of intervention and observation (measure 3.3) to the second. The first of PI clusters, C1, is totally integrated in measure 2.1. The other, C3 cluster, is largely concentrated in measure 3.5 and 3.3, replicating the general pattern.

In partnerships, the largest cluster also repeated the general pattern. It also represents the more diversified cluster in terms of measures, with incidence in all of them. Unlikely, cluster C4 is focused in measure 2.1 and 2.2. Finally, cluster C5 is largely identical to C2, but also characterised by projects that integrate more than one measure.

TABLE 5: NUMBER OF PROJECTS BY CLUSTER AND POE MEASURE

	Cluster C1	Cluster C2	Cluster C3	Cluster C4	Cluster C5	PIP
Measure 2.1	3	8	6	5	1	23
Measure 2.2	0	7	1	5	2	15
Measure 2.4	0	1	0	0	1	2
Measure 3.3	0	19	8	0	5	32
Measure 3.5	0	29	17	1	6	53
Measures 3.3 and 3.5	0	1	0	0	2	3
Measures 2.1 and 3.5	0	1	0	0	1	2
Measures 2.1 and 2.2	0	0	0	0	1	1
Total	3	66	32	11	19	131

However, one of the more impressive facts is the residual relevance of PIP projects that integrate more than one measure. In public initiatives this was a expected result, because those initiatives tend to be promoted by central but specialised public

agencies (for instance, projects promoted by ICEP will normally be in measure 3.5, dedicated to internationalisation). On the contrary, in the case of partnerships projects and, namely, in sectoral or regionalized projects of that kind, it could be advantageous that specific sectoral or regional projects would involve a local integration of measures and dimensions.

TABLE 6: NUMBER OF PROJECTS BY CLUSTER AND POE DIMENSION

	Cluster C1	Cluster C2	Cluster C3	Cluster C4	Cluster C5	PIP
ENERE	3	0	0	1	0	4
AMB	0	3	0	0	0	3
GPRAT	0	1	0	0	0	1
ECOM	0	1	0	0	0	1
COOP	0	1	0	0	0	1
INOV	0	2	0	0	0	2
HUMR	0	1	0	0	0	1
ISYST	0	1	0	0	0	1
IT	0	2	0	0	0	2
ENT	0	7	0	3	2	12
INT	0	30	17	1	6	54
OBS	0	10	9	2	4	25
RCS	0	0	0	0	1	1
H&S	0	0	1	0	0	1
EXCP	0	1	4	3	1	9
INDP	0	0	1	1	0	2
MULTA	0	6	0	0	5	11
Total	3	66	32	11	19	131

The distribution of PIP projects by cluster and POE dimension confirms the pattern in terms of measures. Considering all the set of 131 projects, we observe that internationalisation (INT) clearly represents the main dimension of interventions with more than 40% of all PIP. This pattern results from the fact that POE totally centralised the promotion of internationalisation in the instrument PIP, single firms having no access to measures related to internationalisation. Observation (OBS) and entrepreneurship (ENT) projects also have substantial importance as dimensions of intervention. Once again, projects that present an integrated or multidimensional nature (MULTA) are in a small number and only appear in C2 and C5 clusters.

Moreover, Table 6 shows a robust association between the POE dimension and clusters confirmed by chi-square tests (Pearson test presents a p-value of 0,000). Cluster C1, which corresponds to one of the two PI clusters, is totally addressed to energetic efficiency. The other PI cluster, C3 cluster, is representative of the general pattern: it is

largely concentrated in internationalisation, observation and in the supply of excellence products.

In partnerships clusters, the largest cluster (cluster C2) obviously replicates the general pattern. But, additionally, it is the more diversified cluster, with incidence in 13 of the 17 dimensions. Differently, cluster C4 is focused in entrepreneurship and in the supply of excellence products dimensions. Finally, cluster C5 is largely similar to C2, but characterised by a smaller diversification of dimensions and by a great proportion of multidimensional projects.

Decentralisation, Scale and Coordination

Although decentralisation can improve effectiveness (i.e. efficiency and efficacy) of policy, some inefficiency may occur if decentralisation leads to a fragmentation of interventions and to a overflow of projects concerning the same targets, with risk of duplication. However, if central coordination of the policy programme operates, these inefficiencies can be avoided.

