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Evaluation Methods and Impact Analysis of Public Actions Supporting Local Development — The Cases of Canavese — North Italy — and P.A.C.A. — South France.

Economics and Technology Management PhD Thesis

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CHAPTER I:

THE PROBLEM IN THE LITERATURE: THEORETICAL FOUNDATION OF THE WORK

Although the positive world growth expectations existing in the middle of the 2007, the existence of old structural elements of crisis, due to the **lack, in our economy, of an opportune firms competitiveness** and **an adequate productive capacity**, has been highlighted by the successive economic world evolutions, that have touched quite all the Countries, and by the still existing growth rate differentials, also recognized by the International Monetary Fund (Zanetti, 2007).

The Italian answer and challenge to the current economical decline has been the rising of a new organizational capacity, showed by the old economical subjects, and of "new" operators, more innovative and oriented towards high technology productions (Rolfo, 2007; Zanetti, 2007). They have been often embedded in local networks structures, mostly composed by several SMEs and some big units and research institutes. The large presence of small and very small units, usually active in the computer, high-tech, mechanical and aerospace sectors, but also belonging to the manufacturer and traditional ones, has increase their economic power and their market role of technological driving force for the growth of our economic system (Antonelli, 1986; Marshall, 1890, Zanetti, 2007). These small firms have often been the local answer to unemployment problems and have assumed a central role in their solution, earning favour conditions in the central policy interventions. This mechanism has asserted, in our Country, the micro-size organizational model as a possible solution for a flexible economic development: in this picture, the **structural lack of big units**, that usually have economic coordination roles, and the several **firms micro-crisis** have underlined the over quoted competitiveness difficulties and the **small units limits**: the **lack in them of an adequate innovation propensity** and of **an opportune rate of investments in innovation**, due to the large infrastructures required, to the necessary economic capacity, to the financial autonomy needed and to the risk propensity requested, has led to the "well known" **SMEs problem** (Zanetti, 2007).

It's explainable with the over-quoted **low risk propensity**, with the innovations suspiciousness and with the consequent under-investment rate that have led the local small units to a significant loose of competitiveness in the national and international markets and to be in a weaker position, although their high sectorial diversification.
The high riskiness and the **low appropriation rate of the investments in innovation,** existing at firm micro level, cut down their appeal and often the small and medium units prefer to follow imitative strategies, with quick reverse engineering actions (Franzoni, Vitali, 2005) and **vertical integration processes** (Zanetti, 2007)**,** instead to invest in innovation.
Although the high quote in our economy (greater than in the other world Countries) of public funds allocated to sustain the SMEs private research, the mechanism just explained has led to a **decrease**

of their competitiveness and of **their central economic role**, of innovation and employment trainers (Garofoli, 1999).

The whole of these potential crisis different factors is basically tied to the **knowledge problem**, where this last has the character of a **public** or **semi-public good**, with mostly tacit characteristics (Antonelli, Calderini, 1999) and discourages strong quotes of investments. The low satisfaction, in the market mechanisms, of the equilibrium between the knowledge demand and the supply (because of its low rate of appropriation, its no rivalry in the consumption, the high level of externality (Mansfield, 1968) and the financial markets imperfections, due to information asymmetry), makes the private incentives lower than the optimum social level.

This mechanism has often driven some European local economies to deep innovation gaps, that must be overcome to be competitive in an international context. This element with the systematic difference between the public and the private yield rate of innovation investments (Nelson, 1959; Arrow, 1962) are the **principal argumentation justifying the public interventions in the market, direct to sustain the SMEs competitiveness and technological innovation.**

Next to these reasons, it's possible to find other motivations, as the so-called "**market failure paradigm**" (Bozeman, 1997; Jacquemin, 1987), that leads again to a substantial underinvestment in the knowledge production, because of the economic systems weakness, typically due to continuous innovation process in the market without a public correction (Calabrese, Rolfo, 2006), and as the **externalities phenomenon,** that rises when the subjects are not able to appropriate of all the economic and commercial benefits connected to the innovative investments made (Mansfield, 1968)**.**

In this context, most of the local governments have started to supply technological collaborations: they aim to increase the number of developing initiatives (Hall, Van Reenen, 2000) that lead to **knowledge economies .** These last have become a paradigmatic framework, within which proposals for new industrial and economic development policies can be designed, based on an increase of the local productivity, thanks to the faster technological change in the productive processes.
These economies are characterized by the presence of firms addressed to product and processes innovative changes, to interactive learning processes (Cappellin, 2007) and to the acquisition of new technical and organizational competencies: the whole of these factors create, in the production and in the innovative processes, privileged positions for the key actors and new strategic factors, that have lead the observed economies to acquire a **central role** and to be supported in their birth by **different local and central governments actions.**

In this framework, Zanetti G, Frigero P. and Boffa F., in a study on the **central factors of the Italian competitiveness** (2007), suggest a central solution against its decrease is to be concentrated on **products with an high added value**, instead of with lower production costs, and this is the basic idea behind both the Italian and French policy initiatives considered in the following work. The over-quoted products are usually made in large word economic chains, that are often characterized by **specific local cross point**, on which the new innovation policies should bet.

The first origin of the innovation policies lies in the industrial policies, because of the growing importance of the **technological innovation for the firms competitiveness**, that has forced the classical governments to face the technologies changes and the connected problems.
In the first step of this process, the innovation policies have been carried on through the classical support to the investments, but from the 1980s, most of the governments of the industrialized Countries have become conscious of the weakness of these initiatives and have then adopted a

range of diverse instruments, that essentially joined the traditional industrial policies with the scientific ones: nowadays, the industrial policies are pondering the local and regional economical management with the central one and should be able to balance the sustain of traditional manufacturing units with the innovative high tech one (Rolfo, 2007).
The innovation policies that arise by this last process could be mostly identify as the **result of the interaction among science, technology, economy and society factors**, although, in the last twenty years the consciousness of the deep differences existing in all these last fields and the centrality of the technological aspect have become increasingly more important and have led to the definition of more concrete technological policies, specifically addressed to influence the firms decisions about the adoption, the development and the sale of new technologies (Mowery, 1994).
Finally, nowadays it's possible to recognize a **shifting process** from the traditional firm-oriented perspective of the public innovation policies towards a more system-centred approach (Rolfo, Calabrese, 2006). This last underlines the **central role of the development of relations among the firms, of the increasing returns of the investment in knowledge, of their technological aspects and of their regional contexts.**
The new innovation policies deal with the **organizational, financial, educational and commercial dimensions of innovation (Cooke, 2005) and with the enhancing of human and social capital (T dtling, Trippl, 2005)** . They are more oriented and almost exclusively **concentrated on the SMEs sustain** (Ceris, 1997). They are addressed to **improve the existing network relationships among the local actors, the presence in the public centres of research of skilled and qualified staffs and to support the birth of new technology-based units (Calabrese, Rolfo, 2006)**.

But, if in the classical knowledge economies the factors that determine the firms success are increasing less fixed investments, more intangible and financial resources, more know-how and distinctive competencies acquired (thus the presence of labour skilled forces, Cappellin, 2007), in the cases here considered, **also the spatial and territorial factors have a large dimension and the infrastructural factors play a central role.**

Innovation processes were usually seen as the **result of the economic, social and technological factors interaction and only a light weigh was given to the spatial elements (Cappellin, 2007): now a wider concept of innovation policies it s recognized by the literature, in which technological transfer phenomena co-exist with infrastructural and territorial objectives and where the direct effect of the territorial structures and of their articulation is widely acknowledgment**.

The consciousness that innovation processes are **often localized** (Antonelli, Calderini, 1999) and that the **knowledge economies born more easily in the economic-territorial agglomerations of firms, as the networks, the district and the clusters,** in which the learning processes are faster, thanks to the higher actors proximity (Cappellin, 2007), has often lead to the over-quoted **regionalisation of the innovation policies**.
It has meant the **decentralisation** of the policies objectives, operations, instruments, administration, decisions and fiscal competences; than also an high difference among them and the risk to improve the already existing disparities among regions.
Anyway, the first **objective of the new regional policies is provide better competitive local conditions**: in this context, their **innovative side have had a strategic position**, trying to improve the local actors ability to formulate the right decisions, that take into account the needs of the business sectors (particularly of the local SMEs) and the capabilities of the regional innovation communities (Calabrese, Rolfo, 2006).
In this framework, the regional level is considered the **dimension most suitable** for the connections among various local production systems and for the implementation of their competitive policies.

The proximity among the involved units brings the regions to be an intermediate institutional level of coordination for the public interventions between the global market and the local areas (Grassi, Cavalieri, 1997; Cooke, 1998) and several advantages exist in the innovation policies realized in these ambits (Fritsch, Stephan, 2005). The innovation processes are more concentrated in certain areas, than spread across these spaces: realizing innovation localized policies could bring higher advantages than to use them in a general context. In addition to this reason, it's important to remember how a policies approach that treat all the regions in a similar way usually isn't appropriate and efficient.
Anyway, in the **innovation policies regionalisation**, some **difficulties still exist**, as, for example, the **low capacity, available at regional level, in the management of the decentralisation processes from the central level** (Calabrese, Rolfo, 2006). Anyway, in many context, we could find local public bodies and infrastructures that have acquired central roles for the **policies local governance**, defined by Jessop (2003) how the "reflexive self-organization of independent actors involved in a complex relations of reciprocal interdependence". These structures appear specifically strategic, because are the local governance actors' decisions, targeted to reach a local development, to allow the necessary structural changes that bring the territories success (Rolfo, 2006).

Consequently to this attention to the regional and local ambits, the concept of "**Regional Innovation System** rose up. It includes both the education and the research systems, that are seen as a set of organized structures with the related infrastructures (laboratories, equipment, etc..) that are mostly characterized by the local proximity among the actors, instead among their sectorial activities (Calabrese, Rolfo, 2006). It's properly in the context of these agglomerations that the local authorities play a strong role supporting the innovations (Ronde, Hussler, 2005): the innovation problems, in fact, in our Country, are not only due to the lack of financial resources, but rather to the characteristics of the regional systems of innovation (Gambardella *et al.*, 1997), in which usually act two typologies of subjects:

- the **big firms**, that collaborate both with universities and research centres,
- the **medium and little units**, for which, the innovations are rarely fruit of an interaction with the scientific system, but instead follow trajectories more traditional (Torrisi, 1997), that lead only to incremental innovative improvements (Calabrese, Rolfo, 2006).

There is the risk that this double action of different subjects lead to only limited innovative solutions.

In this context, the centrality of the territorial proximity themes has led to the birth of different typologies of economic/territorial firms agglomerations.
Among these last it's possible specifically to individualize the Italian technological districts (TD) and the French competition poles(CP). **Both these economic networks are characterized by the presence of small and medium units, next to few big firms. All these subjects are specialized in innovative economic activities, concentrated in a defined territorial space; they have important roles in the field of technical infrastructures and are tied together by a dense network of relationship to which they feel to be proper and belong.** Their aim is to promote and stimulate the competitive processes among the local or regional networks themselves, in order to create many areas with the goal to accelerate the technological transfer processes, through the development of projects shared among various actors of the scientific and innovation system (Calabrese, Rolfo, 2006).

In particular, they are defined:

- the technological districts as "*The final point of the analysis of the possible interpretations of the interaction between the economic space and the innovative process. It s than possible to*

talk about technological districts when the industrial districts aspects, the scientific parks[1] *characteristics and the Perroux pole*[2] *relevant sights coexist in a defined area*" (Antonelli, 1986);

- the competition poles as: "*Associations of enterprises, research centres and training bodies, which are present in a defined and limited area, linked by common development strategies, focalized to speed up the synergies for innovative common projects led in specific markets* (Pôles de Compétitivité web site, 2008).

These agglomerations, then, are often the result of economic, social and technological factors interaction and often perform in an easier way at a sub-regional level, where it's possible to find lower levels of governance, such as the provinces and the municipalities (Rolfo, 2006).
Paying again attention to the **territorial dimension** of their technological R&D activity, it's important to underline how the space in which the firm act isn't a neutral element (Beccatini, 1987 - 2000), but it has a strong role in their development, as the evolution of the firms themselves determines the territorial growth.

In this ambit, the big units, usually, have central roles in the innovative knowledge diffusion, are propellant in the development processes and make conspicuous infrastructural investments to be properly endowed. Around them, several small or medium units are active in the same sectors or in complementary ones: they learn from the first the innovative techniques and sell to them semi-manufactured products or services. The tertiary and the financial systems firms are strongly involved too and the last, specifically, has a central role in the productive or commercial activities financing.
In this context, it's necessary to specify that the principal distinctive elements between the two economical and spatial agglomerations just considered are their economic activities, more or less innovation oriented: a better specification of them is present in the following chapters III and V.

Next to them it's possible to find other different typologies of firms economic/territorial agglomerations, all joined by the territorial proximity characterization.
They could be summarized in different types of networks (specifically "Equipment supplier dominated", "Marketing oriented" or "Complete innovation" networks - OECD, 1998), principally differentiated, by the two preceding agglomerations, by the lower connection with the territory, that is substituted by strong collaborative relationships among the actors (firms, universities, centres of research, public bodies).
More exactly, the general concept of network includes varying local realties, among which the **industrial districts** (Marshall, 1890), in which the territorial proximity component has a strong weight, and the **clusters** (OECD, 1999; Porter, 1990), that have acquired different specificities, characterized by the diverse localization drivers, by the industrial agglomeration typologies and by the subjects involved. Clusters can form the basis of a successful economic strategy by supporting regional innovation, encouraging technological spillovers, producing economies of scale and scope and enhancing self-sustaining local economic development (Raines, 2002). Although the different definitions, clusters can be thought as networks of firms, research institute and public bodies, which

[1] Scientific Parks: Public and private mixed societies, made by public institutions, research bodies and private firms, which the mission to promote the technological and managerial innovations diffusion, in a tight connection with the characteristics and the needs of the local firms.

[2] Perroux Pole: An economic space, interpreted like a strength field, where it's possible to find propellant firms that are the base for the productive growth process and are concentrated in an urban area. These propellant firms form the growth pole and are the channels for the diffusion of the developement.

tend to be located in quite narrow geographical proximity and whose cross-sectorial linkages generate and renew local competitive advantages: the fundamental links between economic agglomerations and competitiveness are affirmed again in the literature, where are long standing, dating back to Alfred Marshall in the late 19th century (Marshall, 1961; Raines, 2002).

The concepts rose of *Hub & Spoke district* (A.Markusen, 1996), where there is a central big unit with other small ones around; of *economical district* (T. Brenner, 2000); of *satellite industrial platforms* (where the big firm is external to the territory); of *state anchored districts* (where it's a public institution to have a propellant role in the local development); of *innovative milieux* (T. Brenner, 2000), of *technopoles* (where it's possible to find a network of new and high technology firms, next to many public research and training structures and to infrastructures for the innovation); of *industrial cluster* and *investment cluster* (T. Brenner, 2000), of *cohesive clusters* (D. Hart, 2000), of *technological cluster* (Cooke & Huggins, 2001), of *social network* (McCann & Arita, 2004; Rolfo, 2006 – where we find firms of all the sizes, connected by strong social relations) and of *specialized cluster* (Ozcan, 2004) are partially explaining the different, local, economic theory dynamics, although they underline different governance actors' roles and give a picture of the multiplicity of all the existing agglomerative theories and entities: it doesn't exist an universal model of cooperation, but many configurations of the local specificities (Benko *et al.*, 1998), influenced by all the different determinants, that act in them and give different angles to the diverse realties (AIMS, 2007).

The fundamental differences between the classical district and the cluster concepts are lied to the absence of a specific sectorial vocation in the latter (although it's possible to find specialized clusters) and of a strong connection with the location territory, that's no more an element of the productive system, but only a place where the firms are. The clusters exist in a heterogeneous way in different activity sectors and are oriented forward specific innovative ambits. They are characterized by the larger presence of venture capital, instead of common invested capitals; by the firms interaction mechanisms of systemic relationships of learning, transmission and exchange of knowledge and competences, that have acquired a fundamental role in them (Foss, 2003).
The reason of their success could be found in their capacity to create, in a more or less formal way, some specific coordination mechanisms that can act in an horizontal way, among concurrent or complementary firms, or in a vertical way, reducing the transaction costs (Rolfo, 2006).

This is not the opportune seat to deep the network concepts and all their existing differentiations, but it's important to underline how their centrality is due to their structure and role, where strong relationships, not only among firms, but also between firms and institutions are considered. They are defined as "*networks of agents interacting in a specific technology area, under a particular institutional infrastructure, for the purpose of generating, diffusing and utilising technology* (Carlsson & Stankiewicz, 1995) and the subjects present are considered *governance* structures (Hakansson, 1989; Hakansson & Johanson, 1993; Cooke, 1998), stimulated by the geographical proximity, without a precise spatial identification.

Thus, **if the new technologies has an univocal effect on the geographic systems architectures, leading them to network forms**, where not only the transfer costs are lower, but the interactions among actors are more frequent and capable to promote faster changes in technology and productivity, **then the spatial structure itself has an impact on the innovation process, due to the different key factors operating within each specific Regional Innovation System** (for example, the modern technologies require a greater use of qualified workers in the management, purchase, marketing and research functions and these workers are more abundant in the metropolitan areas, that represent a greater demand for the bordering ICT technologies).

In the last two decades, several innovation economy schools, among which the "regional scientist", have displayed a growing interest for the **geographical and spatial distribution** of the industrial activities and have hold in great consideration the spatial elements and emphasises the importance of the geographical proximity, that is characterizing the **agglomerative dimension as a factor that facilitate the exchange and the diffusion of the knowledge acquired** (Audretsch, 1998; Barrio, Quevedo, 2005; Pavitt, 1998). The **geographical proximity** seems to play a central role in the relationships between public research bodies and industries (Acs *et al.*, 1992; Jaffe, 1989). Starting from 1980s, the regional and **local level** represent an important dimension for the coordination of public interventions (Cooke, 1998) and before Ohmae (1995) claims the "regional-states" as characterized, on an economic level, by relevant flows of activities, by synergies and linkages among the different actors.
The **regional levels are than considered the most suitable connections among various local production systems or clusters and for the implementation of rather complex policies,** like the industrial ones (Calabrese, Rolfo, 2006).
In this context, the **Italian industrial districts have surely been one of the most quoted observed models, that have led to different conceptual policies definitions and typologies, that have often been focused in some specific themes, as the innovation one.**

This conclusion shows the **centrality of the local proximity** again and how **investing in science or technology resources, that are present in circumscribed territorial areas, characterized by the presence of public centre of research, big or small private high-tech firms, public bodies for the local governance and dynamic category associations leads to higher economic returns respect to invest in zones less qualified in terms of competencies and intensity of the relationships among the subjects involved** (Piccaluga, 2002). In the observed Italian TD and French Competition Pole, these last actors are specifically bounded by economic, but also, social connexions that allow the development of some scientific and technical industrial spinnerets, where the results found in the private or public centres of research are used.

More specifically, the **agglomerative entities** here analyzed are distinct by the presence of an **human capital particularly skilled in the high tech sectors; by a peculiar internal firm dynamic, augmented by the necessary interaction among them for an homogeneous diffusion of the innovative knowledge; by high rates of development of the over-quoted enterprises, that are propellant in the economic growth, and by a developed adaptive capacity between the external stimulus and the internal needs.**

Commercial ethics values are born among the different subjects and have implemented the specificity of these territorial agglomerations to improve the faster knowledge transmission, trustworthy relationship among the actors and the reduction of the transition costs and times.
In order to optimize these interactions and the consequent effectiveness of the knowledge transfer, the necessity of the over-quoted common and social norms, economic incentives and a system of distinct institutional bodies, that regulate the behaviour of researchers and institutions, has become evident (David *et al.,* 1999).
Considering the whole of these targets, addressed to the development and sustain of the firms relationships and to the correction of market failures, the policies followed have been **particularly focused on the SMEs support, in finding complementary partners to compensate their own technological weakness**.
In fact, the existence and integration of various actors, with different complementary capabilities and an high cultural receptivity, the flexible organization of the negotiation procedures, the ability of manage their possible conflicts and to promote the cooperation among them are the effective procedures required by the governance of the innovation procedures (Cappellin, 2007). Among these subjects, the universities, central actors next to the firms of the economic territorial

agglomerations, play a double role: they not only train human resources in education and research ambits, but they are also handling entrepreneurial issues, like the management of innovative enterprises incubators and the collaboration into them, and are propellant for the technological transfer (Calabrese, Rolfo, 2006).

In this perspective, the regional policies could usefully contribute to the creation of **learning regions , characterized by the interaction among firms and research actors**.
To support this interactive process, the technological needs satisfaction and the economic growth, **the national and local governments have developed, in the last twenty years, next to the classical market failure reasons, new logics and political foundations justifying the public interventions sustaining innovation** (Bonaccorsi A, Giannangeli S., Merito M., 2007).
Most of the **previous issues related to market failure have lost part of their appeal,** because of the theoretical evolution of the studies on technological innovation, that have led to the **identification of new bases for public policies endorsing innovation (OECD, 1998)**: if the market failure justifications have loosed their weight, new development theories focalize **on the growing returns in terms of accumulation of knowledge the public interventions justification,** while **the evolutionary theories prove how its accumulation is path dependent and needs cognitive learning processes among the actors, with continuous feedbacks between firms and knowledge producers, that are, indeed, interdependent**, with their diverse roles, that could also be in conflict (Calabrese, Rolfo, 2006).
Nowadays the technological frontier is constantly progressing and **the local small and medium units required, to stay on the borderline, to have a central role in the national productive apparatus and to exceed the several problems that stop the development of their activity and reduce the efficiency of their productive processes.**
In the actual economic contexts, often, the observed **small units are not able to become, in an autonomous way, competitive, from social costs or technological points of view,** in the national and international markets (Cappellin, 2007): this fact generally requires **governments interventions oriented to the SMEs technological development sustain**.

To these first matter, it's possible to add **four other specific objectives** :

- first of all, the **solving of the unemployment problems**, that derives from the deep crisis of the end of the seventies and the start of the eighty (European Commission, 2004), for which it's justify the SMEs large proliferation;
- secondary, the **solution of competitiveness problems**, that have assumed a central position in the economic reflection (Fagerberg *et al.*, 1999) and have been also recognized by the USA Competitiveness Council and the European Lisbona summit (2000);
- third, the **central incentive role of the public innovative projects** (Gabriele, Zamarian, Zaninotto, 2007), that substitute the big enterprises role and support the local SMEs in their development;
- lastly, the **recognition of the firms networks value in the knowledge economies** (Freeman, 1987; Nelson, 1990; Edquist, 1997; Carlsson *et al.*, 2002): in the cases in which the collective innovation capacities improve the network results, thanks to the continuous interactions among the innovation systems actors, the importance of learning abilities and of networks structures, to use and develop the acquired knowledge in a more productive way, has been underlined.