TABLE 7: NUMBER OF PROJECTS BY CLUSTERS AND INVESTMENT AMOUNT

	Cluster C1	Cluster C2	Cluster C3	Cluster C4	Cluster C5	PIP
INV1	1	36	9	5	3	54
INV2	2	13	8	2	8	33
INV3	0	10	8	2	4	24
INV4	0	7	7	2	4	20
Average INV (1.000 Euros)	988,8	2.065,4	3.212,9	2.475,5	4.328,3	2.683,7

In our case study, data suggests that decentralisation has not led to excessive fragmentation. Table 7 shows that there is no relevant association between the distribution of the projects by cluster and by investment amount (Pearson chi-square test, p-value = 0,149) and even less when one compares investment amounts of public initiatives and partnerships. In fact, partnerships of C2 present a lower average investment amount than the typical public initiatives of C3; also in C2, projects of INV1 class (less than 1.000.000 Euros) are over represented (55% of C2 projects against 41% of PIP projects). But, partnerships included in C5 presents the higher average for investment amount and, in this cluster, INV3 (between 2.500.000 and 5.000.000 Euros) and INV4 (more than 5.000.000 Euro) class are over represented.

This means that selectivity criteria and central coordination have operated in order avoid an excessive large number of small interventions. Additionally, there is no

relevant association between clusters and levels of public subvention rate. Although public initiatives tend to have higher subvention rates than partnerships, the relative weight of public subventions is quite high for every cluster.

TABLE 8: NUMBER OF PROJECTS BY CLUSTERS AND PUBLIC SUBVENTION RATE

	Cluster C1	Cluster C2	Cluster C3	Cluster C4	Cluster C5	PIP
R1 (0% ≤ PSRATE < 50%)	0	3	2	0	0	5
R2 (50% ≤ PSRATE < 70%)	0	24	6	2	2	34
R3 (70% ≤ PSRATE < 90%)	1	20	7	4	12	44
R4 (90% ≤ PSRATE < 100%)	2	19	17	5	5	48
Average PSRATE (%)	83	73	82	80	75	76

Decentralisation and Structural Change Objectives

One aspect that can reduce effectiveness of more decentralised policies is linked to the lack of strategic interventions directed to structural change, as decentralised policies can favour the present more representative sectors in the access to public support. To analyse this question we have proceed to a more detailed classification of projects concerning manufacturing: 21 of these 64 projects have a general incidence in manufacturing and were grouped in a category called MANUF4 but the other 43 projects correspond to specific interventions in a large spectrum of sub sectors.

TABLE 9: NUMBER OF PROJECTS IN MANUFACTURING BY SUB SECTOR AND CLUSTER

	Cluster C1	Cluster C2	Cluster C3	Cluster C4	Cluster C5	PIP
MANUF1	0	18	2	0	9	29
MANUF2	0	3	1	3	3	10
MANUF3	0	2	0	0	2	4
MANUF4	0	13	4	3	1	21
MANUF	0	36	7	6	15	64

Grouping these sub sectors in 3 sets, we count 29, 10 and 4 projects respectively in MANUF1, MANUF2 and MANUF3. MANUF1 includes low-tech traditional sectors (namely food products and beverages, footwear, textiles and wearing apparel, furniture) corresponding largely to what Pavitt (1984) classifies as supplier dominated sectors. In MANUF2 we have grouped projects in sectors like motor vehicles and other transport

equipment, machinery and equipment, metal products and specific metal products like moulds. Finally, the 4 projects grouped in MANUF3 concern industries based on natural resources (namely, construction materials, glass products and manufacture of wood and cork products).

Table 9 shows some degree of association between the sub sectoral distribution of manufacturing projects and clusters, confirmed by chi-square tests (Pearson test presents a p-value of 0,047). Manufacturing projects of C2 (partnerships mainly promoted by entrepreneurial associations) are largely focused in traditional sectors while in C3 (typical public initiatives) projects are mainly associated to manufacturing as a whole. In C4 (partnerships promoted by technological agencies) projects in manufacturing are associated to this activity as a whole or to more technology-intensive sub sectors. Finally, manufacturing projects in C5 are almost all sub sectorial, including all kind of sub sectors.

Since specific sub sectoral projects in manufacturing are mainly designed and promoted by entrepreneurial associations, their targets tend either to follow the same pattern of the present industrial structure (namely when promoters are sub sectoral associations) or to have a general no specific incidence in manufacturing (namely when promoters are universal entrepreneurial associations). On the contrary, when promoters and partners are technological agencies and/or universities (P-TA&U), technology intensive sectors are better represented. However, this last kind of promoter has a marginal presence in PIP projects.

TABLE 10: NUMBER OF PROJECTS IN MANUFACTURING BY SUBSECTOR AND PROJECT TYPE

	P-EA	P-TA&U	P-PA&CA	P-PRIVA	P-NCF	PI	PIP
MANUF1	21	0	1	5	0	2	29
MANUF2	6	3	0	0	0	1	10
MANUF3	3	0	0	0	1	0	4
MANUF4	13	3	0	0	0	5	21
MANUF	43	6	1	5	1	8	64

This is a major conclusion because it suggests a kind of trade-off between policy decentralisation and structural change goals. Although this trade-off could be counterbalanced by a greater voluntarism in public initiatives, data shows that only one project of public initiatives addressed to manufacturing have a specific incidence in MANUF2.

Decentralisation and Regional Access

One last specific aspect is linked to the relation between decentralisation and regional access or regional equity. As we noticed before, 68 of the 131 PIP projects have an infra-national incidence. These regionalized projects could have, *a priori*, a regional or a local incidence.

Portugal is divided in 7 regions (NUT 2 level) and in 30 sub-regions (NUT 3 level). Note that all the 68 projects that have a specific regional incidence are all regionalized at NUT 3 level. This means that the pattern of regional incidence of PIP reflects either the relevance of national interventions (63 non-regionalized projects) or the relevance of local sub-regional actors.

TABLE 11: DISTRIBUTION OF THE 68 REGIONALIZED PIP PROJECTS BY NUT 3 (%)

	Grande Porto	Grande Lisboa	Pinhal Litoral	Entre Douro e Cávado	Baixo Mondego	Dão Lafões	Baixo Vouga	Cova da Beira	Ave	RA Madeira	Península de Setúbal	Tâmega	Oeste	Algarve	Others 15 NUT 3	
Investment	41,3	20,6	10,4	7,8	6,4	3,4	2,8	2,5	2,3	1,4	0,6	0,2	0,1	0,1	0,0	0,0
Number of Projects	34,3	25,7	2,9	2,9	8,6	4,3	1,4	5,7	2,9	2,9	2,9	1,4	1,4	1,4	1,4	0,0

Table 11 show a extremely unequal access of local economies to PIP instrument. In fact, 15 of the 30 NUT 3 don't have any project with a specific incidence in their economies. The other 15 NUT 3 correspond, with a very few exceptions as Madeira, Algarve and Cova da Beira, to the more industrialized areas of Portugal, following the littoral string that goes from Braga (Cávado) to Setúbal (Península de Setúbal).

But even inside this last group, access to PIP is largely concentrated in the two main and more developed areas of Great Oporto and Great Lisbon. These two areas represent almost 62% of total investment linked to regionalized PIP. Other 3 local economies (Pinhal Litoral, Entre Douro e Vouga and Cávado) show also a very good access to PIP instrument, especially if we compare their share in investment with their demographic or economic weight.

In Pinhal Litoral (Centre Region) this is due to a few number of projects promoted by local entrepreneurial institutions and linked to strong local industrial clusters in Marinha Grande, concerning glass products and cristaliry, and moulds. The access of Entre Douro e Vouga (an area that confines with south limit of Great Oporto) is explained by two big projects concerning respectively cork industry and car

components, these activities corresponding to local clusters. Note that in Entre Douro e Vouga is also located the main Portuguese cluster in footwear and leather products and that the access to PIP of this last sector has been also quite high, although PIP projects in footwear – promoted by national sectoral association – were classified as non-regionalized projects. Finally, the good access of Cávado is due to projects promoted by AIM (Minho Industrial Association), based in Braga, which is a sub regional dynamic entrepreneurial association.

Obviously, policy decentralisation in terms of regional dimension leads to a competitive behaviour between regional institutions and favours the more developed and industrialized areas.

CONCLUSIONS

Public-private partnerships are a relatively recent instrument for social and economic development policies. The quick diffusion of this instrument, namely in OCDE and EU countries, is being supported by the idea that PPP can increase effectiveness (i.e., efficacy and efficiency) of economic policy.

In particular, if we consider the use of PPP in the competitiveness policy framework, partnerships can be seen as an adequate way to reinforce collective entrepreneurship. This means that PPP are addressed to overpass market failures and, in particular, co-ordination failures. In doing so, partnerships will have a great impact on firms competitiveness, because they will act in favour of an adequate provision of advanced services and of collaborative efforts between public agencies and several private agents. In addition to these characteristics (solving market failures and promoting strategic co-ordination), PPP present some others specific principles. Above all, partnerships correspond to a more decentralised way of conducting policy, which favours more targeted interventions. PPP also represent an alternative way of public funding, based on a contractual relationship. Finally, PPP can improve sustainability of policy actions, because they reinforce a decentralised institutional framework.