Although, several experiences (among which Dosi *et al*, 2005, Archibugi e Coco, 2005), that are the central base of quite all the public policy interventions, show, at a macro level, a clear tie existing among the innovative investments made, the innovative level of the economic systems, the local firms development and their economical performances and growth, **the same positive relationship**

(innovative level / economic growth) it s hardly confirmed at a micro-economic plane (Franzoni, Vitali, 2005)**, also because of the difficulties in the valuation processes.**
These last **increase the uncertainty of the relationship**, that is already **dimmed by difficulties in the data measurement** (because of their low availability, the investments yield delay and several unobserved firms' life factors) and by the **low uni-directionality of the public policy interventions, that are often characterized by different and sometimes opposite objectives, that increase their frailty.**
Most of the time, the low impact effect of public initiatives is due to the ambiguous way of their definition and to the proliferation of too many initiatives: they frequently are **in competition among each others, are insufficiently financed, usually try to join different aims, replacing intermediary objects with the final ones and tend to generate confusion among the receiving subjects** (Calabrese, Rolfo, 2006)**.**
Moreover, the innovative products commercial times also weight on the uncertain results of them, because it's difficult to give a realistic measure of their effects on the sales or on the profit (Powell, Moris, 2004).
The increasing **regional devolution of the industrial policies**, already affirmed in most of the European Countries, anticipated in the Italian context by the Autonomous Trento Province experience (Gabriele, Zamarian, Zaninotto, 2007) and in several successive initiatives (Rolfo, Calabrese, 2006; Cotec, 2004; Santarelli, Zaninotto, 2007) has **brought the necessity of a valuation of the regional policies effectiveness.**

The literature shows contradictory results. In this optic, several analysis have tried to clear the relationship "**public policies innovation sustaining / firms growth**", traing to gain new ambit of research (Griliches, 1979-1998), paying attention to some Countries cases (USA and UK – Geroski, 1995; Germany – Engel *et al.*, 2004; Japan – Motohashi, 1998; Scandinavy - Nås, Leppälahti, 1997, Leiponen, 2000; France – Crepon, Duguet and Mairesse, 1998) or to single regional innovation systems (as the West Midlands case, analyzed by Freel, 2000), but from all of them it's possible to gain only some general and univocal results, as the one about the different innovation intensity, that is usually higher in the big firms, thanks to their more complete innovation appropriation capacity.
Most of the research made (among which Gabriele, Zamarian, Zaninotto, 2007) **show ambiguous conclusions**, underlining how with a low public intervention selectivity, **the risk of their use as a capital substitution factor, instead of an occasion for an internal growth, rises**: although David *et* al. (2000) show how the empiric evidence seems to favour the complementarity between public and private investments, Garcia-Quevedo (2004) concludes the results depend by the firms aggregation level and, finally, Santarelli and Vivarelli (2007) demonstrate how often the interventions sustaining the entrepreneurship fall in the *replacement* or *earth burst* effects, because of the high probability they are supplied to firms that, in any case, would have been able to make the same investments, to be competitive in the market, or that are too weak to lead the investment made in an efficient way.
In fact it has also been underlined how an incorrect use of the firm policies and incentives could produce **negative effects**, due to a too high young firms mortality, to entrepreneurship disillusion phenomena (Dosi, Lovallo, 1998) and to too superficial decisions to stay in the market or to get out (Lotti *et al.,* 2003; Santarelli, Vivarelli, 2007).

In Europe, several programmes regarding specific technologies (nuclear, aerospace, electronic and ICT) have often led to the creation of big national enterprises operating in a semi-monopolistic situation, which have failed to keep up the evolution of the markets (Calabrese, Rolfo, 2006). In this context, the technological support through business actions seems to be more useful: more advanced regions have benefit to a greater extent from available financial backing and **the appropriation of the results from the developed research strongly depends by the presence of internal structures of knowledge and expertise** (Calabrese, Rolfo, 2006).

Other studies, direct to measure the impact of the innovative interventions on the firms production, technological performance and innovative output, have given a contribution rather wide and gain ambiguous and not very stimulating results: the causal relationship between the innovative processes input and output is dimmed by several risk and uncertainty factors (Crépon *et al.,* 1998) and, basically, by the existing trade-off between different objectives (Merito, Giannangeli, Bonaccorsi, 2007).
Observing the literary review, made by Chennels and Van Reenen (2002), of the microeconomic evidences of technological changes on the firms structure it results again relatively scarce and with opposite results: Hujer and Radic (2005) don't recognize any effect on new products after the introduction of innovative activities; Irwin and Klenow (1996) noticed how the firms in network usually have better performances, respect to the units out of them, in terms of profitability, after the introduction of an innovation, but it's not the same in terms of investments and labour productivity (in this last point, Marito Giannangeli and Bonaccorsi (2007) agree and underline also the only restricted impact effect on the firms innovation activity and on their performance).
Examining a panel of firms that have received a public sustain in the period 1983-1985, Lener (1999) observes how they grew more than the considered control group in terms of sales and employment, but, on the contrary, Wallsten (2000) demonstrate how the short time program effect is lower if the endogenous effects are considered. In opposite, Gabriele, Zamarian and Zaninotto (2007) underline how it's possible to see **growth effects and size increases, that indeed not imply a better use of the existent productivity factors, in the long time, but how they remain limited to this period, because of the absence of structural change in the technological status of the involved firms**.
Harris and Trainor (2005) sustain the local incentives utility to defend the employment, through the existing firms protection, and Bergström (2000) underlines how the stimulated firms productivity increase in the short time, to decrease later, in the long period, in a rate proportional to the received subsidies.
Concluding this brief review, Dodgson and Bessant (1996) point out that these policies may be useless if the gap that often prevent the smallest companies from an efficient use of external-know how is not filled.

For this reason, the most recent policies objectives have become the **promotion of the research within the companies, the collaborations among them and between firms and universities and the creation of new technology-based firms, because the basic idea that networks and collaboration structures could help the overcoming of technological and innovative gaps present in them, thanks to the knowledge exchanges intensity.**
Confirming that, the EU has promote diverse objectives for the employment of young researchers and the creation of research groups with personnel drawn from industries, universities and research institutes.

In this context, the **innovations impact on the local or national employment** is an old, uncertain question (Freeman and Soete, 1997; Petit, 1995; Beesley, Hamilton, 1984), because two effects have been noticed:

- of growth and increase of work positions, because of the new productive processes, products, the births of new firms and the lower labour costs (Bonaccorsi, Giannangeli, Merito, 2007),
- of decrease, because of the substitution effect "labour force/capital" and the possible firms structural changes, that imply the demand of different productive factors (more skilled, as Piva *et al.* (2005) said).

The acquired consciousness that these results could change in different times, sectors or firms (Peters, 2004) and also if the whole of the actors that gravitate around the firms (customers, suppliers, competing firms) are considered or not (Brouwer *et al.* 1993), makes the observed relationship of difficult interpretation: **in most of the estimation works the growth dynamic generally has a positive sign on firms employment, that is stronger in the big firms, where the innovative activities seem to have a more direct effect**, because they belong to specifically solid sectors (as the manufacture one), usually no strongly influenced by the economic trend. In this context, anyway, more refined distinctions, as for example to separate the process or product innovation impacts, are not possible (Franzoni, Vitali, 2005).
In this ambit we haven't touch the *self-employment phenomenon* and the possible birth of new firms, that could be sustained by the effective national or regional unemployment (Audretsch *et al.,* 2005), because the low opportunity costs of these actions. These phenomena could be stimulated by the innovation and the public interventions net employment impacts could be positive, although depending by other complex factors, as the measure methods considered (if they are relative to the total labour force - Armintong, Acs, 2002 - or to the net or gross entrance rate - Carree, Thurik, 1996).
Particularly, the Piergiovanni, Carree, Santarelli, Verheul analysis (2007) shows how the innovative interventions impact is significant in the construction and transports sectors employment growth, because the high rate of autonomous amateurish firms, while, at aggregate level, in the manufacturer, commerce and financial services sectors the impact is negative.
Anyway, more simply, most of the governments interpret the innovative interventions as creating new skilled employment places (Leiponen, 2000) and use in this sense these policy instruments.

A different notation is present in the literature regarding the public innovation policy effects on the firm size and vice versa, the size value on the innovation projects: the data show the positive innovation intervention impact on the small firm dimension, that usually have, because of the few complementary assets owned, more difficulties in the appropriation rate of the innovation results (Cohen, Klepper, 1996; Franzoni, Vitali, 2005). This conclusion has been gain although it's recognized the existing imitative danger (Cooley, Quadrini, 2001; Carpenter, Petersen, 2002) and the central role of the big units in the projects development and defence, against the rival and concurrent firms illegitimate appropriation (Bonaccorsi, Giannangeli, Merito, 2007).
Other analysis (Gabriele, Zamarian, Zaninotto, 2007), among which the present work, underline how the public interventions usually have **a first positive impact effect on the firms sizes, while there is no answer in labour productivity or capital intensity terms**.
On the contrary, other works (Bonaccorsi, Giannangeli, Merito, 2007) conclude how the firms involved in public interventions don't show, after 2 years from the collaboration, a particular growth in their size.

Paying attention to the sectors of firm activity, the literature notices that, although the sector effect is lower than the size one, there is a better answer in the specialized suppliers fields and in the ones with high scale economies, where the processes of innovations are more frequent.
Particularly, the considered innovations, usually, allow a production costs reduction, that permits to the involved units to follow a competitive strategy based on lower prices, but, in this context, the **big traditional firms usually have stronger results than the small and hi-tech ones** (Nås, Leppälahti,1997): these conclusion is confirmed by the present research too and it's better explained in the final part.

It's still important to underline as the over quoted firms performances improvements usually appear in the 2-3 years just following the innovative intervention and they mostly regard the sales quotes. Anyway, they can't be necessarily considered as signs of a firm stronger competitive position in the

middle and long time evolution, because it hardly depends by the specific market and economic sector.
Several inquiries (Bonaccorsi, Giannangeli, Merito, 2007) suggest that generally the **public interventions have few effects on firms growth or on their productivity in the long period, while are an incentive in the short time, stimulating the innovative activity output**. In this answer, the structural industrial differences, most of all in terms of presence of big multinational firms, have an important weight in the single firms replay to the innovative incentives (Cefis, Evangelista, 2007): the little units, for example, usually give an higher answer to them, result more innovation oriented and the new processes techniques have in them an higher diffusion. But although this different innovation interventions reactions, their final performance tends to be lower then the big firms one.
From this conclusion, it's important to underline again how **a clear association public intervention / innovative output exists particularly where more selective initiatives are allocated**: **in some studies, among which the present, it s demonstrated how the Italian initiatives are usually less useful, because of their too wide and generic finality.**

From all the preceding considerations it's possible to conclude about the **ambiguous and not unidirectional impact effect of the public interventions sustaining the firms growth and development , because of the possible influence of too much factors, that could lead to diverse and opposite economic pictures**.
Often it's possible to find a link between public subsidies and the technological improvement of the involved firms, due to their sensibility to the incentives and to the greater investments concentration, but, at this point, **it s not clear the connection between the technological improvements and the better firms performances**. It's instead important, to gain this last objective, a **more careful definition of the opportune incentives and of their mechanism of valuation.**

In this context, the present work results underline the centrality of the public operator capacity to discriminate not only the firms able to be propellant of development, but also the proper services to allocate in each single case. This conclusion adduces a new, more careful, reflexion on the public instrument use in this context.
If less attention is paid in the processes of allocation, many effects of the public interventions made could be lower and the results deriving from the use of public funds to activate the firms, in an endogenous way, could be disappointing (Pellegrini, Centra, 2006; Altobelli *et al*., 2006). In addition to this concepts, also the **adverse selection risk, implied in an indiscriminate firms policy, increases the need of careful processes of allocation, useful to avoid structural turbulence phenomena** (Beesley, Hamilton, 1984), **due to ambiguous and not univocal public initiatives.**

I.1. INTRODUCTION TO THE WORK

In this context it's than justify the present inquiry, targeted to valuate the impact effects on the firms balance sheets values, employment and technological status of two similar typologies of public interventions:

- the Italian Canavese Consortium ones, allocated in different tranches, between the 1999 and the 2006, to the SMEs belonging to the homonymous zone, and sighted to sustain the local competitiveness and growth;
- the French SCS Competition Pole ones, supplied from the 2006 till to now, to the P.A.C.A. firms (that were prevalently small, but with some big unit), and target again to improve the local innovation and growth.

As already said before, to help the local small and medium units in the growth processes, that increase their qualification and flexibility and allow them in facing the risks of innovation investments, public interventions have been defined, supporting the observed SMEs in their development processes with technological transfer activities.

This typology of interventions belong to the group of the most traditional initiatives: from the 1950s, the technical assistance to the firms, although achieved in different ways, has always represented an essential instrument for the diffusion of the innovations among them. Usually it was based on financial aids (subsidies or tax credit) for the purchase of new machineries or equipments incorporating innovation (Calabrese, Rolfo, 2006), but in the case here analyzed, the technical assistance supplied is more direct to technological transfer actions. From the 1980s the characteristics of the innovation processes changed and a great attention has been placed on the diffusion of techniques for the technological transfer: numerous experimental projects started in different Countries, at local or national level, to set up technological transfer centres and to bring the firms to use of the scientific and technical services and knowledge discovered in them. In fact, a efficient technological transfer process could not have been archived without the creation of supporting infrastructures, *ad hoc* (Calabrese, Rolfo, 2006). Thus, in most advanced Countries, it has led to the creation of a wide structure of technological services and brokerage, that mainly involved the three types of subjects present in the economic-territorial agglomeration over-quoted: producers of innovations (universities and research centres); collective economic organizations (chamber of commerce, industrial associations) and autonomous institutions direct to the technological transfer (centres of information and incubators). The success and utility of these structured is based on their ability to cooperate and to be connected and this results easier, as it has been already explained, into specific economic network structures, that avoid the competition and endorse the mutual collaboration.

In this context an **evaluation work** of the actions made, at national and international level, and of their development impact is due: it could give a more detailed picture of the economical context in which they era supplied and could be a bench-mark for the policy makers (in this ambit, the European Union too has elaborate a series of initiatives to create a favourable environment for innovation and the technologies circulation: specific projects, focused on the technological transmission and on the removal of the diverse obstacles that hinder the innovation processes, have been implemented).

More exactly, the **present work would to verify** the impact effects of some public interventions, made to support the local firms economic growth and development: its aim is to investigate about the factors that act in these mechanisms, the probability of success of similar successive interventions and the responsibility of them in the realized firms growth.

I.1.a. The analyzed cases

This analysis is developed considering two specific cases of Italian and French economies.
The Italian analyzed experience is the one of the Canavese technological district, localized in the homonymous Canavese zone, in the Piedmont region, at north of Turin (at this point it's important to underline how this zone hasn't been officially recognized as technological district yet: it's governed by the territorial agreement law, but the local body for its management is defined "Consortium for the Canavese Technological District", to underline the local evolutionary targets).

The French case is the one of the *Solutions Communicantes S curis es* Competition Pole, located in the Provence-Alpes-Coté d'Azur (PACA) area, in the south of the nation.

In the Italian case, the Consortium for the Canavese Technological District (CTDC), born in the December 1993 to sustain the local competitiveness and economical evolution of the area, represents the local SMEs, covers a decisive role for their cohesion and their technological evolution and has supported them with different innovative services, supplied in specific projects relating to planning and making machineries, to use the laser technology, to metallographic analysis, to feasibility studies and to the systems of communication wireless, their introduction and application. All these services have been allocated by some local laboratories, the Centres of Competence, in 4 different projects, TS Canavese (Technology and Development in Canavese), PIA 01-02-03 (Integrate Area Projects 01-02-03) and DIADI. (a more detailed description of the Canavese structures and collaborations is reported in the chapter III.2 and III.3) .

The French *Solutions Communicantes S curis es* Competition Pole joins together industrial actors, subjects of the research and of the learning and training ambits, specialized in the microelectronic, in the telecommunication, in the software and multimedia contacts fields, that are localized in the PACA region (they can be more exactly separated in a 67% of SMEs, a 15% of big industries, a 6% of public and private associations: the remaining quote is varying).
The pole aim is to favour the creation of innovative cooperative projects, shared by the local subjects and regarding solution systems for a secure managing and exchange of private information in the tourism, health, mobile telephony and environmental management sectors.

These two sets of projects, given to the French and Italian firms in conditions of not competition, have driven the analyzed areas to an innovative development, have supported the technological evolution of the small local firms and have originated spillovers and a new spread knowledge.
New know-how typologies are so born in the observed zones and the value of the competences spread in the territory has been underlined.
The whole of these actions represents an example of interventions direct to support the innovation in the territories, the improvement of the local competences and permits to gain a point about the efficacy of the observed policies.

The present paper investigates on their impact results, in terms of firms economic growth, of innovative development and of improvement in the local employment. It's based on the analysis of the involved firms' balance sheets data (each unit has been observed, in average, for 5 years) and on the valuation of technical information relative to the interventions made and to their technical level.

In the following chapter II are explained all the methodologies utilized: from the first statistical descriptive analysis, to the successive application, in the 2 analyzed cases, of regression models (a random effects model in the Canavese case, a fixed effects one in the PACA case), of Probit models and of Propensity Score Matching models.

In the chapter III the Canavese case is presented in a more detailed way, with an investigation on the history of the area and on the interventions realized by the Consortium.

In the chapter IV the different typologies of analysis are applied to the Canavese data.

In the chapter V is made a detailed description of the PACA area and of the French case.

In the chapter VI the PACA results are presented.

In the chapter VII the two cases have been compared.

The chapter VIII presents the general conclusions .

CHAPTER II:

METHODOLOGY

The aim of this work is to investigate and verify the impact effect of the two different public interventions presented in the chapter I and directed to support the local firms innovation.

The present research analyzes some central points: which are the conclusions descending from a simple statistical analysis descriptive of the effects, on the treated firms, of the collaborations with public bodies, as the Italian Centres of Competence and the French Competition Poles? Which are the answers of the econometric regressive models applied to the data collected and which are the information deriving from the coefficients values analysis? Which is the probability that some public interventions to innovate have success and protract the economic growth of the involved firms? And which is the measure, till to now, of their effective impact on the local firms economy?

To answer to all these questions and to better valuate the economic impacts of the Centres services, different techniques of analysis have been applied to the data base constructed (one for each project supplied).
Firstly a statistical-descriptive methodology has been applied to the data, secondly the coefficients of some regression models have been calculated, thirdly Probit models have been applied to the panel datasets and, lastly, some propensity score matching models have been used.

II.1. THE STATISTICAL – DESCRIPTIVE METHODOLOGY

The first methodology of analysis, the more descriptive one, is based on the simple statistical consideration of the balance sheet data of the involved firms.

This information describes the economical evolution of the observed units.

Considering their movements in the analyzed period and their **statistical correlation with the services allocated,** it permits to gain a first picture of the services effects, on the single units performances and on the sectors to which they belong. This analysis is particularly useful to identify the balance-sheet advantages born with to the collaborations supplied by the local Centres of Competence or Competition Poles and finalized to support an innovative technological development of the firms.

The innovative processes could usually be evaluated with:

- The frequency of the contacts with the Centres of research (1)
- The economical performances of the involved firms (2)
- The number of innovative products made in the period (3)

If the technological transfer actions, that have implied one or more collaborations with the local Centre (1), have been done in an efficient way (they have conducted to the insertion of specific innovations in the firms productive processes) and if the involved enterprises have shown a net

increase in their economical values (or if the whole area is decreasing, they have kept them constant) (2), this better evolution might be justified by new innovative products made in the period (3) or by their larger quantity produced.

If the economical evolutions of the greater part of the involved firms (Italian or French ones) would be better than the ones of the respective areas of localization (Canavese or PACA), a first conclusion about the utility of the interventions made in the territories and their positive consequences on the firms evolution could be gain. It would be a first important policy result and, if it would be confirmed by the econometrics results too, a clear conclusion about the positive effect of the collaborations Centres / firms can be reached.

Having defined these simple points, the first operation has been a valuation of each firm performance in the considered years (1999-2007), in comparison with the ones of the location areas. The evaluation analysis has been made through the firms balance-sheet data (collected from the data base AIDA, in the Italian case, and from the Bureau Van Dick – Amadeus one, in the French case).

The first step done to reach this gain has been the definition of the economical evolutions of the Canavese or PACA zones during the period 2000/2007. These last have been considered through some indicators, expressing the local economic trends and allowing the definition of a picture of the local economical developments (for a more detailed description of the respective performances we sent to the chapter IV.3.c and VI.3.c).

The second step was the comparison between these trends and the evolution of each involved unit balance-sheet data. With this operation, each unit have been defined as having had a positive or negative evolution, in the observed years, compared with the territory to which it belongs.
Finally the cases of success (positive performance) have been separated by the failure ones and have been found the statistical correlation with the services allocated.

This brief introduction gives us the occasion to see the first real risk of a valuation work: sometimes, the introduction of innovative technologies has positive effects on the involved enterprises, but it is difficult to see them in the first short lapse of time and it's equally difficult to discover them in a longer period, because of the presence of changes in other different parts of the observed firms, that affect their general development.

For a realistic and more complete valuation of innovative actions supporting the local firms, then, a cautious methodology implies to consider the variables observed in different time (for a period "long enough" to catch the real result) and to compare them several times with the areas evolutions.

The principle that drives this triple control is that a long time analysis of the interventions made, that considers different step in which to check the firms values, could give a more trustfully answer about the long time collaborations impact (usually the advantages of an innovative intervention appear only after a specific lapse of time from it, 2-3 years in average – Franzoni, Vitali, 2005).

More exactly, in this work, the observed data have been considered:

- Before the innovative intervention
- A short time after it
- A longer time after it

The first important variable that has been considered is the **level of employment** in each firm and the effects of the interventions made, on it, have been observed.

It would be useful to analyse three groups of data:

- The number of professionals present
- The number of graduates

- Other forms of collaboration

It would be important to consider the number of subjects present in each group and their fluctuation in the observed period, to catch the real impact of the introduction of an innovation on the employment of the firm (for example, an increase of employments belonging to the second category, would be more important than the others, because it would permit a solid rise of the firm and of the national economy). Unfortunately, our sources (AIDA and Bureau Van Dick) doesn't provide detailed information on the employment, except the employees number, and we didn't consider other differentiations.