However, the evaluation of PPP benefits and malfunctions is still in its beginnings. That's why our contribution was dedicated to evaluate the pattern of the so-called PIP (Partnerships and Public Initiatives) that have been approved between 2000 and mid-2003 in the Portuguese POE framework

The main conclusion take from our case study is that partnerships really correspond to a more decentralised pattern for competitiveness policy and that this decentralisation can include institutional, sectoral and spatial dimensions.

By using HOMALS and K-means cluster analysis, we were able to characterise the decentralisation pattern and to identify five typical clusters for the 131 PIP projects. Clusters 1 and 3 are composed by public initiatives projects with almost always only one partner. Clusters 2, 4 and 5 concerns, with a few exceptions, to partnerships with two or more partners. C2 is the largest cluster and it is characterized by the fact that the promoters are mainly entrepreneurial associations.

The results have shown clearly that a greater decentralisation is linked to partnerships. In fact, public initiatives are closer to the conventional pattern of public intervention because they typically involve one single public agency. Also, public initiatives are more often addressed to national non-regionalized interventions. This means that public initiatives follows more a principle of contractual funding within central public administration, as they correspond to a model in which the funding of public agencies is based on contracts addressed to specific interventions instead of global budget transfers.

On the contrary, partnerships are mainly promoted by private associations and they include, with a greater frequency, projects addressed to specific sectors and to specific regions. The 43 projects that are simultaneously regionalized and addressed to manufacturing are quite representative of this decentralisation pattern. They represent 33% of the total of projects and a global investment of 158,4 millions of Euros (45% of total investment); also, in 32 cases, they are addressed not to manufacturing as a whole but to specific sub sectors.

The identified pattern also show that decentralization has favored specialization. Projects in clusters C2, C4 and C5 are mainly focused in specific sectors and / or in specific regions, being conducted by private agencies that have chiefly a sectoral or regional nature. In parallel, the distribution of projects in terms of POE measures and competitiveness dimensions also reveled a great specialization.

Consequently, we think that the decentralization induced by PIP exhibit a pattern that clearly promoted effectiveness of policy by interventions more focused in specific targets conducted by more specialized agencies.

However, our analysis also have tried to evaluate some aspects induced by decentralization that can affect policy efficiency and equity. First, decentralization can

lead to a fragmentation of interventions and to a overflow of projects concerning the same targets, with risk of duplication. On this, we have conclude that central coordination have operated in order to avoid these risks.

A second relevant question is linked to dynamic efficiency and structural change objectives. We have detected a pattern in which decentralization and institutional specialization have originated a bias towards the present more representative sectors (particularly within manufacturing) and to single dimensional projects. So, we have observed a kind of trade-off between policy decentralization and structural change goals, because these last objectives should be supported by projects addressed to emergent industries and with a multidimensional nature.

One last specific aspect that we analyzed is linked to the relation between decentralization and comparative regional access or regional equity. Data on this question show a extremely unequal access of local economies to the PIP instrument. In fact, PIP projects are largely concentrated in the two main and more developed areas of the country: Great Oporto and Great Lisbon.

These findings suggest that policy decentralization induced by partnerships, although desirable, should be accompanied by a more effective central coordination and by selectivity criteria more linked to structural change goals.