The second important factor is the **firm profitability**, that can be considered from different points of view, which underline the diverse advantages of an enterprise.

In the Canavese cases, the profitability of a productive system can be measured by:

- ROS (Return on Sales)
- ROI (Return on Investment)
- ROE (Return on Equity)

The ROS is the ratio between the operative margin and the sales. It shows the degree of profitability that a firm is able to gain with the sales. It is important because it says how much the business contributes to the result of the balance and how much it could be improved.

The ROI is the ratio between the net operative margin and the invested capital and it shows the profitability of the investments, in technologically innovative machineries too.

The ROE is the ratio between the net income and the net patrimony, it gives the best synthesis of the firm performance and it shows the degree of profitability of the capital of the firm. It measures the cost of the firm capital, that is originate by the investments in technological innovation too.

The productivity of a firm could also be evaluated with the sales, the profit and the Ebitda values: these quantities give information about the final product of the firm, about its sharing in the national and foreign market and about the profit deriving by its characteristic management. They all could be influenced by innovative investments and be comparison points respect to the areas developments.

In this context, it's important to underline that:

- If an observed firm keep its position in the 2002 and 2003, the years of Canavese crisis, and a positive effect could be recognized, till the 2006, on sales and employment values, then the final judgement about the firms evolution is positive and the same is for the one on the utility of the projects (a greater weigh has been done to the sales and employment variables, respect to the profit ones, because the first could be indicative of a future growth).
- If a firm shows lowing values, except for the year of the Consortium or Competition Pole services, then the judgement about the firm performance is negative, but the one about the utility of the project is positive, although the good effects exist only for a short time.
- If a firm has positive effects with the collaborations and shows good values after them, but went down in 2007, the judgement is indeed negative, because it could start a decreasing period.

- Some Canavese enterprises show high increases in production or employment in 2004 and 2005, then a little fall in 2006 and 2007: these typologies of variation have been joined to the positive ones, because it's possible to think that very high increases in some years could be followed by a little decrease later, but it's not defining the firm as one with bad results in the period.
- Some firms have the Ebitda value better than the profit one and all the other values good too: in these cases the valuation is positive.
- Several firms that took part to TS Canavese project have had good values of balance sheet in years 1998-2001. Some of them resisted to the crisis of 2002 and 2003, and the judgement has been positive. Others fell down, but when they re-acquired good values in 2006-2007, then the judgment is positive too.

Unfortunately , in this analysis, it has often been quite impossible to give an objective judgment for the evolution of each firm all along, because their variation are so different from the respective area ones' that it wouldn't be realistic to give a summarizing idea.

Indeed, in all the cases, some technical information, about the technical innovative needs of the firms and the results reached with the interventions have been added to the balance sheet data and have helped in the final judgement. In the Italian case they were collected by the technicians of the CTDC during the *technological audit*, represent the immediate impression of the firms components (managers and employees) about the interventions allocated by the Centres and are useful for a more realistic valuation.

Although from this first valuation work some important results can be gained (for which we send to the Chapters IV.2 and VI.2), to catch more complete results, some specific econometric models have been applied to the two constructed data bases.

II.2. THE REGRESSION MODELS

The objective of the application of a regressive framework to the analyzed data is catching the mutual influence among the most important variables here considered and the impact effect of them on the different quantity observed in each case.

The constructed panels of data contain repeated observations per individual (each variable is analysed from the 2001 to the 2007) and this is a problem and an advantage. Indeed, these variables are not independent, so if we pooled the observations and we use OLS we would have biased estimates, but if we fit them with a "cross-sectional time-series" model[3], as the fixed-effect or random-effect ones, which take into account the repetition, we can control for fixed or random individual differences and we can get better parameter estimates.

The basic framework is:

[3] In the econometrics literature these models are called `cross-sectional time-series' because we have time-series of observations, at individual rather than aggregate level.

$$Y_{it} = X'_{it} \_ + z'_i \_ + \_it$$

Where $z'_i \_$ is the **individual effect term** and where z_i contains a constant term and a set of individual specific variables, that are taken to be constant over the time t.

If z_i is unobserved, but **correlated** with X_{it} , then the least squares estimator is inconsistent, as a consequence of an omitted variable, and the model become:

$$Y_{it} = X'_{it} \_ + \__i + \_it$$

Where $\__i = z'_i \_$, embodies all the observable and unobservable effects and specifies a conditional mean.

This is a **fixed-effect model**, in which $\__i$ is an individual specific constant (in the time) term. This model is appropriate when we consider each individual has a fixed effect shifting the Y_{it} up or down (it would be appropriate for a firms study).

If z_i is unobserved and **uncorrelated** with X_{it} , then the model may be formulated as:

$$Y_{it} = X'_{it} \_ + \_ + u_i + \_it$$

That is a **random-effect model**, where u_i is an individual specific random element.

Then, the crucial distinction between the two models is whether the unobserved individual effects are correlated, or not, with the regressive variables in the model.

The random-effects model considers the individual differences (u_i) as random disturbances drawn from some specified distribution, rather than fixed and estimable: this has the advantage of using fewer degrees of freedom but it has the disadvantage of requiring no correlation between the regressive variables X_{it} and the u_i.

Admitted the fixed effects approach virtues, descending from the little justification for treating the individual effects as uncorrelated with the other regressive variables, as is assumed in the random effects model, from a purely practical standpoint, the random effects method greatly reduces the number of parameters to be estimated and often appears more suitable, while the fixed effects method may be inconsistent, due to the correlation between the included variables and the individual specific random element (Hausman and Taylor, 1981, Chamberlain, 1978).

II.2.a The Hausman Test

Helping in the choice between the two models, we find the **Hausman Test** (1978). It verifies the orthogonality between the random effect elements and the other regressive variables: the test is based on the idea that under the hypothesis of **no correlation**, both the OLS and the GLS are consistent in the Least Squares Dummy Variable Model[4] (although OLS is inefficient) and they should not differ systematically. Under the other hypothesis, OLS is consistent, but GLS is not. The Hausman test is based on the valuation of the difference between OLS and GLS and on the analysis of the covariance matrix of the difference vector [b – _], in which b is the slope of the model.

More exactly, the test verifies:

$$\text{Var}[b - \_] = \text{Var}[b] + \text{Var}[\_] - 2\,\text{Cov}[b, \_]$$

If the **no correlation hypothesis is verified**, the result would be: $\text{Cov}[(b - \_), \_] = 0$

[4] Least squares dummy variable model: $Y = X\_ + D\_ + \_$. Where D is the matrix of dummies d_i indicating the *i*th firm.

then Cov [b– _] = Var [_]

and then Var [b – _] = Var [b] - Var [_] = _

The test is based on the Wald criterion: under the null hypothesis, W has a chi-squares distribution, with K-1 degree of freedom.

$$W = [b– \_]' \_^{-1} [b– \_] = \_^{2} [K-1]$$

The test has been applied in the two cases analyzed and the proper models have been chosen: in the **Italian** case the no correlation among the unobserved individual effects and regressive variables in the model has been confirmed and the **random-model** has been applied; in opposite, in the **French** case the hypothesis of no correlation can't be accepted, so **fixed models** have been applied.

II.3. THE PROBIT MODEL

In this third typology of inquiry, we ask for an other central point of the research: which is the probability that an innovative public o private intervention has success, in term of economic growth of the involved enterprises? And which are the most important factors in this process, which have a stronger impact on this probability?
We answer applying a Probit model to the collected data (González, Jaumandreu, Pazo, 2005). These models, explaining a binary variable as dependent, typically arise when the interest is in a regression-like model and it is oriented to specify a relationship between the former binary variable and a set of covariates, in a binary choice model (W.Greene, 1993).

In the analyzed panels of data, the two dependent dummy variables considered, $Y1_{i,t}$ and $Y2_{i,t}$, are expressing the results of the first methodology applied, the more descriptive one. They are pertinent to the judgements given to the firms' evolutions during the whole of the considered period, in comparison with the Canavese or PACA ones, and to their results in the 3-4 years following the public interventions (respect to their previous performances). The considered variables indicate if the public interventions have had success or not (Y=1: success; Y=0 : failure) and are the dichotomous, qualitative, binary, dependent variables.
The focus idea is to consider the realization of each $Y_{i,t}$ as explainable and linked to a set of factors, gathered in a vector X, at least in the spirit of regression (W.Greene, 1993).

The basic notion characterizing the model is the existence of a latent, unobserved, variable, $Y_{i,t}^*$, ranging from $-\infty$ to $+\infty$ and indicating the probability of success of the fact analyzed in each specific case (the Canavese and PACA interventions, in this research). This *latent variable* derives from an *index function model* and it's related to the set of explanatory variables $X_{i,t}$ by the relationship:

$$Y_{i,t}^* = \alpha + X'_{i,t}\beta + \_$$

Where the vector $X_{i,t}$ collects the qualitative and quantitative variables that explain the result of $Y_{i,t}$, α is a vector of unobserved and stochastic effects, independent from the vector $X_{i,t}$ and from _, β is a set of parameters that reflect the impact on the probability $Y_{i,t}^*$ of a change in $X_{i,t}$ and is estimated with the maximum likelihood method, and _ is a random error term, drawn from a standard Normal distribution.

The relation between the latent variable $Y_{i,t}^*$ and $Y_{i,t}$ is:

$$Y_{i,t} = 1 \quad \text{if} \quad Y_{i,t}^* > 0$$
$$Y_{i,t} = 0 \quad \text{if} \quad Y_{i,t}^* < 0$$

Then, the probability that $Y_{i,t} = 1$ is:

$$P (Y_{i,t} = 1 \mid X_{i,t}) = P (Y_{i,t}^* > 0 \mid X_{i,t}) = F (X_{i,t} ,\beta) = \Phi (x'\beta)$$

Where $F(X_{i,t},\beta)$ is a continuous probability function, defined over the real line, and $\Phi (x'\beta)$ is the notation commonly used for the standard Normal distribution regression model, that is the distribution assumed for the error term _.

Obviously, the dependent variable results are varying with $X_{i,t}$ and, to interpret the estimated model, it's useful to calculate its values, named **marginal effects**, at its mean level.

It could be possible to calculate the marginal effects at the sample mean of the data or to evaluate them for each observation, using the sample average of each individual marginal effect. For the Slutsky theorem and assuming the data are well behaved to the large numbers law, in the large samples the two methods give the same answer, but they don't in small or moderate sized samples: in these cases, the current practice favours the averaging individual effect method.

The marginal effects are defined as:

put: $$\_ F (X_{i,t}\beta) / \_ (X_{i,t}\beta) = \Phi'(x'\beta)$$

then the marginal effects finally are: $$\Phi'(x'\beta) * \beta$$

Calculated the marginal effects, we can gain the probability value that the *latent variable* is major than zero and then the probability that the binary variable $Y_{i,t}$ is equal to 1: this last value shows the probability of success of the innovative interventions analyzed in each case.
It's important to underline that in our specific models the marginal effects don't differ from the coefficient of the models because the Probit model final regressions are linear.

II.4. THE PROPENSITY SCORE MATCHING MODEL

The evaluation problem concerns the **measure of the impact** of a policy, or a reforming intervention, on a defined set of **out-come variables**, usually expressed as $\mathbf{Yi_t}$.
The actions of evaluation and the monitoring processes of different public interventions are usually useful to improve the efficiency and the effectiveness of the incentives systems, but they are often extremely complex operations, due to the diverse problems that could rise in their realization (Cefis, Evangelista, 2007).

To overcome these valuation difficulties, often due to time or correlation problems, the literature frequently follows a counterfactual approach (Bondonio, 1998-2006; Camagni, Gorla, 2006; Santarelli, Zaninotto, 2007; Bonaccorsi, Giannangeli, Merito, 2007; Gabriele, Zamarian, Zaninotto, 2007). It is usually considered one of the most suitable methods, giving a solid impact picture of the interventions realized. It permits to analyze realties very similar to the observed one, but in which no services have been supplied, and it allows the evaluation of the studied interventions utility, considering their aims and the factors of their realization, through the comparison between the supplied firms performances and the ones of the control group.
Particularly, the counterfactual approach is useful to take into account different aspects of the same intervention, as the involved technological input and output factors (Engel *et al.*, 2004), the firms

economic evolutions, the employment changes and ones relative to incremental or tacit innovations (Antonelli, 1999), then it permits a more complete valuation.

Usually each subject involved in a public act is identified by some characteristics *ex-ante* useful for his identification and it's valued by some other points, *ex-post*, that show the intervention impact effect and allow a classification of all the individuals respectively to the results of the analysis (The evaluation problem, Blundell et Costa, 2000). Although the whole of these characteristics is useful to identify the **counterfactual group** (or **control group**), the problem of its identification rises: it might be composed by firms with the same characteristics of the preceding groups, but that hasn't had any contact with the Centre of services (Ashenfelter, 1978; Ashenfelter and Card, 1985; Heckman and Robb, 1985-'86; Blundell, Costa, 2000).

The construction of a fitting control group is not elementary, and even when its choice requests the close comparability of the peculiar characteristics considered in the selection of the treated group (and this is already quite hard to guarantee), we cannot be sure about the absence of other features that could distort the comparison and the impact valuation.

In the empirical economics, the evaluation methods are divided in 5 great categories (Blundell and Costa, 2000), that lead to different way of construction of the counterfactual group. The use of the appropriate model depends on several criterions:

- The scale and the width of the programs: local or national, small or global
- The nature of the questions
- The available data: if are available information relating to the period before and after the participation to the programme and if the questions to the control group are the same.

In a study of LaLonde (1986) we can verify that valuation results obtained using different estimation techniques and different types of control groups, are deeply different, but Blundell and Costa (2000) show the optimum evaluation situation and how to construct the better control group: if the services are supplied to a "random sample from a group of eligible individuals, chosen to participate to the programme, the assignment of the treatment is completely independent from a possible outcome variable, that results independent from the treatment effect. If no side-effects exists, the selection problems are completely ruled out and the comparison group, composed by no-treated units is statistically independent to the treated group in all the variable, except the treatment status" (Blundell and Costa, 2000).
After the proper control group individualization, the appropriate valuation methodology to utilize depends on three factors:

- The type of information available,
- The underlying model,
- The observed parameters.

If data are available in a longitudinal or repeated cross-section format, as in the cases here analyzed, it is possible to estimate the treatment effect on the treated units consistently, without having to impose any restrictive conditions, applying the *difference-in-difference* method, which can provide robust results. It verifies the effects of the treatment through the comparison of the involved units with the ones of the control group.
To filter this result from the own trend of each unit and avoid errors of selection bias, a pre-post control group methodology has been adopted (Bondonio, 1998-2006). It cancel the regional or national cycle effects and formally it measures the SATT (Sample Average Treatment Effect on the Treated: _), on the units (i), in the time (tn), as:

$$SATT = \_ = E[(Y_{i,tn}^{T} - Y_{i,t0}^{NT}) - (Y_{i^*,tn}^{NT} - Y_{i^*,t0}^{NT})]$$

where: T/NT = Treated / Not Treated units
i = Observed units
i* = Control Group units
tn = time of the treatment endowment
$E(Y_{i,tn}^{T} - Y_{i,t0}^{NT})$, $E(Y_{i\hat{},tn}^{NT} - Y_{i\hat{},t0}^{NT})$ = deviation from the *spontaneous* dynamic of both the observed and control group units.

The estimator _ measures the growth excess of the treated units, comparing the two deviations from the *spontaneous* dynamics: it's the more realistic measure of the impact of the treatment.

Considering each $Y_{i,t}$ as the result of the linear equations:

$$Y_{i,t} = X_{it}\,\__i + \__{it} \qquad \text{if } t < tn$$

$$Y_{i,t} = X_{i,t}\,\__i + d_{it}\,\_ + \__{it} \qquad \text{if } t > tn$$

Where:

d = dummy variable, that is equal to 1 if the individual participates to the programme, equal to 0 otherwise,

_ = homogeneous coefficient of impact for the treated individuals
$\__T = \_ + E(\__i \mid d_i=1)$ = **the mean impact of the treatment on the treated**

Where:

$E(\__i \mid d_i=1)$ represent the mean deviation from the mean impact among the partecipants.

And $\__i = \_ + \__i$

where $\__i$ = coefficient of impact on the subject i

This method allows catching the average effect of the observed policy on the involved individuals. This evaluation methodology has two advantages:

- It removes unobservable individual effects and common macro effects, because it considers the observed outcome variables enhance, valuating their differences in the time;
- It requires only two sets of information, relative to the pre and post-programme periods.

Anyway, although this positive points, this method relies on some important assumptions that could make the construction of the control group extremely difficult (Blundell and Costa, 2000).
First of all, both the treated and the comparison group are supposed to be *affected in the same way by macro shocks*; secondly *composition changes are not admitted within each group* and finally crucial assumptions are lying behind the *error composition*.

The value of the error $\__{it}$ could be decomposed (Blundell and Costa, 2000) as:

$$\__{it} = \__i + \__t + \__{it}$$

where $\__i$ is an individual specific effect, hypothesized constant over the time, for each individual, is $\__t$ a common macroeconomic effect, the same for all the agents, and $\__{it}$ is a temporary individual-specific effect.
If the expectation of $\__{it}$ conditional on the treatment status depends on the temporary individual-specific effect, $\__{it}$, the difference-in-difference method is inconsistent, because it's unable to cancel the individual specific evolutions with their subtraction (the method is instead able to control for the other two error components, as they are cancel out on subtraction). Then a separability condition between individual and temporal effects has to be assumed:

$$E(\__{it} \mid d) = E(\__i \mid d) + \__t$$

If the only unobservable term is $\__i$, a simple difference method could be applied and the estimator:

$$\_ = (\__{tn}^{T} - \__{t0}^{T})$$

Would be sufficient to identify _ consistently.

If the control group units are the ones that would have been selected for the allocation of the services but they have not still received them, then a joke of word defines _ as measuring the mean impact of the ***treatment on the treated.***

If the control group units come from the entirely population of the area, _ measures the population impact, but to catch this quantity is not so simple, because of the rising of a **selection problem** (usually individuals have not a similar reaction to a policy interventions, they are heterogeneous).

It can be solved by the **nearest neighbour matching valuation method:** it implies the selection, from the treated and the control groups, of a sufficient number of defining characteristics so that any couple of observed subjects, one from the former and one from the latter, would not display systematic different reactions to the policy analyzed, due to strongly different structures. The aim of the method is to match individuals with similar values of the set of variables considered, to observe the differences in the outcome variables and to catch, with this latter value, the net measure of the mean impact of the policy. To solve the uncertainty problems that weigh on the right identification of the matching variables (see Heckman, Ichimura and Todd, 1997 study) a specific instrument summarizing the whole of them (the Propensity Score - PRSC) is used, in a *propensity score matching model* (Bondonio, 1998-2006; Gabriele, Zamarian, Zaninotto, 2007).

The PRSC allows the peculiar identification of a control group, that shows characteristics similar to the treated one. Its value usually represents the probability of participation of each individual to the valued treatment and summarizes it in a number.

It's expressed as (Rosenbaum and Rubin, 1983):

$$P(X) = P(d=1|X) = E(d|X)$$

Where d = {0, 1} is the dummy indicating the exposure to the treatment,
X = multidimensional vector of the pre-treatment characteristics

More exactly, given a population of units denoted by different X, if the propensity score P(X) values are known, the Average effect of the Treatmen on the Treated (ATT) can be estimated as follow (S.O.Becker, A.Ichino, 2002):

$$ATT = E\{Y_{1,i} - Y_{0,i} \mid d_i = 1\} =$$
$$= E\{E[Y_{1,i} - Y_{0,i} \mid d_i = 1, P(X_i)]\}$$
$$= E\{E[Y_{1,i} \mid d_i = 1, P(X_i)] - E[Y_{0,i} \mid d_i = 0, P(X_i)] \mid d=1\}$$

Where the expectation is over the distribution of P(X) | d= 1: any standard probability model can be used to estimate the PRSC: usually the probit or logit models are used, then:

$$P(X_i) = P(d=1 \mid X_i) = \_(h(X_i))$$

where $\_(h(X_i))$ denotes the normal function and $(h(X_i)$ is a starting specification, which includes all the covariates as linear terms, without any interactions or higher order terms (S.O.Becker, A.Ichino, 2002).

In the case presented here, it has been considered in a different way and it has been constructed using the data relating to the former financial situation of the observed firms, both from the analyzed and control groups. So, in this case, it means the probability of each unit to have a specific economical evolution (positive or negative respect to the area) in the studied period and allows the identification of couple of firms with similar probabilities of growth. In a counterfactual optic, these couples of units have been matched with the *difference-in-difference*.
More exactly, in the Italian case we made 4 Probit models, one for CTDC project (because they have been developed in different years) and we count the Propensity Value of each firm of the 4 projects; in the French case we constructed only 1 Probit model.
Using the coefficients identify in all of them, we calculated the propensity values of the firms of the 4 analyzed groups.
After this preliminary work, using the coefficients found in the PRSC identification (the coefficients of a Probit model), for all the units of the selected control group have been identified the PRSC values, so that a list of the PRSC of both the groups are available.
Proceeding with a matching activity (Barnow, 1987; Rubin, 1973; Rosembaum and Rubin, 1984-85), between the firms of the two groups (the ones with the same, or, at least, the nearer PRSC values have been considered), then the *difference-in-difference* method has been applied
It's important to underline that, usually, the assignation of the treatment is not random, but follows the gain of the policy. It means that a series of variables are considered when the firms are chosen and they affect the determination of the units to which the services are supplied or not.

If the same variables affect, simultaneously, the outcome variable Y too, because they are related to the series of considered X, and it's not possible to separate these effects, a correlation between the dummy variable representing the services allocation, d_{it}, and the error term, $\_{it}$, is expected and the standard econometric approach is not valid.
Considering the different impacts among the subjects involved, it's natural admit that these differentiated effects influence the decisions for successive allocations of the services to the same or to other units, then d_{it-}. A correlation between Y and d_{it} is then likely to be.
But it is not the case here analyzed: in the projects realized by the CDTC and the pole SCS, the selection of the firms to which the services have been supplied, has been driven by their technical necessity and by the innovation gaps recognized by the technician of the Centre, in the Italian case, and by the utility of the projects proposed, in the French case. Instead, the impact evaluation of the respective projects has been made using the firm balance sheet data. Then, in the cases here analyzed, the standard econometric approach can be applied and the counterfactual problems are

eliminated: there are no significant differences, before the treatment, between the hypothetical group of selected units and the counterfactual one, so there are no reason for which hypothesize neither some particular selection or self-selection processes made, respectively, by the government bodies or by the units themselves, involved in the public intervention (Blundell and Costa, 2000).

However, if the process is not completely random, the self-selection problems could compare for the firms that attended to more than one project. In these cases, evidently, only the first impact results are considered, if not the simple *difference-in-difference* equation is not able to catch the trustfully impact effects.

II.4.a. The control group identification

In our case the control group identification has run in the following way:

At the first step we paid attention to the localization of the firms that were involved in the two typologies of services allocated:

- in the Canavese case, the greater part of them were localized in the Turin province (90,4%), but it was possible to find some units in the other Piedmont provinces and near Aosta (it's possible to find the list of the municipalities where the firms are localized in the enclosed Tab. II/1)

- in the French case they all were localized into the PACA region, in the *department* of *Buches du R ne* (62,5%), *Alpes Maritimes* (15%) and *VAR* (12,5%).

After this definition, we calculated the percentage quote of analyzed firms belonging to each considered municipality and counted the correspondent percentage of firms in the control group, belonging to the same municipality (the different numbers of units of the Italian and French control groups have been defined, *a priori*, respectively of about 300 and 100 units).

At the second step, we looked at the economic sectors to which the analyzed firms belong and to their size and we tried to identify, in the municipality groups previously selected, the same quotes of sectorial units, in average, of the same size. Unfortunately, in the Italian case, because of the large diffusion of Canavese Consortium services, the remaining local firms were not enough to built a proper control group, then we chose other enterprises, active in the same ATECO sectors, with a similar size, located in the same provinces, but in others local units.

Ending, the control group Italian firms are located, for a quote of 32,8% in Turin, for the 4,3% both in the Rivoli and Collegno municipalities, and, in minor percentages, in other communes in the Turin province. Further, to gain a well-balanced control group, representing the counterfactual of the observed units, it was necessary to add some firms, important for the sector to which they belong, for their size or for their juridical form.

Then, the constructed control group results made of **302 units**, divided among the ATECO sectors in the following way (see the following Tab.2):

Tab. II / 2: ATECO sectors of the Canavese control group firms

Italian economic sectors — ATECO code		Firms n¡	Firms %
01	Agriculture	6	1.99%
15	Alimentary Industry	4	1.32%
17	Textile Industry	2	0.66%
20	Wood Industry	2	0.66%
22	Print Industry	2	0.66%
24	Chemical Industry	3	0.99%
25	Plastic and rubber Industry	10	3.31%
26	Mineral non metallic products	2	0.66%
27	Metallurgy	11	3.64%
28	Metal Products	85	28.15%
29	Machineries	56	18.54%
30	Office Engines and Computers	21	6.95%
31	Electric engines	26	8.61%
32	Communication engines	8	2.65%
33	Medical engines	13	4.30%
34	Vehicle and tow manufacture	10	3.31%
36	Others manufacturing industries	6	1.99%
45	Constructions	3	0.99%
51	Commerce	9	2.98%
63	Transport activities	2	0.66%
72	Computer	18	5.96%
74	Services to the firms	3	0.99%
TOTAL		**302**	100.00%

In the French case, the identification of the control group has been easier, because of the homogeneous presence of firms of all the sizes, belonging to the same sectors of the ones analyzed (see the NAF classification Tab. II/3 enclosed) , but, indeed, in some cases, it has been necessary to reduce the control panel, that results finally composed by **81 units** (see Tab. II/4 enclosed). They are are located all in the PACA region (see the following Tab.5), mostly in the *Buches du R ne department,* in *Aix en Provence* and *Marseille*, although it's possible to find a good number of firms in the A*lpes Maritimes department,* in the zone of Valbonne and Nice and around Rousset, Fuveau, Peynier and Meyreuil.

Tab. II / 5: French control group firm location

Municipality	n¡ of firms	%
ARLES	1	1.23%
CARROS	1	1.23%
CHATEAURENARD	1	1.23%
GEMENOS	1	1.23%
LA CIOTAT	1	1.23%
LA GARDE	1	1.23%
MOUGINS	1	1.23%
PERTUIS	1	1.23%
ROGNAC	1	1.23%
SALON DE PROVENCE	1	1.23%
SOLLIES PONT	1	1.23%
VILLENEUVE LOUBET	1	1.23%
VITROLLES	1	1.23%
AUBAGNE	2	2.47%
BIOT	2	2.47%
PEYNIER	2	2.47%
MEYREUIL	3	3.70%
ROUSSET	3	3.70%
FUVEAU	4	4.94%
NICE	5	6.17%
VALBONNE	9	11.11%
MARSEILLE	18	22.22%
AIX EN PROVENCE	20	24.69%
TOT.	**81**	**100%**

Finally, the control group Italian firms represent the following juridical forms:

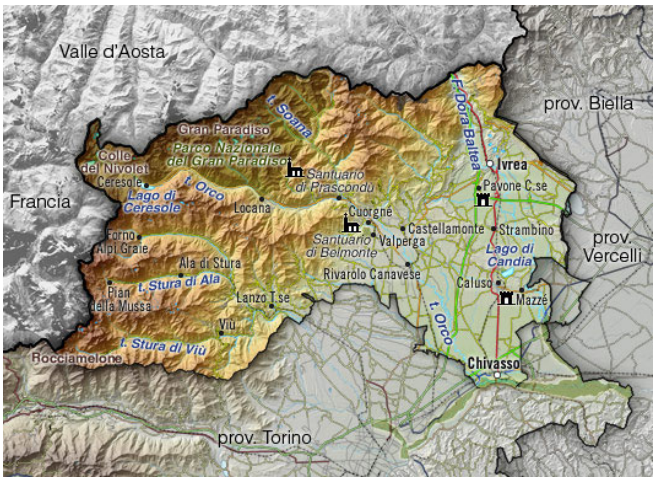
Tab. II / 6: Control group Italian firms juridical form

Juridical Form	Firms N¡
S.P.A.	98
S.R.L.	179
S.R.L. with an only member	17
Limited liability cooperative society	8
TOT.	**302**

The French control group firms represent, in an homogeneous way all the existing French juridical forms: *soci t anonyme* (SA), *soci t responsabilit limit e* (SARL), *soci t par actions simplifi e* (SAS), *soci t civile* (SC), *soci t en nom collectif* (SNC), *Entreprise Unipersonnelle Responsabilit Limit e* (EURL), *Entreprise Individuelle* (E.I.), *tablissement public caract re industriel et commercial* (EPIC).

CHAPTER III:

THE CANAVESE CASE



The large number of small and medium-size enterprises, placed in the Canavese area, at north of Turin, Piedmont, has been suffering, since the nineties, because of Olivetti crisis, of a gap in technological innovation, that has touched all their products and productive processes.

The public body born to sustain the growth of the area, the Canavese Technological District Consortium (CTDC), has organized a set of free services helping the local Small-Medium Enterprises (SME) to overcome the crisis period.
The whole of these interventions has been oriented to a technological transfer process, realized through the meet of skilled technicians of specific laboratories, founded by the CTDC, the Centres of Competence, and the local SMEs managers.

The last gain of CTDC is to spread in the Canavese area the technical innovations discovered in these Centres, to stimulate more innovative methodologies of work and production, to help the local firms to fill the existing gaps in their innovation and, finally, to support and improve the area competitiveness.
This set of interventions is a classical example of public policies followed to support the local firms development and its valuation could be useful for measuring better the public bodies actions effects and understanding the ways and the directions to pursue in the definition of other further innovation policies.

This section of analysis is specifically finalized to identify the policy actions suitable to support the innovation processes in economic-territorial agglomerative structures, as the Italian Technological Districts. The specific interest is to verify if public interventions addressed to sustain the local development really affect the performances of the involved firms and aid them in the growth processes and innovation.
To answer this question, the actions made by the Canavese Technological District Consortium (CTDC) to support the firms of the Canavese area have been analyzed. More exactly, in this chapter are examined the 5 interventions, managed and realized by the local Centres of competence: they were finalized to support, with TT actions, the local firms development and innovation, to spread in the area the knowledge learned and to stimulate a system of strong relations between the productive-industrial world and the research one.

These services have been allocating since 1999 until nowadays and the paper explores, using descriptive methods, a fixed effect regression model, a Probit model and a Propensity Score matching model the characteristics of them, the factors that have a positive influence on their

results, the probability of success of them and the performance of the involved units, compared with similar firms that didn't receive the CTDC services.
Public sectors of all industrialized countries spent a considerable amount of money and resources to support commercial R&D and innovation in manufacturing firms. As have been already explained and Arrow (1962) and Nelson (1993) said, the traditional justification for these programs lies in the market failure in providing incentives to the firms to allocate enough resources in innovative activities. The positive externalities rising in these investments induce a divergence between social and private returns of them (Gonzalez, Jaumandreu, Pazo, 2003). The interventions of the public sector solve this problems, but the effects of these concrete subsidies remains controversial (Klette, Moen and Griliches, 2000) and have to be inquired, to justify, in a stronger way, the public effort.

III.1. THE HISTORY

The Canavese area, centred in the roman settlement, the Ivrea city, is characterized by a peculiar history and evolution. It's located in the north-west of Turin province; bordering with Aosta valley, at north; with Vercelli and Biella provinces, in the east part; and with Turin area, in the south; it has a surface of 2000 Km^2, a population of 238.150 habitants, in the year 2000. It's made by more than 120 municipalities and it appears a dynamic entrepreneurial realty, with more than 12.000 enterprises and handicraft firms.

Founded at the end of the II century B.C., the Ivrea city, at this time called Eporedia and constructed with the roman century system, has had the central role of a border city: linking the Italy to European territories, it was a place of junction for the market exchanges and a defence fortress against the Celtic incursions.
After the Longobard domination, in the 1016, Eporedia became one of the larger and most important north-west municipality in Italy, with independent and self-governing rules. In the second half of 1300 the middle class, with its trade practises rose up, but only in the XIII century, economic, social and military organizations were settled in the area and the first corporations born. During the Savoy domination period, the industrial development in high Canavese, started, with the presence of mountain communities and a specialization in the transport sector.

Till to now, Ivrea city keeps alive its cultural tradition, born in the 825 B.C., when it was characterized for the presence of a Studium, one of the first type of university form. This particular attention for training skilled labour force and to deep the cultural vocation, has influenced the way of creating and managing the new local enterprises, usually characterized by a large previous knowhow and definable knowledge-based.
In this general historical contest, the west Canavese has always been characterized by an old entrepreneurial ability in the textile, steel forging and pressing sectors; the south area, the one around Chivasso, characterized by a landing position, has developed a big railway network, that defined it as an important commercial pole; the east zone, that's quite all the Eporedia area, started its industrial development at the beginning of the XX century, because a new industrial policy support, lead by the municipal administration elected in 1906 and strongly tied with Trade Industrial Association.
In the same period, the Olivetti family founded the homonymous mechanical enterprise, to which all this last area was strongly tied and which have had a deep role in its electronic and computer sectors specialization.
More exactly, in the 1908 Camillo Olivetti made the Olivetti & C. S.p.A., "the first typewriters Italian firm", with 20 employees, in 500 m^2 of space, that presented the first typewriter model, the M1, in the Universal Exposition of Turin in 1911.
In the following years, new typewriter models, in electric version too, came out in the market and the firm started its European and worldwide expansion.

During the ’29 crisis, the enterprise keeps its evolution and in 1933 Adriano Olivetti, an extraordinary philanthropist intellectual-industrial figure, succeeded to his father in the firm. He started a new way of enterprise management, more oriented to the employees necessity and to the respect of the territorial firm impact: he was already conscious of the weigh that the firm would have acquired in the next years. This attention to the firm urban and social role, brings Adriano Olivetti to built, near it, places for social services, houses for the employees and for their children. The whole building work, conducted mostly by two architects from Milan, beside others of international fame, remains an unique example in the Italian architectonic survey.
In the following years, around the Olivetti enterprise, several small-medium firms rose up: they sold intermediary products to the local big firm and represented the large block of first supply firms. Most of these units born thanks to Olivetti employees themselves, that were used to bring to their house some works and started to open new independent centres of activity.
In October 1945 the Canavese Industrials Association born: nowadays it represents 400 firms of Canavese industry, that, with its transformation and diversification, keeps to be the central axis of the local economy.

In the fifties Olivetti was the leader in the mechanical technologies of office products and started to invest in the electronic ones: in 1959 the first electronic Italian calculator was presented in the market.

The seventies were signed by the passage from electronic to computer technologies.
The eighties were marked by the Canavese development, centred on the two great pulling enterprises, Olivetti and Fiat, and in 1982 the first Olivetti computer, the M20, was built.
In the nineties, in Italy, a computer crisis rose up and Olivetti tried to overcome it turning to telecommunication sector, in which, nowadays is more specialized.

The couple “research/firm”, that have been one of the Olivetti central ideas, has always influenced the creation of an high instruction level, thanks to which it’s possible to find a good professionalism spread in the zone. But, while the central firm turned its central activity, indeed the Olivetti model, the one of a central big enterprise, with a large number of little “satellite firms” around, stimulated by it, fell down and, with it, the Canavese area as a whole, mostly for the innovation gaps that followed the lack of a prime contractor firm.
Next to the most important fact in the Canavese involutional process, the Olivetti system crisis, a quite similar negative role was played by the re-assemblage of the automotive sector local spinneret, tied to the closing of Lancia firm, in Chivasso.

These two different crisis factors implied unemployment and innovation gaps problems in all the zone. The firsts were partially contained, in a first period, by the smaller local firms, because of a translation of employees from the big unit to them, but this deep change of the local productive structure has implied the need of a reconversion of the local economic tissue trajectory and of the productive model. While in the ‘70s the big firm counted 20.000 employees, equal to the 70% on the market, in the ‘98s they were only 4.000 and today the SMEs have the 65% of employees.
The birth of these numerous SMEs, specialized in high-tech, computer and telecommunication sectors, is than strictly linked with Olivetti and Lancia crisis. These units, mostly founded by ex-manager of the two big firms, held their knowledge and experiences background and allowed to reach a local specialization in the computer equipment sub-sectors production.
At the end, this productive tissue transformation, did not represent a real break in Canavese history, but it has highlighted the local activities technological specialization, in the same industrial paradigms, the one of high technologies, computer science and telecommunication and the one of traditional handmade sectors, as peculiarly the iron and steel working, the metallurgic, the high-

precision mechanics, the hot steel pressing (in the Rivarolo area) and others making instrumental goods.
The territorial characteristic of Canavese zone is, then, nowadays, a productive multi-vocation, represented by an industrial structure, made by several specialized SMEs.

After the Olivetti crisis, in the 1997, the Canavese Territorial Agreement (see the Turin Province web site: http://www.provincia.torino.it/sviluppolocale/patti/) was stipulated, among 123 local municipalities, 5 Mountains Communities, 58 public bodies and 115 firms, with the object to strengthen the area development and the territorial identity, through the increase of the role of all the territorial subjects, in the communication and innovation binomial central idea. The Agreement would have been also a support in the local units productive investments decisions, in the infrastructures building and in the territorial managing. It was realized among different subjects for the activation of integrated intervention programmes, spread in different sectors (like the industrial, the services and the tourism one). The Territorial Agreement is characterized by objectives of promotion of the local integrated development and it works in a orchestration among public and private organisms, also to overcome the potential administrative lacks of communication.
In this context, the Canavese economy development needs are quite clear and they have been well defined in the Industrial Association projects. They involve the overcoming of:

- first of all a geographically marginal position, next to an inefficient road communication system,
- a low vitality linked to the zone image,
- a critic employment situation, with a rate of unemployment that increased of the 141% from the 1993 to the 1997,
- a lack in the communication among firms and institutions, because of the vanishing of the big firm figure,
- a weakness of the financial structures, that offered solutions not very suitable for the SMEs needs.

The central idea is to create an unique operative organ, a Projects Office, or a Projects Park, that collects, coordinates, elaborates and develops the ideas coming from the Canavese territory and out of it and that could touch the territorial marketing and communication strategies. The Project Office idea born because the pollination phenomenon, that happened in the eighties, from Olivetti forward the other local SMEs, can't be repeated: today, the real necessity is the presence of new managers, with the adequate competences and experiences, able to carry on innovative activities.
Near the Projects Office, it would be important to create a territorial government body too, a link between the territory and the institutions, that renders the projects executives and represents the principal actors. A regulator subject that makes the general decisions and decides a hierarchical order in the actions to do. In this mechanism, the compilation of Project Schedules, with the indication of the project leader, the project effects, the necessary resources, the preview times and the interactions with other subjects, and seeing, in the long period, the effective convenience of each of them would be fundamental.
These just expressed ideas and initiatives are the intervention lines proposed by the local Industrial Association (http://www.confindustriacanavese.it), that has the consciousness of the historical heritage of the area and of the problems that could rise from its geographical position: the Canavese, closed among the autonomous and rich Aosta Valley region, the Biella Province, provided of a political body for the territorial government, and the Turin metropolis, where all the attentions are localized, risks to be absorbed by this last structure and loose its identity and excellence.
For these reasons, the local entrepreneurs suggest the development of interaction bounds among all the Canavese structures, a re-development of the local planning capacity, the area transformation as

an experimentation zone, from where new ideas could leave to be used in other territories, to give the Canavese again its old prestige.

Nowdays, Ivrea in particular, and the Canavese area, as a whole, are in a strengthening phase in the ICT sector, in which are developed specific ability in the data elaboration section, in telematics, software production and editorial activities. The SMEs network appears pulverized, always changing in its conformation, but with strong potentialities in innovative technologies, because its particular origin.
The innovative force of the territory is confirmed, on a side, by the high number of patents registered by Canavese little firms, on the other side, and most of all, by the high number of SME operating in the ICT and high-tech sectors. These last SMEs appears particularly innovative in products making, in processes defining, in productive structure managing and in the market approach. They are active in science based divisions, where the ability of each firm to made a flow of innovations it's a strategic success factor, they are used in patenting activity, are linked to public research centres, as the ones of Polytechnic, Cnr and university, they lead consulting relationships with other private centres and they are provided of internal research centres. They result active not only in handmade sectors, but in the advanced tertiary too, they are working in designing and selling computer services divisions, in the environment defence and economical-technical consulting sectors, that could become important technological transfer channels. These SMEs have often been able to profit of financial fees preview by regional or national laws to technological innovation support or they have taken part to European and Community Union projects.

In this contest of transaction of the territorial structures, several SMEs loosed the market leader with Olivetti crisis, because they born especially to sell it intermediate components, and, in December 1993, the Canavese Technological District Consortium born, as a new agglomerative structure, to sustain the over said SMEs, which have had a gap in the innovation and growth speed.
The most adequate considered spatial level, that allows the born of a TD is different among the districts, but usually it's the Local Labour System (LLS): an area where it's possible an optimal allocation of the innovative process resources and the birth of stable relationships among the scientific system (universities and public or private centres of research), the industrial system (in its vertical or horizontal extension), the financial system (banks and other financial operators), the labour market (also see as the place of meet of work demand and supply and of human capital training) and the tertiary system (the whole of public and private institutions selling intermediary services for the innovations diffusion and application). In the Italian technological districts, it's the territorial location to allow the born of the Marshallian "*industrial atmosphere*" (1890) and to justify, with its historical tradition, the development of them: it's the historical heritage of the economic imprinting, so embedded in the local tradition, to determine the district specialization. The TD activities are the most innovative, the high technology ones and have been defined in the Italian ATECO[5] classification (see enclosed document III/1, Cavallo, Lazzeroni, Patrono, Piccaluga, 2002, Pavitt classification, 1984). They are represented by some subgroups of the manufacture and services activities (defined with the D and K letters in the ISTAT classification) and are characterized by an high quote of existing previous knowhow. Form this definition, the particular attention of these areas to the knowledge factor roses up: in these zones it's possible to find a fast circulation of the technical innovative notions and of the scientific information, thanks to imitative behaviours too, with which they are spread in the territorial agglomeration. They represent the theoretical base of the economic specialization and each knowledge economy development depends, in a strong way, by the quality of them and by the intensity of their territorial rooting (Piccaluga, 2002).

[5] ATECO 2002 classification, made in the ISTAT intermediary census of the industry and services (Cavallo, Lazzeroni, Patrono, Piccaluga, 2002)

The Canavese TD is composed by several innovative small-medium firms, with some big units, active in the electronic, computers and ICT sectors and tied by a strong network of relationships (http://www.distretti-tecnologici.it/distretti/Canavese.htm). The other actors of the TD are different structures, as the Turin Province, the Piedmont region, the Fin Piedmont, the Canavese Assindustria, the Can (National Artisan and SME Confederation), the Coldiretti, the Ivrea city, the Olivetti S.p.A., the Canavese Industrials Association and the API of Turin.
Its objective is to give, to the local SME, a new strength, through the technological innovations diffusion, and to give the public local administration a formative support (millions of municipalities, of other regions too, are interested in them).

The first results of this new district phenomenon were the creation of new firms in the ICT sectors (the Fulchir and Lexicon firms, for example) and the realization of innovative enterprises active in other ambits: the mechanical one, around the Pininfarina enterprise, in San Giorgio Canavese BioIndustry Park, for example, the entertainment one (the creation of a "Millennium Park" is preview) and the recreation industry one.
Secondary, formative specialized poles, in the Polytechnic and the University, have been potentiated, as collaborations with the London Royal Institute of Art and local innovative financial and venture capital structures.
The natural habitat in which the Canavese TD born is strongly diversified. It's characterized by an historical heritage for which important actions increasing its value are required and it has a deep weigh in the firms settlement decisions: in the 90th the Territorial Agreement Communes saw an increase in the local population, justified by migration movements, due to the presence of attraction elements in the area, either at occupational or at residential level (the area involves 123 municipalities).
The ISTAT marked the border of the Canavese TD into the zones of the Local Labour Systems of Ivrea, Chivasso and Rivarolo Canavese. In this territory, in the 2000, 2309 manufacturing firms were counted, among which 560 (the 24,3%) are active in the High-Tech sectors: they are specialized in the computer division, software making or computer consulting activities.
When the Canavese TD was informally created (it isn't still recognized by the public central authority, as it has been already explained) and born the consciousness of the necessity of a managing structure, catalyzing the resources diffused in the area and supporting the reconversion of them in more innovative ones, in December 1993, the Consortium of Canavese Technological District (CTDC) was founded (http://www.canavese.to.it/).

Its scope is the economic and social development promotion through:

- the promotion of the productive processes innovation, through the use of new technologies;
- the sustain of TT actions and innovation initiatives, that previewed the existing technical and scientific knowledge defence and use and the promotion of the discover of new ones;
- the coordination of specific projects, financed by European, national or regional funds.