APPENDIX A
ORIGINAL VARIABLES AND CODIFIED VARIABLES

Original Variables		Codified Variables		
Variable	Nature	Variable	Categories	Nature
Promotor Name (Partner 1)	Nominal	PROMT Promotor Type	1- EA (Entrepreneurial Association) 2- TA&U (Technological Agency or University) 3- PA&CA (Public Agency or Central Administration) 4- PRIVA (Private Agency) 5- NCF (Network of Complementary Firms)	Nominal
Partner 2 Name (idem for Partner 3, 4, ...)	Nominal	PART2 Partner 2 Type (idem for Partner 3, 4, ...)	1- EA (Entrepreneurial Association) 2- TA&U (Technological Agency or University) 3- PA&CA (Public Agency or Central Administration) 4- PRIVA (Private Agency) 5- NCF (Network of Complementary Firms)	Nominal
Project Type	Nominal	PROJT Project Type	1- PI (Public Initiative) 2- PAR (Partnership)	Nominal
Number of Partners	Numeric	NPAR Number of Partners	1- 1P (One Partner) 2- 2P (Two Partners) 3- 3P (Three Partners) 4- 4P (Four Partners) 5- 5P (Five Partners) 6- 6P (Six Partners)	Ordinal
Sector of Incidence	Nominal	SINC Sector of Incidence	1- COM (Commerce) 2- CONST (Construction) 3- ENER (Energy) 4- MANUF (Manufacturing) 5- MULTS (Multisectorial) 6- SERV (Services) 7- TUR (Turisme)	Nominal
Regional Incidence (NUT II level)	Nominal	RINC Regional Incidence	1- REG (Regionalized Project) 2- NREG (Non Regionalized Project)	Nominal
Regional Incidence (NUT III level)	Nominal	RINCIII Regional Incidence III (*)	1- ALG (Algarve) 2- AVE (Ave) 3- BMOND (Baixo Mondego) 4- BVOUGA (Baixo Vouga) 5- CAV (Cávado) 6- CBEIRA (Cova da Beira) 7- DOUVO (Entre Douro e Vouga) 8- LAF (Dão Lafões) 9- LISB (Grande Lisboa) 10- RAMAD (Região Autónoma da Madeira) 11- NREG (Non Regionalized Project) 12- OESTE (Oeste) 13- PLITOR (Pinhal Litoral) 14- PORTO (Grande Porto) 15- SET (Península de Setúbal) 16- TAM (Tâmega) (categories include all the NUT III that are reported to have PIP projects)	Nominal

(*) the set of projects regionalized at NUT II level is coincident with the set of projects regionalized at NUT III level.

Original Variables		Codified Variables		
Variable	Nature	Variable	Categories	Nature
POE Measure	Nominal	MEASPOE POE Measure	1- 21 (Measure 2.1) 2- 2.2 (Measure 2.2) 3- 24 (Measure 2.4) 4- 33 (Measure 3.3) 5- 35 (Measure 3.5) 6- 35;33 (Measure 3.5 and 3.3) 7- 35;21 (Measure 3.5 and 2.1) 8- 22;21 (Measure 2.2 and 2.1)	Nominal
POE Dimension	Nominal	DIMPOE POE Dimension	1- AMB (Ambient) 2- GPRAT (Good Practices) 3- ECOM (Electronic Commerce) 4- COOP (Co-operation) 5- RCS (Regional Competitiveness Systems) 6- ENERE (Energetic Efficiency) 7- ENT (Entrepreneurship) 8- H&S (Health & Safety) 9- INOV (Innovation) 10- INT (Internationalisation) 11- MULTA (Multiareas) 12- OBS (Observation) 13- EXCP(Supply of Excellence Products) 14- INDP (Industrial Property) 15- HUMR (Human Resources) 16- ISYST (Information Systems) 17- IT (Information Technologies)	Nominal
Investment Amount	Metric	INV Investment Amount	1- INV1 (0€ ≤ INV < 1.000.000€) 2- INV2 (1.000.000€ ≤ INV < 2.500.000€) 3- INV3 (2.500.000€ ≤ INV < 5.000.000€) 4- INV4 (INV ≥ 5.000.000€)	Ordinal
Subvention Amount	Metric	PSRATE Public Subvention Rate (Subvention / Investment)	1- R1 (0% ≤ PSRATE < 50%) 2- R2 (50% ≤ PSRATE < 70%) 3- R3 (70% ≤ PSRATE < 90%) 4- R4 (90% ≤ PSRATE < 100%)	Ordinal

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END NOTES

¹ POE is the Portuguese Operational Programme for the Economy, included in the Third Community Framework Support, 2000-2006, funded by European Structural Funds.

² PEDIP 2: Strategic Program for the Modernisation and Improvement of Portuguese Industry.

³ PEDIP 1: Specific Programme to the Development of Portuguese Industry.

⁴ Data from the so-called “Base de Dados de Propostas de Ideias” (GPF/POE) and from the main information system of the programme, SiPOE/PRIME.

⁵ Given that each eigenvalue is the arithmetic mean of the discriminating measure in each dimension, generally, it is purposed that it should be given a greater relevance to the variables with discriminating measure in each dimension at least equal to the respective eigenvalue (Carvalho, 1998). Following this reference, both dimensions discriminate significantly the type of projects and the number of partners. On the other hand, the sector of incidence and regional incidence variables have discriminate measures lower than any eigenvalue associated with each dimension. However, since this variables are crucial for the analysis of the pattern of PIP, manly concerning the type of decentralisation, we decided not to exclude them form the analysis.