The Consortium and Territorial Agreement objectives are strengthening the local firms actions, supporting the innovation diffusion and sustaining the development of some innovative activities, born from the interrelation between the firms and research world (see the Turin Province web site: http://www.provincia.torino.it/speciali/sviluppo_canavese/agenzie.htm).

III.2. THE INTERVENTIONS OF CANAVESE TECHNOLOGICAL DISTRICT CONSORTIUM

The Canavese Technological District Consortium started its activities, supporting the local SMEs innovation and competition, in the July 1999, realizing different interventions that involved 239 units.

All the collaborations, were inserted in the measure 6.1 of the DocUP (Programming Unique Document - Reg. CEE 2081/93) 1997-1999 programme. It was presented by the Piedmont region and the Turin Province, to the European Commission and contains the development strategies and the priority axes for interventions sustaining, during the period 2000-2006, the SMEs localized in the Canavese area, in their economic development. More exactly this programme focalizes some integrated projects for the local economic dock, for the system areas, for the districts and the manufacture Canavese industry technological innovation diffusion. It was co-financed by the European Union, the Italian State and the Piedmont Region with an amount of 15 milliard of Lires, finalized to support the firms research, the consulting activities and the material and immaterial investments.

This typology of CTDC initiatives is inserted in a bigger trend, followed by the Piedmont Technology District associations, as the Torino Wireless Foundation, in which the MIUR, the Piedmont Region, the Province and the city of Turin, the Turin Chamber of Commerce, the Polytechnic of Turin and other fundamental actors of the local economy act. The "Progetto PMI" is a Torino Wireless tool, that acts for the acceleration of the local SMEs, in order to facilitate the technological processes of innovation, providing the access to information, knowledge and skills from which the SME would be excluded, because of their nature (www.torinowireless.it).

III.2.a. The Centres of Competence

One of the first step of the programme, to improve the Canavese performances, in line with the Territorial Agreement objects, was the establishment of 5 research laboratories, financed for the 70% by the DocUp and managed by the Polytechnic of Turin and the RTM S.p.A. institute (institute for the Mechanical Technologies Researches and for the automation). One of them is localized in Turin Polytechnic seat in Ivrea, another in Chivasso, in the Caserma Giordana, and 3 of them in the RTM seat in Vico Canavese. This last institute, born from an A.Olivetti idea and specialized in the laser technologies studies and applications, managed the first Consortium project, TS, about which details are given in the following part.
The cited laboratories, that, later, would have acquired a financial autonomy, are named Competence Centres, are equipped with technical machineries and have a different specialization:

- The Centres located in the RTM are operating in laser applications, in cellular sheets and in technological innovation in the pressing activities.
- The one placed in Chivasso city (_ – Lab) is specialized in micro and nano-systems for advanced sensors, bio-technologies and nanotechnologies and it has a strong interaction with the firms of the territory. There we find a "White Room", available thanks to Turin Polytechnic, and a laser work station.
- The last one, in Ivrea Polytechnic, it's specialized in mechanic and micro-works.

Later, other new Centres followed: two of them are in Colleretto Giacosa city, at the Bio Industry Park: The first one is specialized in chemical and bio-technologies studies and is localized in the Integrated Laboratory of Advanced Methodologies (LIMA); the second one is active in the innovation and flexibility in the auto components sector; The last one, operating in the products and processes quality analysis, in the products homologation and pre-certification.

Each Competence Centre has the objective of deepening resolutive solutions, with R&D activities, and updating their own scientific and technological know-how, for the Canavese firms problems solution. The gain is answering to the Canavese industrial needs and developing projects integrated with the local firms that implies the use of industrial machineries, that are present in the Centres, or the experimentation of productive processes, thanks to the Centres technicians support.
More exactly, the Centre of Chivasso, working in the **micro** field, offers a support in the micro-systems activities and in the ones related to the sensors analysis. They both are emerging fields, because the progressive devices miniaturization, the possibility to use, in this typology of works, the laser technique, that operates at a micro-dimensions, and the more frequent actions of planning and realizing electronic, optical, mechanical and chemical micro-systems.
The RTM **laser** laboratory has primarily consulting functions, for the Canavese firms, in the laser technology knowledge, diffusion and application, in the superficial treatments and in the welding activities. This Centre has also important functions in the specialized technicians training and, in it, has been presented some deepening about the available instruments and the innovative use of them in the welding and in the superficial treatments processes.
The RTM **pressing** Centre of Competence offers the use of a scanning electro microscope and of a simulation software for hot and cold pressing processes: this last permits the preview of the possible critical zones, the deficiencies and the imperfections of the pressed pieces and of the press itself and allowed more controlled pressing activities.

They all are open laboratories, because they allow an easy access for the firms to the discovered knowledge, to the research results, to the specific structures (the local firms can use the laboratories, the technical offices, the monitoring instruments and the laser machineries) and they preview programs of employees training and assisted planning. They have consulting functions, for the Canavese enterprises, for the integration of the gained results in their productive channels. They realize feasibility studies for the application of the news technologies discovered and their experimentations, they define the right parameters and analyze the economic convenience of the new procedures.

After this analysis phase, done by the Centres, exists the possibility, for them and for the involved local firms, to set some industrial collaborations, finalized to product the engines of industrial interest, in a financial cooperation, to gain a greater development in the area.
These whole Centres, finally, represent a source of a constant flow of innovation for the local firms, through technological transfer (TT) actions (projects, workshops and feasibility studies) and employees training, allowing an autonomous access to their structures to the Canavese firms and supplying a constant support to their technological innovation needs. The Centres appear a source for the local employment too.

III.2.b. The problems determination and the technical solutions

While these Competence Centres were set, several Canavese firms have been contacted, in different **technical auditing**, where firms managers and Centres technicians met. They defined the technical level of the involved enterprises, they discussed the themes of their central interests and they planned **several activities of support and experimentation**, that would have involved not only the public Centres laboratories, but also the firm technicians and the private existing structures too.

The base notions about the new and useful technologies have been spread, with particular attention to the firm specific problems and to the opportunities of their application.

After these first contacts, some **feasibility studies** of the preview resolutive pilot projects followed: they were the base for the development of the actions useful to each units and for the realization of an efficient TT (for their most deepening we send to the following part of single projects analysis).
During the projects realization, some **experimental research** activities were preview too, but, several times, the necessity and urgency of the single projects exceeded the time programs: in these cases, they were postponed.
In the meantime, some **thematic workshops** and some **tutorial books** have been diffused and the Centres technicians have compiled a series of **schedules** with the report of the first projects results. The tutorial books gives some general information on the analyzed technologies (for example, on the laser welding activity, on the material typologies and their reactions in laser application, on the possible industrial applications, on the surface treatments and the security in laser use).
The higher collaboration between the Centres and the firms is represented by the development of some **successive projects**, in which some **prototypes** have been constructed. After them some reports have been compiled, that are the base for the implementation of the activities in the different involved firms and for some productions, of large dimensions, have been launched. For example, the specific Canavese area interest in the auto panel, in the welding of other components and in the thermic treatments, has conduct to the definition of a laser system to apply in the auto sector.

Moreover, **periodical workshops** have been set, with the presentation of the previous results of each project: they have allowed the increase of the number of involved enterprises.
With this last step, a new entrepreneurial mentality was born: paying more attention to the whole of the opportunities of interaction among firms and research bodies and stimulating a new culture, more collaborative and research oriented.

Beside these technical objectives, an other object of the initiative was to made a technical-economic Consulting Centre, able to weight costs/benefits ratio deriving from the new technologies introduction. This Centre doesn't exist yet and this work would properly provide for this lack, giving valuation results of the interventions made till to now.

III.3. THE PROJECTS

- T.S.

The first initiative realized by the Consortium was the TS Canavese (Technology and Development in Canavese) project (http://www.canavese.to.it/ts.htm and TS Canavese final report, 2005), that was developed from July 1999 to June 2001 and involved 118 local SME, belonging to the first Objective 2 Zones (see the document attached III/ 2 and http://www.regione.piemonte.it/industria/docup/carte.htm). These areas are the ones indicated by the Turin Province as underdeveloped or in economic decline, than needing a public support.
The services have been supplied by the Polytechnic of Turin laboratories and by the RTM ones, where have been activated 5 Centre of Competence. They are the laser application one, the one specialized in cellular sheets, mechanical and micromachining activities and the one analyzing the technological innovation in pressing activities.
With the realized supporting activities, relative to the specific problems presented by the firms in the technical auditing, this project covered an high importance in the Canavese SMEs support, also because it represents the first occasion given to technicians and researchers from different firms and institutes to collaborate, realizing an exchange of knowledge and ideas important for the local ambit.

The principal themes analyzed in **laser technology** application are:

- some metallurgic problems, born during the steel or other not-ferrous materials welding activity (some steel types require a pre-heating treatment or to be coupled with high carbon materials);
- some problems relative to the welding technological process for the thin sheets;
- some micro-piercing and cutting problems, in silicon or PCB materials.

The results in this first field were extremely interesting: the optimal conditions in the welding activities have been defined, also for some problematical materials, and some new possibilities and solutions are born in the industrial market (related to the necessary heating up treatments for some materials before the welding, to some materials additions in the welding process, to some superficial treatments or to some aesthetic welding). Some techniques of "remote welding" have also been defined: they consist in some simple scanning welding, on large dimensions, that reduce the transfer times in the process.

In the **micromachining** field, the Competence Centres:

- made some works on optical fibres;
- studied some sensors for the control of people access, for the control of the deformation in wood sub-stratum in art works and for environment evolution;
- controlled the laser cut works with proximity sensors
- marked some plastic elements through the superficial layers laser removal
- micro-pierced some mechanical metal components with the laser instrument
- made some micro-welding proves on brass wires
- made some weld-brazing for printing machines needles
- analyzed the problems deriving from the laser sheets cut and different sensors, useful in welding and cutting processes have been identified.
- considered the application of thermic mechanisms, the ones used in the pressing machines, to move the fluids in a micro habit;
- studied a laser sensor to measure the tool use
- defined the innovative characteristics of the cellular sheets: they have an alveolar structure, a lighter weigh and a greater strength.

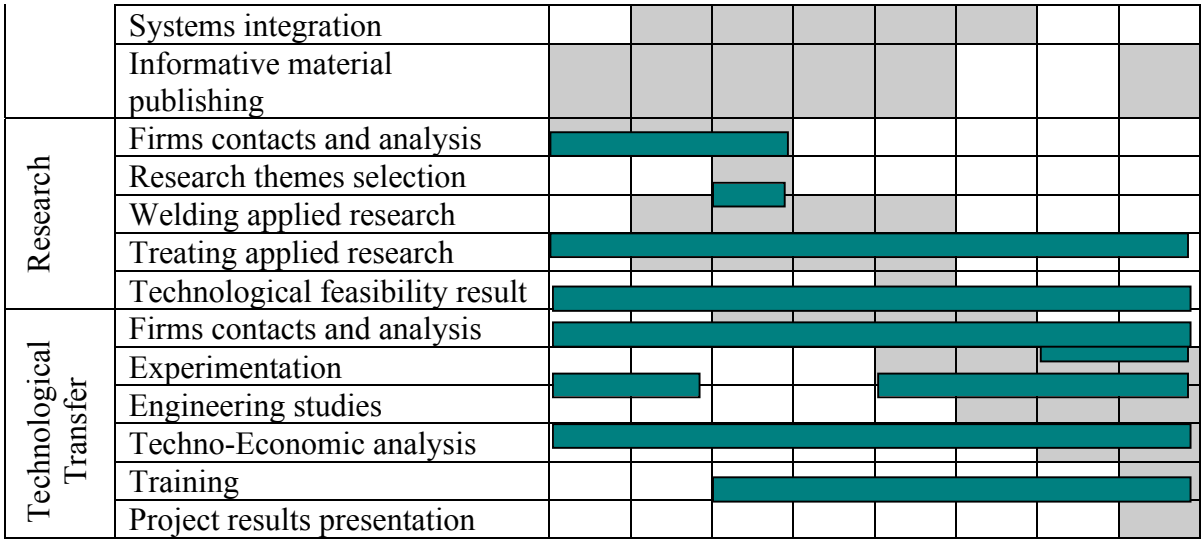
The transversal experimentation in the **pressing** habit has had four specific objects:

- the stamp wear (use)
- the stamp finishing and polishing
- the thermic and mechanical construction of stamp and pressed models
- the sensors analysis

All the previous activities have provided the development of feasibility studies, industrial processes, metallurgic analysis and they have allowed innovative production systems and promoted the innovation in the mechanical sector.

A scheme of the times for the different phases of TS project is reported below:

Phase	Activity	'99	'00	'01
		Q3		2
Equip.	Provisioning of the equipment			
	Preparation of the areas			



- P.I.A. 01-02-03

The Integrate Area Projects 01 and 02-03 (see the Consortium final report) are two initiatives promoted and coordinated by the Turin Province and financed either by this last and by the DocUP measure 3.1, contained in the measure 6.1 over quoted. The projects have required an expense 27'232 millions of Lire, against the 27182 preview: this amount was partially spent by the Turin Province, next to which the DocUp put 17'605 millions of Lire.
The PIA 01 and 02-03 initiatives have involved, respectively, 24 and 31 SMEs, belonging to the second Objective 2 Zones, in the years from the 2003 and the 2004 till to December 2005.

The project objectives are coherent with the Turin Province activities, started in 1997 and they are supporting a local permanent development, with the subscribed Territorial Agreement of the same year. The Turin Province has had a relevant role in the PIA projects, circumscribing them to this last agreement zones and underling the complementarity between this two instruments.
The projects reached their objective through the sustain of an integrate network of services for the firms present in the territory, or for the ones that were coming in, and through programmed negotiate initiatives.
They are composed by a series of different interventions, linked by a socio-economic development logic, and they are developed in an horizontal/vertical dialog optic: the basilar idea is following the local increasing evolution with a repartition of the competences between public and private actors and among the different territories involved (the mountains, the hilly and the ones of the lands).
Often, some activities do not expected have been required, as the drawing up of periodic relations and brochures and the organization of seminars and meeting, but they all have strengthened the energy of the projects.

Particularly, in them, we found actions:

- of firms creation or sustain;
- of promotion of the Unique Counters for the Productive Activities;
- supporting the local SMEs international presence;
- promoting the Technological Parks and the Firms Incubators.

Next to these principal projects results, a series of other positive point have been also gained, as:

- a greater cooperation among different regional or provincial bodies;

- the creation of synergic actions, among similar or complementary subjects, as the Canavese Development Agency, the Technological District and the Ivrea University, direct to increase the added value of the territorial projects;
- the experimentation of a system with the same opportunities among little, medium and big bodies and firms.

Among all these positive results, some negative points exist too, that can be summarized in:

- the necessity to define a greater financial coordination;
- the necessity to gain a better integration strategy among the PIA projects and the other territorial initiatives;
- the lack of a more ductile credit system.

- DIADI

The DIADI project (see the Consortium final report and www.diadi.it) has been financed thanks to a collaboration among the beneficed firms and by the DocUP measure 6.1 over quoted too (the public resources quote is 5 million of Euro, the firms quote is 2 millions of Euro). It started in the 1996 and evolved in different tranches: in the third edition here analyzed, it has involved 65 SMEs, belonging to the second Objective 2 Zones, from the January 2004 till to December 2006.

It has been centred on a strong collaborations system between SMEs and research Centres: the most important results have been the development of some demonstrator projects (for which has been used the 14% of the funds), the realization of some check-up to the firms structures and of some feasibility studies, directly asked by the firms (for which the 52% of the funds has been used and in which were involved firms internal employees in a quote of 30%). These last permitted the firms to gain new production processes, involving the new technologies that have been presented, by the Centres technicians, during the collaborations.

The productive units generally involved in the DIADI projects are operating in different sectors, ranging from the information technologies one, to the ones of mechanical, electronic, pharmaceutical and chemistry production, and to the ones of rubber and plastic works. All these units faced several challenges and were supported by the research Centres activities (it's important to underline that, during the DIADI project, some other different Centres of Competence, in the automotive, sensors and micro-systems sectors, have been set).

All the services allocated in all the 4 considered projects have been classified in the following 19 categories (see Tab. 2), from which it's possible to catch a first picture of the CTDC interventions:

Tab. III / 2: Centre Collaborations typologies

CENTRE COLLABORATIONS

A	A 1	Mechanical components planning	1
	A 2	Software and electric components planning	12
	A 3	Others planning	2
B	Metallographic analysis		8
C	Welding, piercing, cutting, micro-matching and marking processes laser use		90
D	Analysis, deepening, projects advices and Centre competences acquisition		70
E	Certifying products		13
F	Centres laboratories and services offered utilization		29
G	Feasibility studies		27
H	Future collaborations		37
I	Pressing activities supports		20
L	Sensors functioning		0
M	Wireless communication systems		3
N	RFId modulus: software applications management		11
P	Cellular sheets		10
Q	Micro-pumps on silicon: fluids movement simulation		2
R	Control systems analysis		7

S	Software simulators	5
T	Materials analysis	6

Nowadays, the Canavese TD Consortium interventions are more focalized on the firm learning phase. How have been widely shown by this work, the involved local firms, often, hadn't the technical background and the capacity to introduce directly the innovation proposed by the Centres technicians.
This consideration have brought an exponent of Turin Polytechnic to insert the realization of a new typology of supporting activities: the fabrication facilities (see Consortium reports). A proper firm has been created, in the Febrary 2006, in which the Consortium, the Turin Province, Turin Wireless, the Turin Polytechnic and the Chivasso municipality act: the Tech-Fab. It's localized in Chivasso, in the area of the yards for the high-velocity railway Turin-Milan and it support the firms and the research Centres in technological transfer processes (see La Stampa, del 20/11/2006).

Its objectives are:

- the experimentation of innovative productive processes;
- the production of pre series of goods, in start-up phase;
- niche productions;
- planning of materials, engines and production systems;
- consulting in Micro and Nano-technologies
- collaborations in the large volumes of production.

CHAPTER IV:

THE CANAVESE RESULTS

IV.1. THE DATA

To analyze deeper the Canvese case just presented, the data related to 239 firms of the 268 that agreed to Canavese TD Consortium Projects have been collected: they refer to the years since 1999 to 2007, for TS firms, and to the ones since 2001 to 2007, in the other three projects.

The data give a complete picture of the involved firms. Firstly they have been differentiated for their juridical form, as it is reported in the following table 1 (it's interesting to underline that some units have changed their form, in a more sophisticated one, during the years of the collaborations).

Tab. IV / 1: Firms juridical form

Juridical forms	TS firms	PIA01 firms	PIA02 firms	DIADI firms
S.p.A	60	8	5	8
S.r.l.	47	33	16	39
s.a.s.	6	4	2	5
s.n.c.	4	11	5	3
Cooperative Society to limited responsibility	1	/	/	/
Simple Societies	/	5	3	3
TOT.	118	61	31	58

Later, the oldness of each firm, since the year of its foundation, has been analyzed: the two younger units involved were one year old in 2006, the older is a little firm of 106 years.
They all are characterized by a high values of sales and added value.

Subsequently the data specifying each firm location have been examined: they show if the observed units are in Canavese area or in other Objective 2 Zones (see Piedmont region web site and document III/2 attacched). Several firms of the panel belong to these zone, that are defined as industrial zones in economic decline, with an high unemployment rate, greater than the European average and increasing in the industrial sector, and with a percentage of vacant job positions in the

industrial division, greater than the Community average. These zones are sustained with Communitarian financial supports and, after the approval of the map of the Objective 2 Zone in Italy (in the 2000 - 2000/530/CE - GU L223 of the 04.09.2000), the interested regions, among which we find the Piedmont, presented to the European Commission the Unified Programming Document (DocUP) for the years 2000-2006. It reports the strategy and the priority axes of defined development programs.

Successively, the ATECO 2002 economic sectors of activity of each firm have been considered, but for a more detailed discussion of them we refer to the following part, where the results of the first statistical analysis are presented.
In succession, the balance sheet data of each firm (collected from the AIDA data bank) have been used to give a detailed picture of them. Firstly the number of the employees of each firm has been defined, with an indication of its size. They have been collected in the following table 2, where the little firms with less then 50 employees (that's conformed to European definition) have been counted. They are related to the total number of firms participating.

Tab. IV / 2: Firms frequency and size

Projects	Firms total number	Sme	% Sme / Tot.
TS	118	52	44.10%
PIA01	61	54	88.50%
PIA02	31	25	80.60%
DIADI	58	33	56.90%

Subsequently, the balance sheet data have been collected for each firm. They indicate:

- The **sales values**, representing the answer of the market to the entrepreneurial firm activities;
- The **result of the accounting period**, explaining the effects of the management actions in the period;
- The index **ROS**, (Return on Sales), that is the ratio between the result of the accounting period and the sales. It explains the rate of income that a firm obtain for each monetary unit.
- The index **ROE**, (Return on Equity), that is the ratio between net income and net patrimony. It explains the rate of yield of a firm.
- The index **ROI**, (Return on Investments), that is the ratio between the net margin and the invested capital. It explains the result of the enterprise management and the rate on the investment return.
- The index **R.O.A.** (Retour on Asset), that explains the return on the investments and assets made by a firm.
- The index **R.O.T.** (Invested Capital rotation rate), that shows the effectiveness of the invested capital respect to the sales
- The **gross operative margin (GOM)** or the **Ebitda** (Earning before interest, taxes, depreciation and amortization), that is the difference between the added

value and the value of salaries. It explains the financial flux associated to the operative management.

- The ratio **GOM** / **sales**, that explains the trend of return of the firm.

Beside all these data, it's possible to find all the information pertinent to the Consortium interventions: they have been summarized in notification of the Centres of Competence involved in each different case and they include a brief exposition of the problems individualized in the auditing and the objectives researched in the collaborations. These last data have been synthesized in some different standardized typologies, defined with some alphabetic letters, as it's possible to see in the following table 3:

Tab. IV/ 3: Typologies of collaborations with the Centres

COLLABORATIONS WITH THE CENTRES		
A	A 1	Mechanical components planning
	A 2	Software and electric components planning
	A 3	Other planning
B	Metallographic analysis	
C	Welding, piercing, cutting, micro-matching and marking processes laser use	
D	Analysis, deepening, advices in projects and Centre competences acquisition	
E	Certifying products	
F	Centres laboratories and services offered utilization	
G	Feasibility studies	
H	Future collaborations	
I	Pressing activities supports	
L	Sensors functioning	
M	Wireless communication systems	
N	RFId modulus: software applications management	
P	Cellular sheets	
Q	Micropumps on silicon: fluids movement simulation	
R	Control systems analysis	
S	Software simulators	
T	Materials analysis	

Subsequently, some indications about the feasibility studies made and their objectives have been collected. The studies have not been developed by all the firms involved in the projects, as it's possible to see in the following table 4, reporting the number of studies made in each project and their percentage quote respect to the firms that applied them.

Tab. IV / 4: Quote of feasibility studies made

Projects	Feasibility Studies Made	Analyzed firms total number	Feasibility Studies / Analyzed firms
TS	51	118	43.2%
PIA01	27	61	44.3%
PIA02	13	24	54.2%
DIADI	22	36	61.1%

The moderate participation to the feasibility studies represents an element of reduction of the Consortium collaborations effects, in fact, only the units that carried on their development could totally verify the positive impact of Consortium interventions, through the greater results reached, the further successive developments, the products or processes modifications inserted in the production and the patents made or in progress, that are summarized in the following table 5.

Tab. IV / 5: Reached results, successive developments, product or processe modifications, patents made or in progress

Projects	Reached results / Successive developments	% Analyzed firms total number	Products or processes modifications, patents made or in progress	% Analyzed firms total number
TS	33	28%	18	15.3%
PIA01	24	39.3%	21	34.4%
PIA02	13	54.2%	6	25%
DIADI	20	55.6%	0	0%

In its first column we can notice the improving results reached respect to the studies made; in the second column it's possible to see, instead, the decreasing number concrete products made: in the last two projects the results have been reached through the development of other successive projects, as it's summarized in the following table 6:

Tab. IV / 6: Subsequently projects made

Subsequently Projects made		
TS	25	21.2%
PIA01	/	/
PIA02	7	29.2%
DIADI	28	77.8%

While the firms that agree to PIA01 intervention didn't require the development of any subsequent project, it was different for the PIA02 and DIADI firms (with a higher percentage in the letter).
But, although the just presented repartition among the 4 project, the greater results have been reached (as it's possible to observe in the tab.7) by the PIA02 firms, while the DIADI firms seem not to have gained too much interesting results.

Tab. IV / 7: Objectives reached with the subsequently projects and successive developments

Projects	Project Objective Reached	Successive developments
TS	2	9
PIA01	/	/
PIA02	7	7
DIADI	3	2

In this contest, the TS firms, that, in absolute, were the more active in the participation to Consortium interventions (they have developed a good number of subsequently projects too), didn't gain, directly, so much results but remained available for several successive developments of them, with a different behaviour from DIADI firms (see tab.7).

Concluding, the high interest shown in the successive projects development by PIA02 firms, followed by the ones of TS, is confirmed by the intention to keep a relationship with the different Centres involved, which are considered a potential aid for the future (see Tab.8). The same speech is not valid for the firms of DIADI, that usually stopped their collaborations at the second project level and decided to keep the possibility of a collaboration with the Centres only for a quote of 47,7%.

Finally, the PIA01 firms, that didn't agree to some successive projects development, are, in an high quote (65,6%), available to maintain active relationship with the Centres, that, evidently, helped them in the first step of their collaborations.

Tab. IV / 8: Evolution of the relationship with the Centres

Relationship with the Centres		
TS	50	42.4%
PIA01	40	65.6%
PIA02	18	75.0%
DIADI	31	47.7%

Keeping on observing the data collected, it's possible to find some information about the technological status of the involved firms (see the following Tab.9). It considers the situations before and after the interventions and gives a brief picture of the typology of firms analyzed and of the effects of each project on them.

The technological status typologies are defined considering the innovative technical level of each sector: the positioning of each firm has been evaluated, in a range from 1 (obsolete technology) to 5 (top technology).

Particularly, the most technologically development firms agreed to the projects PIA01 and PIA02, among which exists a continuity in the services. Also in DIADI project, it's possible to find several units at a top technological level, but we can see an improvement in the technological status only in the PIA01 intervention. Finally, the TS firms, that most agreed to the project, appear less developed from a technological point of view, while the opposite happens for the DIADI firms: this last result could be surprising, but it will be developed and explained later, in the Tab.10 comments.

Tab. IV / 9 : Firms technological status in T1 and T2

Projects and Time		Firms Technological Status				
		1: Obsolete Technology	2: Old Technology	3: Renovate but still in evolution Technology	4: Advanced Technology	5: Top Technology
TS	T1	/	2	29	33	20
	% quote	/	2.4%	34.1%	38.8%	23.5%
	T2	/	2	29	33	20
	% quote	/	2.4%	34.1%	38.8%	23.5%
PIA01	T1	/	5	22	34	/
	% quote	/	8.2%	36.1%	55.7%	/
	T2	/	5	21	33	2
	% quote	/	8.5%	35.6%	55.9%	3.4%
PIA02	T1	/	/	9	15	/
	% quote	/	/	37.5%	62.5%	/
	T2	/	/	8	16	/
	% quote	/	/	33.3%	66.7%	/
DIADI	T1	/	6	13	11	7
	% quote	/	16.2%	35.1%	29.7%	18.9%
	T2	/	7	13	10	7
	% quote	/	18.9%	35.1%	27.0%	18.9%

Still looking at the data relating to the interventions made in the firms, it's possible to find a notation on the interventions technological level, on their utility and their productive relapses (all expressed in three scale levels: high/medium/low) . The results are coherent with the preceding, in fact, the firms that participated to TS projects, that aren't very technologically advanced and expressed their intention to have some collaborations with the Centres in the future, realized the collaborations importance through satisfying results and could catch higher advantages from them (as it's possible to see in the Tab.10). On the contrary, some PIA01 and PIA02 firms, that were quite all technologically developed, judged the Consortium intervention with a low utility, and, in PIA02 case, with only medium productive relapses. To conclude we have only few information relating to the DIADI firms impressions for the intervention made, but they are generally high.

Tab. IV / 10 : Collaborations technological level, utility and productive relapses

	Interventions: technological level/ utility				Productive Relapses			
Projects	High	Medium	Low	Not Answered	High / Already applied	Medium	Low	Not Answered
TS	59	16	/	3	44	18	2	6
%	**75.6%**	**20.5%**	**/**	**3.8%**	**62.9%**	**25.7%**	**2.9%**	**8.6%**
PIA01	11	8	1	/	/	/	/	/
%	55.0%	40.0%	5.0%	/	/	/	/	/
PIA02	3	5	4	/	8	1	/	/
%	25.0%	41.7%	33.3%	/	88.9%	11.1%	/	/
DIADI	1	1	/	/	2	/	/	/
%	50%	50%	/	/	100%	/	/	/

Finally, we managed to collect some other impact information from the firms that agree to TS project, that are presented in the following Table n°11, from which we can verify the interventions results not too high but partly satisfactory (they are directly connected to evident index of development, as the engagement made or potential, and the foresights of new orders).

Tab. IV / 11: Engagement made or potential and new orders foresight

	Engagements made			New orders foresights			Potential engagements		
Projects	Yes	No	Not Answered	Yes	No	Not Answered	Yes	No	Not Answered
TS	13	19	38	19	7	39	18	14	39
%	18.6%	27.1%	54.3%	29.2%	10.8%	60.0%	25.4%	19.7%	54.9%

IV.2. THE DESCRIPTIVE-STATISTICAL ANALYSIS

Looking again at the 268 firms data, it's possible to see a first picture of the interventions impact effect and to catch some interesting connection among them.

From the aggregate data relating to ATECO economic sectors of activity (see Tab.12 below and the IV/12 bis attached), we can see that the greater part of firms (166 units, the 43,8%) belongs to metallurgic sectors, either the ones of hot and cold working and metal products fabrication (87 units), or the ones of machineries and engines construction (79 units). These units are more concentrated in TS and PIA01 project (see attached table n° IV/12 tris , where are present, respectively, in 55 and 77 firms), but they are also present in the 2 last interventions, PIA02 and DIADI, respectively in 21 and 12 units.

The second higher quote of firms (51 units, 13,5%) which carried on the CTDC projects is represented by the units belonging to office machineries, processors and computers systems production (ATECO sectors 30 and31) and to the ones of electric machineries and communication equipment production (sector 32). Again they are more present in PIA01 (21 units) and TS (19 firms) projects, but it's possible to find them in the other two projects, too, respectively with 4 firms in PIA02 and 7 units in DIADI.

This last category of firms is immediately followed by the enterprises belonging to computing sector and to the one of services to the firms. They are present in 50 units, that is the 13,2% of the total panel and they are again more concentrated in PIA01 projects (28 units, the 15,8%). They belong mostly to the computer consulting and software production sectors, to the administrative and managing consulting ones, to the engineering testing and to the technical analysis one. They are followed by the firms of TS project, present in 11 units, of PIA02 (5 firms) and DIADI (6 units).

Still looking at the aggregate data, it's possible to recognize a medium quote of firms (17 units, that is the 4,49%) working in the sectors where vehicles, tows and semi-tows are made, in the ones where all those products are commercialized (21 firms, 5,54%) and in the construction sectors (15 units, the 3,96%): in the first two of them we can find again the greater quote of firms in TS and PIA01 projects, while the units of the construction sector are present only in PIA01 and PIA02 projects, respectively with 11 and 4 units.

Tab. IV/12: Canavese firms ATECO economic sectors

ATECO 2002 - Group of activity	Frequences	%
01	2	0.53%
15	2	0.53%
17	1	0.26%
20	2	0.53%
22	1	0.26%
24	3	0.79%
25	6	1.58%
26	3	0.79%
27	15	3.96%
28	87	22.96%
29	79	20.58%
30	18	4.75%
31	19	5.01%
32	14	3.69%
33	10	2.64%
34	17	4.49%
35	1	0.26%
36	2	0.53%
40	1	0.26%
45	15	3.96%
50	4	1.06%
51	21	5.54%
52	1	0.26%
63	1	0.26%
64	1	0.26%
65	1	0.26%
70	1	0.26%
72	34	8.97%
74	16	4.22%
92	2	0.53%
Total	379	100.00%

Concluding the sectors analysis of the observed firms, it's necessary to underline the high presence of already innovative, or needing innovation firms, active in the technological advanced fields; this is justified by the CTDC services typology and innovativeness. It's indeed important to recognize how the opposite principle is also true, that is the clear and the high need of the local advanced firms of innovative aids and collaborations, like the ones offered by the Canavese TD Consortium, that have been useful in the sectors that represent the "core business" of the manufacture and services Canavese activities.
This last observation is a first result attesting the central role of Consortium projects in the local capacity to partly get over the crisis of the analyzed period and to keep on the industrial development in the following years. Surely, the conclusive results of this first research confirm this interpretation, underlining the weigh of Consortium actions.

IV.2.a. CANAVESE ECONOMICAL EVOLUTION 2001/2008

If we have a look to Canavese economy evolution, since 2001 to 2008, that has been observed through some indexes (see the following table n°13) built by **Assindustria Canavese (**http://www.confindustriacanavese.it**),** an entrepreneurial association of the territory, it's possible to catch the area evolution and to compare the growth of the enterprises involved in CDTC projects with it, to gain a measure of their impact.

The Assindustria indexes have been constructed with data from some conjunctural inquiries, where the firms managers have been asked about their previsions for the Canavese economy evolutions and for the progresses of different aspects of the considered enterprises. The indexes, that have been historically tested to be realistic and faithful, were constructed making the difference between optimistic and pessimistic answers.

TAB.IV/13: ASSINDUSTRIA CANAVESE CONJUNCTURAL INQUIRIES INDEXES

	CANAVESE INDEXES							
	2001	2002	2003	2004	2005	2006	2007	2008
EMPLOYMENT	12.70	-0.73	-10.15	0.28	0.82	-1.75	7.34	8.86
PRODUCTION	15.38	-10.5	-10.5	1.67	1.42	4.11	17.64	18.75
INVESTMENTS	75.13	65.58	58.95	53.37				
TOTAL ORDERS				2.58	5.60	3.23	16.08	19.38
FOREIGN ORDERS				5.30	2.01	8.13	12.04	15.24

In this picture, which could be summarized in a good situation in 2001, a deep fall in 2002 and 2003, a soft restart in 2004 and 2005, a new fall in 2006 in employment aspect, but a quite stronger situation in production and foreign demand, and, finally, by a good and stable economic picture in 2007 and 2008, a comparison among the values, during the last eight years, of each firm involved in CDTC projects and the Canavese story could have be done, to gain a picture of each single evolution in the period subsequently the Canavese Consortium interventions and to catch an image of their impact on them.

More exactly, a double valuation has been done: the former is showing the evolution of each firm in respect to the Canavese area, as a whole; the later is about the impact of the interventions on the firms economy and stability and it has been valued through the balance sheet evolution in the 2 or 3 years following the projects.

IV.2.b FIRMS WHICH AGREED TO ONE PROJECT ONLY

All the collected data over described have been used to find evaluation results. These have been utilized in the different econometric models that have been applied in this work. These results are expressed through a dummy variable and show the impact effect that all the developed interventions have had on each firm. They are summarized in the following table n°14 and 14 bis enclosed. The

effects considered are of two typologies: the former expresses the impact effect as a valuation of the evolution of each firm in the years just after the collaborations; the latter is explaining the services effect through the comparison among all the firms values and the general Canavese indexes evolution. It's important to divide the immediate effects of the participation to the projects by the total evolution of each firm, because often these 2 typologies of results are different: the first considers only the 2/3 years following the collaborations with the Centres, the second explains the whole course of each firm, in the 8 years analyzed.

Tab. IV/14: Projects impact effects and comparison with Canavese zone

	Intervention impact effect (2-3 years following the collaborations)			Comparison with Canavese area		
	Variation			Variation		
Projects	Better	Worse	Not class.	Better	Worse	Not class.
TS	59	21	38	41	39	38
% Tot.	**50.0%**	**17.8%**	**32.2%**	**34.7%**	**33.1%**	**32.2%**
% Better/Worse	73.8%	26.3%		51.3%	48.8%	
PIA01	29	12	20	22	18	21
% Tot.	**47.5%**	**19.7%**	**32.8%**	**36.1%**	**29.5%**	**34.4%**
% Better/Worse	70.7%	29.3%		55.0%	45.0%	
PIA02	15	3	13	8	10	13
% Tot.	**62.5%**	**12.5%**	**54.2%**	**33.3%**	**41.7%**	**54.2%**
% Better/Worse	83.3%	16.7%		44.4%	55.6%	
DIADI	28	14	23	19	23	23
% Tot.	**43.1%**	**21.5%**	**35.4%**	**29.2%**	**35.4%**	**35.4%**
% Better/Worse	66.7%	33.3%		45.2%	54.8%	
TOT.	**131**	**50**	**94**	**90**	**90**	**95**
% Tot.	47.6%	18.2%	34.2%	32.7%	32.7%	34.5%
% Better/Worse	72.4%	27.6%		50.0%	50.0%	

Form the reported table 14, we can conclude that only 90 considered firms show a performance generally better than the one of the Canavese area, during the observed years; but 131 units have had a very good evolution, better than the area as a whole, in the few years after the collaborations.
More exactly, we can notice that, although the difference between the 2 valuation is generally very high for all the projects, it is particularly strong for the PIA02 project: we can justify this result not

because of the typology of collaborations allocated in this project (that are quite the same than PIA01), but because the firms specifically observed were not technologically very advanced, as we have seen before.
Looking at the results of each specific project (see still Tab.14), we can notice that, although in the impact effect part (1° column) the difference among the units which have strongly improved the quality of their evolution and the ones which have had a standard or worse development is high (and it could be an expected result, considering what said in the preceding part), if we pay specifically attention to the section of compared results with the Canavese zone (2° column), it's possible to notice how in TS, PIA01 and PIA02 projects the quote of firms that developed in a better way, respect to the whole area, is, in any case, high and consistent (respectively the 34,7%, the 36,1% and the 33,3%), better than the DIADI quote (29,2%). Particularly, the PIA01 project, appears the one with better results considering the comparison with the Canavese, while it is over by TS and PIA02 in the immediate effects. The immediately high results of TS justify the strong application to this project (see tab. III/2), as the simply good, in the immediate time, and optimum, in a longer period, result of PIA01 could be the fundamental justification that brought to the PIA02 participation.

What has been said shows that it's always possible to recognize a positive impact of the projects made in collaboration with CDTC, but these good effects exist specifically during the 2 or 3 years after the collaborations. After this period, the firms, generally, follow the evolution of the area, except the cases already technologically advanced, that show a good learning capacity of the innovative solutions proposed and keep positive evolutionary trajectories.
The positive impacts of CDTC projects are often visible more in Employment and Sales variables, than in the Profit or Ebitda ones, and, between this two last values, the second is quite always worse than the former: it could be explained because the services increase the occupation in the firms for some years and it improve the sales but the costs too, for salaries, at least, that impact in a negative way on the profit in general and on the one directly deriving from the production income, without financial gains, taxes, depreciations and amortizations. Usually, also the Added Value is increased by the presence of new production techniques, but the productivity of work is going down, because its greater costs.
We can then conclude the positive effect and the utility of Consortium interventions, during the years involved, but we have to underline their limit to the over said years: unfortunately, the positive impact doesn't keep until the successive years, the ones in which the services are not allocated anymore.
In any case, it's important to underline how, the firms usually asked for the CDTC services after years of crisis, or during them, when they saw their balance-sheet values decrease and they thought to need an exogenous aid: it's clear that these units have the consciousness of the utility of CDTC collaborations and interpret them as rescue interventions. This last point underlines again the positive value of the analyzed collaborations.

It's also significant to notice that many firms that carried on a project in 1998 or 2003 gained very positive results from it: thanks to this effects, they decided to take part to DIADI too. These firms, that took part to more than a project, show a better evolution in the considered years, but for a deeper explanation of it we refer to the next specific following part.

CORRELATION AMONG THE BALANCE SHEET VARIATIONS AND THE ATECO SECTORS

Paying attention to the correlations existing among the balance-sheet variations and the economic ATECO sectors, as it's possible to see in the following tables n°15 and 16, we can notice that:

- in TS project, the firms belonging to the sectors of general mechanical works and of the first metals working (as forging, drawing and pressing) have had the better immediate impact effect in the 2-3 years following the intervention. They are followed by the firms of the sectors producing metal pieces pressed and making electronic components. For the same sectors it's possible to observe a number of firms that show a positive variation respect to the Canavese area too, but they are counterbalanced by similar or higher numbers of units that have had a worse variation. In particular, in the only sector nearer to the HT production (the one of construction of electronic components), the number of negative cases is higher than the positive ones. Concluding, from this first results, the TS project brought positive results, specifically for the firms belonging to traditional manufacturer sectors, where it's possible to see , in the long period, positive evolutions too.

- In PIA01 project it is possible to catch an "evolution" in the units involved, that show a good impact in the longer periods following the intervention and belong not only to the sectors where the basilar metals working are made, but also to the ones where machineries, computers systems and electrical components are constructing, software and computer consulting activities are realized, engineering services are sold. They are not balanced by units showing negative immediate evolutions. If we look to the long period, only a quote (9 firms, the 23%) of the just 40 considered units changed their reaction to the services allocated and showed an evolutions worse than the Canavese area. Indeed, these last results, are not enough to reduce the total PIA01 effect, that, with its percentage of 76% of firms that have had a good immediate impact and of 56% of units that show a variation better than the Canavese area, is the most positive, among the four projects.

- In the following PIA02 the immediate results are not so different (76,3%), but, in the long period, the units with a good evolution are reducing (47,4%). These last belong to new sectors, respect to PIA01, as the one of fabrication of objects in plastic materials, of refrigeration and ventilation equipments, of stamps and strickles machineries and of electrical equipment installation.

- In the last project, DIADI, it's possible to find again firms of the same sectors of TS (the ones of general mechanical works and of the first metals working, as forging, drawing and pressing), but also units nearer to PIA01 firms, working in the machinery construction and in computer and software consulting activities, that in the short time showed evolutions better than the preceding, but in the long period followed dynamics worse than the Canavese ones.

Concluding, in all the projects it's possible to recognize, looking at the Table n°15 and 16 below, a clear negative long period impact tendency in the sector of construction of parts of motor vehicles and their motors (Ateco code 34.30.0), a negative variation, although partly balanced by positive cases, in the firms of metals working (Ateco codes 28.40.3) and computers systems (Ateco 30.02.0) and an always positively balanced reaction in the firms of the general mechanical works sectors (Ateco codes 28.00.0, 29.56.3 and 32.10.0).
On the contrary, it's possible to recognize only positive effects in the sectors of machineries and gears fabrication and maintenance and in the software and plastic materials firms. These units represent the firms working in the production of metallic structures, of pressed metal pieces, in the

forging and drawing activities, and in general mechanical works. They are producing different typologies of machineries, computer systems and electronic components, with their software parts.

Tab. IV/15: Typology of variation, in the long period, in the firms divided by economic sectors

Ateco Sectors	Variations in the long period	Projects
34.30.0	Negative	PIA01 / DIADI
30.02.0	Negative/Balanced	TS / PIA01
28.40.3	Negative/Balanced	TS / DIADI
28.52.00	Balanced	TS / PIA01 / DIADI
28400	Balanced	TS
32100	Balanced	TS
28.11.0	Balanced	PIA01
29.56.3	Balanced	PIA02
45.31	Balanced	PIA02
51.81.0	Balanced	DIADI
72.20.00	Balanced	DIADI
29141	Positive	TS
29400	Positive	TS
72.2	Positive	PIA01
72.21.0	Positive	PIA01
74.2	Positive	PIA01
25.2	Positive	PIA02

Tab. IV/16 : Typology of variation, in the short period, in the firms divided by economic sectors

Ateco Sectors	Variations in the short period	Projects
28.40.0	Positive	TS
28.40.2	Positive	TS
28.52.0	Positive	TS
32.10.0	Positive	TS
28.11.0	Positive	PIA01
28.52.0	Positive	PIA01
29.4	Positive	PIA01
29.5	Positive	PIA01
30.02.0	Positive	PIA01
31.62.1	Positive	PIA01
72.2	Positive	PIA01
74.20.00	Positive	PIA01
28.52.00	Positive	DIADI

ATECO SECTORS AND COLLABORATIONS WITH THE CENTRES

Looking the different typologies of interventions previously presented, we can notice that the firms belonging to some ATECO sectors asked for more collaborations respect to the others (see the attached table n° IV/17-18-19-20, in the bis form too).

For example, the TS units working in the metallurgic sector (Ateco code 28.00.0) asked for many collaborations regarding the techniques of laser use (C), the Centres analysis and consulting services (D) and a support for the pressing activities (I), although also a large quote of feasibility studies (G), metallographic analysis (B) and interventions linked to the sensors (L) and materials analysis (T) have been asked (for a detailed indications of the interventions typologies see Tab. II/1). The same speech is also valid for the TS firms working in the Ateco 29 and 27 sectors, as it's possible to see in the Tab.17 attached.
On the contrary, in PIA01 project, the firms manufacturing machineries and mechanical apparatus are very interest in future collaborations and we can find units belonging to the computer and engineering sectors more interest in the Centres consulting activities (D), as it is expressed by the attached Table n°18.
Looking at the PIA02 results, it involved, again, more firms manufacturing machineries and mechanical engines, that have been interest in laser (C) and consulting services (D), but also in feasibility studies (G) and in the use of the Centres laboratories (F).

At last, paying attention to DIADI project, we can't see a participation so active as in the precedent project, but it could be interesting notice the greater number of collaborations required by the consulting firms of Ateco sectors 72 and 74 (see the attached Tab.20).

Looking at the technological status of the involved firms and at its correlation with the Ateco sectors of activity, the more technologically advanced units are, obviously, the ones of machineries and engines productions, computer system and software fabrication (as it is reported in the attached tables n°21 a-b-c-d). The services required by them are, in TS project, the ones about the laser use and the consulting activities, next to the ones of use of the Centres structures and of some support in sensor activities. Instead, the technologically advanced PIA01 firms were particularly interest in feasibility studies, the ones of PIA02 paid attention to the support in planning activities and the DIADI units were again interest in laser use, but they preferred to postpone to the future the collaborations (see the table attached n°22 a-b-c-d).

ATECO SECTORS, COLLABORATION AND EMPLOYMENT INCREASE

From the attached Table n° 23 (a-b-c-d) it's possible to verify the increase of the number of employees, in the last years of Consortium interventions and in the ones just before them, in the firms of the sectors that mostly required the services.

Particularly, the units of the Ateco sectors 28, 29 and 30 were the ones that, in TS project, asked more aid, through the collaborations: if we observe the rate of growth in the years 1999/2002, during which TS services were allocated, we can notice an increase of the employment; paying attention to the following years (rate of growth 1999/2004) we can see a negative rate in the sector 27, the one of firms metal producing.

The same commentaries are valid for the PIA01 project, in which the firms of the sectors 28, 29 and 72 asked more services: with the exception of this last Ateco sector, the one of software realization and computer consulting services, in which the growth started before the collaboration, in an autonomous way, it's possible to see very high rates of growth in the first years of the project.

In PIA02 project we can notice a decrease in the employment in the years preceding the collaboration: for example in the Ateco sector 29, the one where the greater number of services have been asked, they have clearly a rescue function, that brought a better later situation.

Finally, it's evident the positive impact of DIADI project, in the years during the services allocation, on the employment of the Ateco sectors 28 and 74, the ones that most required collaborations.

COLLABORATIONS WITH THE CENTRES

Paying attention to the different typologies of collaborations realized in the 4 projects, first of all it's possible to catch a quite complete picture of the specific interests of the firms involved (see the following tables 24, 25, 26, 27).

Looking at Tab.24 we argue that TS firms were mostly interested in services on the laser technology (C), in the use of the Centres knowledge (D) and as a support in the pressing activity (I). They were the only firms also interest, although in a minor quote, in collaborations relative to the sensors (L), to the plates and to the materials analysis (P and T). These types of collaborations didn't arise anymore the interest of the other successive units involved.

Tab. IV/24: Frequencies of collaborations for TS firms

TYPOLOGIES AND FREQUENCIES TS FIRMS COLLABORATIONS	
A 1	
A 2	5
A 3	
B	6
C	67
D	39
E	
F	12
G	16
H	4
I	23
L	13
M	1
N	
P	12
Q	2
R	9
S	3
T	13

As it's possible to see in the table 25, the PIA01 firms were very interest again in laser (C) and consulting services (D), that brought in them good results. Also for this reason they decided to continue the collaborations with the Centres, as it's possible to argue by the high frequency of the H answers and by the continuity with the PIA02 project.
The PIA01 project is the one that brought better impact results: a part of this gain could be due to the higher request, respect to the following projects, of more concrete collaborations as the feasibility studies (G) and the products certification tests (E).

Tab. IV/25: Frequencies of collaborations for PIA01 firms

TYPOLOGIES AND FREQUENCIES PIA01 FIRMS COLLABORATIONS	
A 1	1
A 2	3
A 3	
B	4
C	25
D	25
E	11
F	9
G	12
H	20
I	
L	
M	
N	
P	
Q	
R	
S	
T	

What said is confirmed by the PIA02 collaboration typologies, always oriented to the laser use (C) and to the consulting services (D), but also directed to the concrete support of the Centres, through their laboratories (F).

Tab. IV/26: Frequencies of collaborations for PIA02 firms

TYPOLOGIES AND FREQUENCIES PIA02 FIRMS COLLABORATIONS	
A 1	
A 2	6
A 3	4
B	2
C	10
D	24
E	9
F	14
G	9
H	6
I	2
L	
M	
N	
P	
Q	

R	
S	
T	

Finally, the DIADI firms were the only units to ask collaborations about the radio frequency problems (N) and the control systems analysis (R).

Tab. IV/27: Frequencies of collaborations for DIADI firms

TYPOLOGIES AND FREQUENCIES DIADI FIRMS COLLABORATIONS	
A 1	
A 2	2
A 3	
B	1
C	24
D	8
E	
F	6
G	3
H	26
I	5
L	4
M	2
N	9
P	
Q	
R	2
S	
T	

Concluding, the following table 28 shows the cumulated frequencies of the required collaborations. From it it's surely possible to conclude not only about the laser interventions centrality and the deep weight of the Centres consulting activities, but also about the tendency of the involved firms to preview a continuity in the collaborations, to develop feasibility studies and to utilize the Centres structures, also for a support in the pressing activities.

Tab. IV/28: Frequencies of collaborations for all the Canavese firms

TYPOLOGIES AND FREQUENCIES CANAVESE FIRMS COLLABORATIONS	
A 1	1
A 2	16
A 3	4
B	13
C	126
D	96
E	20
F	41
G	40
H	56
I	30
L	17
M	3
N	9
P	12
Q	2
R	11
S	3
T	13

This different interest for all the services could be partly justified by the productive relapses gained (about which it's possible to see in the following tables 29, 30, 31, 32). All the collaborations made during the TS project brought good results.

Tab. IV/29: TS collaborations productive relapses

	Productive Relapses in TS			
Collaborations with the Centres	High / Already active	Medium	No one	Not answ.
A1				
A2	5	1		
A3				
B	4	1		
C	31	15	2	4
D	23	6		3
E				
F	6	2		1
G	11	3		
H	2			1
I	12	4	1	
L	8	2		
M				
N				
P	5	2		3
Q	2			

R	4	3		
S	1	1		
T	5	4		1

The comment relative to the more "traditional" services required (the ones about laser technology and the consulting activities by the Centres) it's different in the PIA01 case (see tab.30). In it, the laser collaborations, particularly, haven't had important effects, that, in proportion, were greater in the E and G services, less used in the TS project. The different reactions to the whole intervention could be justified by the different technological status of the involved firms, more advanced in this case (see table 9), and by the feasibility studies made (see tables attached 29 bis, 30 bis, 31 bis, 32 bis).

Tab. IV/ 30: PIA01 collaborations productive relapses

	Productive Relapses in PIA01			
Collaborations with the Centres	High / already active	Medium	No one	Not answ.
A1			1	
A2				
A3				
B	1			
C	1	2	7	
D	7		2	
E	5			
F	3			
G	4	1	5	
H	4		2	
I				
L				
M				
N				
P				
Q				
R				
S				
T				

In the following two other projects were required less services, but their effects were quite always positive, as it's possible to see in the following Tables n° 31 and 32.

Tab. IV/31: PIA02 collaborations productive relapses

	Productive Relapses in PIA02			
Collaborations with the Centres	High / already active	Medium	No one	Not answ.
A1				
A2	1			
A3	4			
B				
C	3			
D	8	1		
E	3	1		
F	9	1		
G	6			
H	4			
I	1			
L				
M				
N				
P				
Q				
R				
S				
T				

Tab. IV/32: DIADI collaborations productive relapses

	Productive Relapses in DIADI			
Collaborations with the Centres	High / already active	Medium	No one	Not answ.
A1				
A2	1			
A3				
B				
C	5			
D	4			
E				
F	1			
G	1			
H	13			
I				
L				
M				
N	3			
P				
Q				
R	1			

S				
T				

The last question of this part that could be interesting to verify is if the productive relapses of the interventions made depend or not by the feasibility studies developed. To answer it we refer to the Tables n° 29, 30, 31 and 32 bis enclosed from which we can conclude about the existence of a correlation between high and already active productive relapses and the development of feasibility studies, although the same can't be said between the collaborations requested and the productive relapses gained.

V.2.c. FIRMS WHICH AGREED TO MORE THAN ONE PROJECT

Considering the firms that decided to attend to more than a project of CTDC, we can first of all observe that, in the total panel of 275 Canavese firms, 54 decided to take part to more than one service, as it's possible to see in the following table 33.

Tab. IV/33: Projects requested by the firms that joined more than an intervention

Project 1	°	Project 2	n¡ of cases	Firms juridical form
TS		PIA01	6	4 Srl , 2 SpA
TS		PIA02	8	6 Srl, 2 SpA
TS		DIADI	13	6 SpA, 4 Srl, 2 sas, 1 snc
PIA01		PIA02	6	3 Srl, 1 Spa, 1 snc, 1 individual firm
PIA01		DIADI	11	7 Srl, 1 SpA, 2 snc, 1 sas
PIA02		DIADI	10	5 Srl, 2 SpA, 2 sas, 1 snc

More exactly, one of them, a SpA firm, took part to all the four interventions and a s.n.c. and a S.r.l. were present in 3 projects. The other 51 firms attended, at most, to 2 interventions.
The more frequent juridical form is the S.r.l. (29 units), that is followed by the S.p.A. (14 units), the s.n.c. and s.a.s. (5 units in each case) typologies and by only one case of individual firm.
Still looking at the firms juridical form, we have to notice how two of them changed it and became S.p.A.: this is an important variation and it's possible to presume that the CTDC services have helped for it. The remaining firms are mostly S.r.l.: quite all the Canavese firms were involved in CTDC projects and the high presence of S.r.l. underlines how in the area it's possible to find mostly medium units, and neither the big or small typologies .

From the table n° IV/34 attached we can notice that most of the firms considered in this sub-analysis belong to the mechanical and to the steel and iron transformations sectors, to the metal products manufacture ones, to the making structures and computers ones and to the electric equipment manufacture ones. This 54 firms sub-group gives a good picture of the total panel, because from it we may realize how the firms most interested in CDTC are the ones of the metals and mechanical working and equipment constructing sectors, while the units active in the computer and electronic sections (more high tech) are several but not the most part.

Looking at the attached table IV/35, that represent the collaboration asked by the firms in the two analyzed last steps, we can easily recognize, in the both considered times, that it represents the structure already met in the general analysis of the services allocated to the full panel of firm.

The typology more requested is the one on laser technology and it's followed by the ones of analysis, technical problems deepening and consulting: it confirms the high firms interest for the concrete laser technology knowledge but also for all the technical notions about it and for the acquisition of new processes or production techniques and the knowledge of other technical solutions. It's again possible to conclude that the involved enterprises are most interest in acquire knowledge, then to have concrete aids.
This is also confirmed by the low number of projects developed and by the fact that, in T2, after the first period of Centres advices and a better knowledge of its technical qualities and performances, the firms are more oriented to the last over-said typology of collaborations (although several enterprises keep to ask aids in laser use).

In T1 we can see a big request of feasibility studies too, but in T2 it's overcome by the request of using Centre laboratories and structures in present or in future collaborations: this can be explained as some firms (3 in the case here analyzed) found interesting, in T1, the technical solution proposed by the Centre and verified, with the development of feasibility studies and projects, their utility, but they decided not to buy the instruments useful to apply them, because they were too expensive. In these cases, they prefer to postpone the collaborations to a second moment, when they would have been more technically equipped or, often, they asked the Centres, in T2, to use their technical structures and machineries, that were immediately available for them. These last cases differ from the others because their results are really good, in economics terms (the firms have had good balance sheet values for many years) or in productive terms (they recognize the solutions presented by the Centres as useful and keep on in their utilization, using the Centre structures). This underlines the central role of them.

It's further possible to notice how the technical advices about the pressing and planning activities lead to good results, that do not request other successive collaborations: the firms that asked a support in this field in T1, in T2 changed their request, evidently satisfied by the former Centres services.

The metallographic analysis, instead, have been more a starting point for the relationship with the Centres, because, in T2, they were not usually followed by collaborations of the same typology but often they were changed in technical advices for laser technologies.
We can also notice how, in general, the collaborations requested in the second period are more oriented to consulting and study activities: again the high firms interest for a consulting support, instead of technological concrete aids is confirmed.

As it's possible to notice from the following table 36, the balance-sheet variations, in the 2 times, T1 and T2, have been mostly positive (they are market, in the two times, with 1 if better than the Canavese area, with 0 if worse):

Tab. IV/ 36: Balance sheet data variations in T1 and T2

n¡ Cases	Evolution in T1	Evolution in T2
8	**1**	**1**
2	0	**1**
3	0	0
4	**1**	0
5	Nc	nc

Although these positive results, 7 firms show in T2 an economical situation worse than the Canavese one. More exactly:

- one firms has not been helped in its economical performance because it's still in a phase of evaluation of the utility and economical convenience of the technical solution proposed by the Centres, it didn't participate to any feasibility study or project, it has had high productive relapses in the former collaborations and economical advantages, but after them, it wasn't be able to maintain the positive effects.

- a second enterprise did feasibility studies, but is still valuating if insert the new technological processes in its production chain, so it hasn't still really introduced the Centres solutions.

- a third case is the one that changed its juridical form, from S.r.l. to S.p.A., attended to three of the four projects and used the collaborations to sustain its evolution, but it's a case for which the classical auto-selection problem rises (it will be explained in a better way in the part below). This enterprise took part to several projects and feasibility studies to sustain itself against the economical regression, but although it has recognized the high technical level of the interventions, it has had good productive relapses and it has foreseen new sales thanks to the new productive methods, nevertheless it has had positive sales values only in the first years considered in this analysis (1997, '98, '99), while in the following times they started to reduce. This firm represents a classical case that starts to take part to the CTDC initiatives hoping to gain better economical values and used them as rescue solutions: the probability to reach a good performance, better than the Canavese one, in this cases is lower than in the others.

If we don't consider the units that chose the CTDC services as a "rescue solution", instead, we can notice that they are usually considered in that helping way after the former collaborations: usually, when an enterprises involved, that have had a positive impact in the first projects participation, feels having some problems and sees its balance-sheet values going down, then it calls for new collaborations with CTDC, that always have positive effects (although they keep on only for 2-3 years, after which the difficulties rise again).

In fact, looking at balance sheet firms variables evolution it's evident how, one is the progress of each firm respect to the Canavese area, one is the firms evolution in the 2-3 years following the collaborations. The former is not always so good; the second is very often positive, if observed in the context of each single firm.

Confirming this last observation, the data of the firms that participated to more Consortium services show a special good evolution during all the years of the collaborations: this fact qualifies the analyzed actions as very useful for Canavese firms.
But it's again important to specify, this usefulness exists only during the interventions and in the successive 2-3 years, and, unfortunately, not after their conclusion: this last point reduces the before mentioned surely positive effect, that truthfully exists in the year of the collaborations themselves, but ends as soon as they stop.

Unfortunately sometimes, although some firms have had very positive results in the short period, they often don't decide to participate, immediately, to new projects: probably they try on their own to gain the collaborations objectives and only after 3-5 years they ask for new services. This mechanism may conclude the collaborations are useful, but the firms probably don't like having laboratories involved in them or having people from the Centres in their offices: only when they touch the collaborations necessity or they realize they can use the Centre laboratories to bring on the technological solutions, they ask for the Centres aid again.
Further, when some enterprises re-ask for new projects, sometimes (in 6 cases in the sub-panel here considered) they are different from the former developed: that underlines again how they only look for a starting help and not for a long time collaboration.
This mechanism, really, could also evidence the existence of a continuity problem in the Centres activities, but I think it rather emphasizes the stronger capacity of evolution and progress given the firms by the CTDC services: for example, 5 firms that at the first step asked Consortium to have material analysis and metallographic studies, in T2, they chose collaborations about the laser use. In these cases the contacts with the CTDC engineers have had an important role in knowledge and technological transfer and have helped the involved units evolution.

In some cases (5 units in the sub-group here analyzed) the involved enterprises decided to engage new employees for the managing of the new CTDC technical solutions and usually they were maintained in the following years. This is one of the most important results of CTDC initiative for the resolution of unemployment problems.

The productive immediate effects of the collaborations have been recognized high and they have been already inserted in the production in 14 cases of the 54 here considered (see the table 37 below). In 2 cases the services impact has only a medium value, but the technical level of the collaborations is considered high in all the 14 firms just considered.

The services here analyzed are mostly the laser and consulting ones, as coherent with the general analysis, but it's possible to recognize also a relevant attention forward the services involving the Centres laboratories, relating to feasibility studies and to postponed collaborations (typologies F, G, H). These conclusions are important to suggest to the CTDC which typologies of services are mostly appreciated by the Canavese firms, which typologies result more useful and could originate a continuous relationship with the Centre.

Tab. IV/37: High interest level and productive relapses

High interest level and existing productive relapses	
Servizi	n¡
A2	1
A3	2
B	1
C	14
D	13
E	2
F	8
G	8
H	9
I	1
L	1
M	0
N	0
P	1
Q	1
R	1
S	
T	1

Some firms are still in the period of training of the solutions suggested: these units generally consider the collaborations good in their utility and technical value and have always had positive results in their balance sheets data, although they haven't taken new employees nor they changed their technological status. About this last, it's important to underline that, usually, it doesn't change after the CTDC collaborations, except in one case, in which it changed, from a level 3, of a renovate, but still in evolution, technology, to a level 4, of an advanced technology.

To corroborate the CTDC services utility, it's important to notice that some firms are born in the years of CTDC projects that, probably, have helped them in their evolution.
In some cases, the CTDC collaborations were useful to fill innovation gaps with foreign enterprises or to give some advices in the planning or productive processes or to control the products conformity with European rules: the Centres gave the firms the needed solutions, that helped them in their economical performances.
The greatest part of firms here considered, when used the first service, had the idea to keep the collaboration with the Centre and usually they maintain this opinion.

To conclude completely the analysis of the sub-group of firms that have decided to apply several times to CTDC project, it's necessary to underline again how the auto-selection problem rises. It is inserted in the evaluation facts, that concerns the **measure of the impact** of a policy, or a reforming intervention, on a defined set of **out-come variables**, usually expressed as $\mathbf{Yi_t}$.

If the services are allocated to a "random sample from a group of eligible individuals, chosen to participate to a programme, the assignment of the treatment is **completely independent from a possible outcome variable**, that then results independent from the treatment effect. If no side-effects exist, the selection problems are completely ruled out" (Blundell and Costa, 2000).
But when the self decision of the firm is linked to the foreseen results of the participation to a project (as better economic performances), the self selection effect rises: while in the general impact evaluation of the CTDC projects this last problem doesn't exist, because the firms are chosen considering their technological and innovative status and are evaluated observing their economical performance, in this last considered case, where the firms decided, in an independent way, to attend to more than a collaboration with CTDC , the problem rises, because, implicitly, they evaluate the just passed economic effects to decide the next applications.

IV.3. THE ECONOMETRIC RESULTS

IV.3.a. THE DATA

For 166 firms of the panel we know the balance sheet data.
We have analyzed them in a period of 8 years, since 1999 to 2006 and, for these units, it has been possible a more complete economic analysis.
Unfortunately, the panel of data is not completely balanced, in fact some balance sheet values are missing for some different years of the diverse firms, but it's important to underline that usually we know for each firm the figures of the years just preceding and following the CTDC interventions.

The firms here analyzed are observed in 63 variables.
Firstly, we can find the data summarizing the impact effects of the collaborations on each firm. These valuation variables (expressed with 1 = success, 0 = failure) are of two different typologies:

- the former is explaining the services effects through the comparison among each valued firms evolution and the general Canavese indexes one;
- the latter shows the collaborations impact effects as a valuation of the firm growth in the years just after the collaborations.

These 2 typologies of variables are often different because the one that weighs the whole course of each firm, in the 8 analyzed years, in comparison with the area, acquires both positive (1) and negative (0) values; the one which considers only the 2-3 years following the collaborations with the Centres, usually shows positive results.

More exactly, only 81 firms considered in the panel show a performance generally better than the Canavese one during the 8 observed years; but 117 units have had a very good evolution, better than the area as a whole, in the few years after the collaborations.

Tab. IV/39 : Immediate and long period projects effects

Projects Effects	
Firms with a course better than Canavese area one, in all the 8 considered years	Firms with positive results in the 2-3 years following the collaborations
81	**117**

The 166 analyzed firms attended to the four different projects in the following quotes (some firms joined more than a project):

Tab. IV/40 : Firm projects frequencies

Projects	Firms
TS	81
PIA01	44
PIA02-03	21
DIADI	42

Specifically, 18 of them participated to more than a collaboration and reached the following results:

Tab. IV/41: Projects immediate and in a long period impacts

Projects impact for the 18 firms that attended to more than a Canavese TD Consortium collaboration		
Firms	Performance respect to the Canavese area, in the 10 considered years	Results in the 2-3 years following the collaborations
9	**Better**	**Positive**
6	Worse	Positive
3	Worse	Negative

These firms coexist, in the analyzed panel of 166 units, with 6 firms in liquidation state, a firm born in 2006, 2 firm became S.r.l., one from the s.n.c. typology, the other from s.a.s., and one became S.p.A. from the S.r.l. juridical form.

Following the just described panel of data, it's possible to find how old each unit is. The firm age variable has a mean value of 19 years, then, the observed enterprises are generally quite young and are minimally characterized by different ages, although it's possible to find, among them, two limit cases:

- a firm only one year old;
- two units of 106 years old in the 2006.

More exactly, in the dataset, we can find, in addition to the 2 firms (1,1%) born in the far 1902, 7 enterprises (3,7%) older than 50 years and the remaining 173 units (95%) younger than 50 years:

among these last, 59 firms (34,1%) are born in the analyzed period and 10 of them (5,8%) have closed at the end of it (among these last 10 enterprises, 3 born in the observed phase too).

The firms juridical state description presented in the panel shows that we have 123 firms active in the 1997 and 172 units opened in the 2006: that could underline the positive effect of the Consortium interventions supporting Canavese area, that are a good help for the start up units and appear encouraging for the beginning of new activities. (The standard deviation, in the juridical state, in each unit is 0,2, that confirm the quite total stability of the variable in the time).

Looking at the pool of firms ATECO 2002 sectors, the analyzed units are mostly representing:

- the manufacture and work of metal products one (respectively the sector 28.00.0, present with the 25,7% of the firms, and sector 29.00.0, represented by the 15,3% of the units),
- the data processors, the office engines and the computers systems manufacture one (ATECO code 30.00.0), present in the 7,6% of the firms,
- the one of machinery and electrical engines making (ATECO code 31.00.0), represented by the 7,1% of the units,
- the one of motor vehicles, trailers and semi-trailers manufacture (ATECO code 34.00.0), present, as the following, for the 6,56% of the observed firms,
- the one of information science and related activities (ATECO code 72.00.0).

These economic sectors are present in many of their different specifications and are perfectly representing the Canavese economic tissue: for example, it's possible to find 16 firms (8,7%) making wrought metals (with drawing, profiling, shearing and embossing operations), 31 firms (16,9%) doing metal-works, constructing metallic structures and pressed metals, 23 firms (12,6%) making machinery equipment and 5 firms (2,7%) constructing parts of them, all belonging to 28 and 29 ATECO sectors. With the whole of these firms it's possible to have a realistic picture of the Canavese "hardware" structure. The coupling ring among the hardware and the more "software" and engineering parts is given by the firms of the 30.00.0 and 31.00.0 ATECO sectors, producing computer systems (14 units) and electrical engines (12 units). Finally, the 12 enterprises of the ATECO sector 72.00.0 represent in an exhaustive way the presence of software computer activities in Canavese and the 12 firms of the 34.00.0 ATECO sector underline the whole presence of the automotive section in the analyzed area.
We can verify that the traditional sectors, as the agriculture, the foodstuffs and the beverage ones and the one of textile industry paid more attention to DIADI project; instead TS involved traditional industries too, but more oriented to wood working industry.
TS, PIA02 and DIADI projects were also attended by firms of chemical sectors (more exactly of the one where artificial and synthetic fibres are made), of the paints production sector and of the pharmaceutical and medical products one.
In TS, PIA01 and PIA02 we can also find firms of the rubber and plastic material manufacture and in the first two projects of the above-said list it's possible to find 3 firms active in the working of not metallic materials.
In all the analysis made, the ATECO codes have been transformed or in discrete variables, indicative of the considered sections of the ATECO classification (see the table 42), each characterized by a different quote of innovativeness, or in a dummy variable, that is equal to 0 when the firms are active in the more traditional activities, as the manufacturing or commercial ones (the activities till to the 72.00.0), is equal to 1 when the involved sectors are the computer one, the sector of technical and financial services to the firms, the one of the consulting activities and of the research one (ATECO code from 72.00.0 to the end).

Tab. IV/42: ATECO sectors discrete variables

ATECO 2002 Sectors	
Discrete variables	Dummy variables
A: 01.00.0	0
D: 15.00.0 – 37.00.0	0
F: 45.00.0	0
G: 50.00.0 - 52.00.0	0
K: 70.00.0 – 74.00.0	0 - 1
I: 60.00.0 – 64.00.0	1
N: 85.00.0	1

Looking at the analyzed data, we find indications about the location of the firms too, and more exactly if they are in Canavese (84 units, the 50,6%) and if they are in an Objective 2 Zone (44 units, the 26%), that are, as already explained, specific zones considered in industrial decline. It's important to underline how the Canavese Consortium services have been allocated to several units out of the competence zone too and it's meaningful of the specific interest, for these interventions, of the firms in general (and not only belonging to the over-said zones).

Subsequently, we find in the panel indications about the size of the firms: the reference for it is the European definition (the firms with less than 50 employees are considered small, the ones with more than 50 but less than 250 employed are judged medium and the others are big). According to this classification, 91 firms (57,2%) of our panel are small enterprises in T1, 49 (30,8%) are medium and 19 (12%) big. During the considered 8 years, 9 units of the 91 small firms (that's the 10%) became bigger and 4 of them changed the number of employees in a significant way but came back to the small dimension; 8 of the 49 medium firms (the 16,3%) became smaller and 7 of them change their dimension but returned medium, 3 of them (the 6%) became bigger and only 1 of the 19 cases of big firms (the 5,3%) became smaller, like medium firms (see the following Tab. 43).

Tab. IV/43: Firms size in T1 and T2

Firm Size Variation				
	Small firms	Medium firms	Big firms	**Tot.**
T1	**91**	**49**	**19**	**159**
°	-9	+10	3	
	8	-11	-1	
T2	**90**	**48**	**21**	**159**

So, at the end of the period the panel is composed by 90 small enterprises (with a reduction of the 1,1%), 48 medium firms (with a reduction of 2%) and 21 big enterprises, that increased of +10,5 %. The consideration of this new picture could be important for the valuation of the impact of Consortium services.

In the panel of data we have information on the firms employment, en average, for only 5 years: indeed it results extremely varying (variance equal to 322), with a minimum value of 0 employees to a maximum value of 12955. These so far figures are due to the presence, in Canavese Consortium panel, of 21 big enterprises, surely important for Piedmont economy, that make the mean employees value higher (374).

Unfortunately, also other important balance sheet variables (sales, profit and Ebitda) are observed only for about 5 years. Nevertheless they are present for all the 166 firms and for more than 900 data.

The mean sales value is 98 millions of Euro and it shows the presence of active firms, with a solid market. It's possible to find some units with lower sales values, but, indeed, they show a strong increase in the considered years, thanks to the many services asked to the Centre RTM, as the ones about the laser use, the software simulations, the cellular sheets and the materials analysis. The big enterprise in object was available for some feasibility studies too and asked the Centre consulting services and collaborations.

Coming back to balance sheet data analysis, the maximum sales value is 6 milliards of Euro, that's the amount in the 2006 of an other big and famous firm, that asked the Centre RTM consulting services and cellular sheets collaborations.

The mean profit value is -614.000 Euro, that indicates how, in average, the considered firms are not so blooming: that confirms again how the CTDC collaborations have been often asked as rescue solutions. The minimum profit value, very negative and low (-402 millions of Euro), remarks the just expressed idea and the maximum (141 millions of Euro) is not so high to save the picture.

More exactly:

- 21 firms had, in the 1997, profit negative values and kept on the same bad figure in 2006 (with a medium decrease of -236%) although the Consortium services;
- 24 enterprises showed positive profit values in the first analyzed year (1997), but became worse in 2006, displaying negative figures;
- 20 firms exhibited negative profit values in 1997 but, finally, they increased their balance-sheet data and showed positive situations in 2006, with a medium increase of 363%.

The Ebitda is counted for 165 firms of the panel, its mean value is 7 millions of Euro, with a minimum of -64 millions and a maximum of 484 millions of Euro. These last values are very far and it's confirmed by the high variance, equal, to 3,26. The Ebitda variable, that is expressing in a more realistic way the results of the firms core activities, has often bigger and worse variations in the time, than the profit one, but it has however a positive medium value. It means that the financial variations have an important role in the stability of the analyzed units, that are very subject to them, but that, indeed, they are strong in their productive activities.

Tab. IV/44: The balance-sheet indexes values

	ROS	ROI	ROE	ROT	ROA
N° points	890	837	889	808	831
N° units	165	159	164	158	156
N° observed years	5,2	5,2	5,4	5,1	5,3
Max	29,49	46,46	120,29	139851,4	13301061
Min	-53,4	-3677,99	-141,46	-35,36	-2785097
Mean	4,3	3,53	5,7	178	61785,4
Between variance	5,7	49,7	15,9	2225	411041,7
Within variance	5,2	116,4	19,34	4403,3	608852,9

As it's possible to see in the table 44, the ROI mean value, that has been calculated on 159 firms for 5,2 years, tell us how exists, in the analyzed firms, a good mean result of their typical management and an high productivity of their total invested capital. The revenue capacity of a firm depends both by the speed of rotation of the invested capital and by the profitability of sales, and these two measures are synthesized in the ROS and ROT indexes. The first one have been valued for 165 units and has a mean value of 4,3, that means average good results in the sales for the observed firms. The maximum and minimum values are respectively of 29,49 and -53,4: they are strongly different, but it's explained by the standard deviations for all the pooled panel units and within each of them: they are not so high but quite similar and this could justify far maximum and minimum values because of the presence of outliers in the right code of empirical distribution of the within component.

The ROT mean value marks a good speed back of the invested capitals, an high exploitation of the productive capacity and the existence of an efficient productive structure, that are the results of right management choices. Its variances, the one of all the panel data and the other, the average value within each unit, are high and very different: that indicates an high instability of the values, in the panel and within each firm, and two different concentrate sets of points.

The ROE mean value shows, an average, a good profitability of the firms own capital, but its variance values, in the *within* and *between* components, mark a strong variability among the considered units and within each firm: it could be justify by the operative profitability, underlined by the ROI values and its variances, that mean a not homogeneous distribution of the points.

Finally, the ROA mean value tell us the studied firms assets are, in average, generating revenue in a profitable way. The Return on Assets gives indications of the capital intensity of the companies: it depends on the industry and the Canavese companies, operating in computer sectors, might have, generally, lower ROA, because of the large initial investments required. Indeed, its large variance,

in both the forms, show us a strong variation of the ROA among the firms and within each firm, that is an index of the different competitiveness of the analyzed units, among them and in the time, too.

Tab. IV/45: Other balance-sheet values

	Personnel Costs	Added Value	Labour Productivity
n° points	797	802	799
n° units	154	155	154
n° observed years	5,2	5,2	5,2
Max	556000000	1210000000	52,23
Min	0	-1206114	-6834,3
Mean	14500000	23500000	1,6
Between variance	5,3	88500000	91,93
Within variance	5817955	18900000	220,8

As it's possible to see in the table 45, the mean value of labour productivity shows a panel of firms active in their sectors (that's confirmed by ROS value too), with an high added value, although varying, respect to personal costs. The *between* and *within* variances are generally high (this explains the maximum and minimum far six values), but they are different too: this confirms the existence of different sets of quite agglomerate points.

The services data have been valued for all the 166 firms and in all the 8 considered years. They are present in the panel firms in the following quotes, for a total number of 353 collaborations (see table 46):

Tab. IV/46: Centres collaborations: frequencies

CENTRE COLLABORATIONS			
A	A 1	Mechanical components planning	1
	A 2	Software and electric components planning	12
	A 3	Others planning	2
B	Metallographic analysis		8
C	Welding, piercing, cutting, micro-matching and marking processes laser use		90
D	Analysis, deepening, projects advices and Centre competences acquisition		70
E	Certifying products		13
F	Centres laboratories and services offered utilization		29
G	Feasibility studies		27
H	Future collaborations		37
I	Pressing activities supports		20
L	Sensors functioning		0
M	Wireless communication systems		3
N	RFId modulus: software applications management		11
P	Cellular sheets		10
Q	Micro-pumps on silicon: fluids movement simulation		2
R	Control systems analysis		7
S	Software simulators		5
T	Materials analysis		6

The firms analyzed in the observed panel participated to 77 feasibility studies (46%), an high quote that underlines their utility; 68 units (41%) have recognized some interesting results deriving from the collaborations and 42 firms (25%) decided to apply the CTDC Consortium advices in their production processes, making in them some changes. Looking at the panel data it's possible to understand that, often, these last typologies of firms decided to be available to successive developments of the works with the Centre of Competence, while a quote of the units that

recognized important results in the collaboration (more exactly, 47 firms, the 28%) has decided to go on with a project development, that makes the Centre suggests more concrete (see table 47).

Tab. IV/47: Successive firms steps

Successive Consortium Activities		
Feasibility Studies	77	46,4%
Reached results	68	41%
Products or processes modifications, patents made or in progress	42	25,3%
Project	47	28,3%
Others successive developments	42	25,3%

The panel firms technological status is, an average, high and evolved, as it's possible to see in the table 48 below (we have to underline that the difference with the preceding Tab. 9 is justified because, in this case, only the S.p.A. and S.r.l. firms have been considered)

Tab. IV/48: 166 Firms technological status

Technological Status	
1: Obsolete Technology	/
2: Old Technology	**5**
3: Renovate but still in evolution technology	**45**
4: Advanced Technology	**65**
5: Top Technology	**14**

In it we find 7 variation, that are, mostly (5 of them), improving the firms technological level:

Tab. IV/49: Firms technological status variations

Technological Status Variations			
T1		**T2**	
3: Renovate but still in evolution Technology		**4:** Advanced Technology	**3**
2: Old Technology		**4:** Advanced Technology	**1**
4: Advanced Technology		**5:** Top Technology	**1**
5: Top Technology		**4:** Advanced Technology	**1**
5: Top Technology		**3:** Renovate but still in evolution Technology	**1**

The utility and the technological level (see. Tab. 50) of CTD Consortium collaborations are mostly high and appreciated by the involved firms. Indeed it's possible recognize some change in the firms judge, during the involved years (see tab.51), but they happens when a second collaboration starts: they are mostly pejorative, but it could be explained because they are less pressing for firms life.

Tab. IV/50: Collaborations utility and technological level

Interventions Technological Level/ Utility in T1	
3: High	56
2: Medium	32
1: Low	3
0: No answer	75

Tab. IV/51: Interventions utility and technological level changes

Interventions Utility Variations			
3: High		2: Medium	4 firms
2: Medium		3: High	1 firm

The interventions productive relapses are usually high and already inserted in the productive processes. Again it's possible to find some changes in the collaborations productivity, in the cases where there is more than an intervention: it could be explained, as over-said, by the less urgency of the interventions themselves (see Tab. 52 and 53).

Tab. IV/52: Collaborations productive relapses

Productive Relapses	
3: High / Already standing	57
2: Medium	14
1: Low	7
0: No answer	88

Tab. IV/53: Productive relapses variations

Productive Relapses Changes			
3: High / Already standing		1: Low	1 firm
2: Medium		1: Low	1 firm

It's still important to notice (see table 54) that 100 firms of the panel (60,2%) have expressed the purpose to keep on, in the future, some collaborations with the Centres: this underlines again the

utility of Centres services, that have let some analyzed firms to engage new employees (in the number of 3, at maximum), foreseeing new future employment and new production orders.

Tab. IV/54: Evolutions and firms previsions

Relationship with the Centres	100 firms
Engagements made	9 firms
New orders foresights	16 firms
Potential engaments	10 firms

THE PROJECTS

The percentage firms participation to the Canavese Consortium projects has been valued along the 8 observed years:

- the average application to the project 1 is the 38%;
- to the project 2 is the 10%;
- to the project 3 is the 3%;
- to the project 4 is the 7%

The *between* and *within* standard deviation are quite different in the 4 cases (that means a bad probability of some outliers and an homogeneous distribution of the point) and it's possible to recognize the higher standard deviation in the first case, decreasing in the following projects.

The results of the firms participation to the projects and the analysis of their variations show the projects "stability":

More exactly, the 38.2% of firms joined the Project 1: the 51,1% of the units attended at least one time to the studied event (the participation to the Project 1), that happens in the 74,84% of the times (with a frequency of 93 cases) in the period, while the opposite not participation happens in the 61,76% of the times (with a frequency of 182 cases).
So, a measure of the stability of this variable is:

$$\frac{182*61.76 + 93*74.84}{275} = 66,18\%$$

The same comments can be done for the next variables: the 25,2% of the units attended, at least, one time, to the Project 2 that happens in the 39.8% of the cases in the periods, so the stability of the variable is:

$$\frac{182*98.9 + 46*39,8}{275} = 79,79\%$$

The 10,4% of the firms attend, at least, one time, to Project 3, that happens in the 30% of the periods, with a stability of 90,13%

The 24.2% of the firms participated, at least one time, to project 4, that happens in the 29% of the analyzed periods, with a stability of 80,53%

Further, it's possible to realize as the 51,6% of firms attended to only one of the four projects, the 2,9% participated to 2 projects and only the 0,3% (6 firms) attended to 3 CDTC projects.

In the next part of the work the evolution of the just presented 166 firms will be analyzed, through the application, to the different described data, of the 3 specific econometric models explained in the Chapter III. In this Canavese case we find:

- the classical random effect regression model
- the Probit model
- the Propensity Score matching model

IV.3.b. THE REGRESSION MODELS: RANDOM MODELS

I MODEL: DIPENDENT VARIABLE = PROFIT

In this part we start to evaluate which is the impact, on the firms profit values, of the intervention variables. In this case we have used a Random model, how the Hausman test results show (see document n°55 attached).
In the constructed model some balance sheet figures, as the ones of sales, employees and labour productivity, have been considered too, because they could also have a big impact on the dependent variable.
Next to them, some dummy variables have been used: they represent the projects followed and the firms economic activity sector (ATECO code), while the firms size is represented by a discrete variable, that is equal to 0 when the firm is small (less than 50 employees), 1 when it has a medium size (more than 50, less than 150 employees), 2 when is bigger than the previous.

In the enclosed document 56 it's possible to find the results of the regressions tested with random effects models: after the first results, that consider all the variables generally definite by a low significance, some of them, more directly related to the interventions, have been dropped out and other have been kept, more related to the indirect and long-term collaborations consequences (as the productive relapses and the technological status variables).
In these new regressions more variables are significant, at the standard 5% level: we can find the quote of sales, the number of employees, the years of the firm, its size, if some products or processes modifications or successive development have been realized, if some productive relapses occur, if some orders or new engagement have been foreseen.

It's surprising, but we can notice that the sales coefficient has a little but negative value in this regression, instead the number of employees, the size of the firm and its age have a positive impact on the firm performances (in this case, the size variable is expressed through the discrete one): it could be, clearly, explained by the fact that the bigger and older firms tend to perform better than the smaller and younger ones, because they have more financial availability (credits and immaterial immobilizations) to invest in innovation and products and processes renovations and updates. In

fact, the products and processes modifications and the patent made or in progress after the collaborations with the Centres, have a big positive impact too and are very significant.

The productive relapses variable is very significant too, but the coefficient point out a negative impact on the firms profit, as it happens for the new orders foreseen variables: this is an unexpected picture and it could be explained considering the effect of innovations in the first years after their introduction, that isn't still so profit and could originate new costs, through the need of some products or processes changes. The realization of productive relapses can concrete these last one, as the foreseen of new orders. The potential engagements coefficient, instead, very significant too, has a positive value, probably expressing the foreseen more solid state of the observed firms.
Making other substitutions in the considered variables, in some following applications of the random model we observed:

- the discrete projects variable, equal to the number of the joined projects, instead of dummy one;
- the dummy size variable, equal to 1 when the firm has minus that 50 employees, instead of the discrete one;
- the discrete ATECO variable (see document II/2 bis attached), that explains the economic activity typology of the observed firms, instead the dummy one. More exactly, the discrete ATECO variable is equal to:

    - 1 if the section to which the firm belongs is A (the agricultural one),
    - 2 if the section is D (the manufacturing one),
    - 3 if the section is F (the one of the constructions),
    - 4 if the section is G (the commercial one),
    - 5 if the section is K (the computer, services to the firms and research one),
    - 6 if the section is I (the transport and communication one),
    - 7 if the section is N (the health one).

After others changes, related to balance sheet variables, to the oldness and the size of the observed firms and to the variables directly linked to the Consortium services (it's possible to find a complete picture of the analysis steps in the enclosed n°56) finally the results are:

First of all, it's confirmed that the panel is not balanced, because the incoherence between the number of groups and the considered observations.

The Wald test result means the model fits the data in a good way [Wald test $\_^{2}(9) = 63.79$ (p-value = 0,000)]

Profit	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Sales	-.015	.005	-3.09	0.002**	-.0254618	-.0057082
Employees	3489.9	1938.9	1.80	0.072*	-310.4469	7290.16
Year firm	119445	55159.7	2.17	0.030*	11333.95	227556
Small / big	2886702	1320011	2.19	0.029*	299527.3	5473877
Prod.Modific	6911715	2458750	2.81	0.005**	2092653	1.17e+07
Success.Dev.	4813323	2458255	1.96	0.050*	-4769.302	9631414
Produc.Relap	-3943767	727998.2	-5.42	0.000***	-5370618	-2516917
NewOrders	-8984826	4424921	-2.03	0.042*	-1.77e+07	-312141.3
Pot.Engagem	1.15e+07	5720998	2.01	0.044*	303943.1	2.27e+07
Cons	-1426989	1657068	-0.86	0.389	-4674782	1820804

* Significant level 90%
** Significant level 95%
*** Significant level 99%

The Profit random effects model can be written as followed:

$Profit_{i,t} = -1426989 - 0.015\ Sales_{i,t} + 3489.9\ Employees_{i,t} + 119445\ Age_{i,t} + 2886702\ Size_{i,t} + 6911715\ Products/Processes\ Modification_{i,t} + 4813323\ Successive\ Development_{i,t} - 3943767\ Productive\ Relapses_{i,t} - 8984826\ New\ Orders\ Foreseen_{i,t} + 11500000\ Potential\ Engagements_{i,t} + \_i,t$

About it, first of all, we have to underline the better Profit model result the one with no logarithm transformations and with neither the ATECO or Projects dummy or discrete variables (often, the logarithm transformations of the profit and sales variables seems to increase the quote of variance explained by the model, but, in the same time, they usually decrease the significance of the regressions or reduce the number of significant variables)

This two last observations point out the less importance of the number of interventions that have been made in each firm and of the Ateco sector to which the unit belong (if more oriented to computer and general services to the firms activities, to consulting activities and to the research ones). Instead it's underlined the higher value of also only one collaboration (and it's coherent with the results related to firms that have followed more than a project).
In the observed regression the importance of the age of the firms is underlined too: it could be explained, as already said, by the higher solidness of the old firms, that is inclined to be more profitable.
From the results (see document 56) we may also see that the firms juridical form, if it is a SpA or a Srl, has a low influence on the profit of the firms, as to be in an Objective 2 zone, or in the Canavese area (this point is usually negatively correlated with the profitability: this is explainable because of the crisis of the area).

The regression underlines how the size of the involved firms is important too. More exactly, the used variable is the discrete one, that divide the small, the medium and the big firms: evidently, as the size increases, the impact is larger and better.

By the observed results is also possible conclude about the positive role of the products or processes modifications and of patents made or in progress (Product Modification variable), that make more concrete, in the firms, the innovations presented by the Centres, point out the real transformations in the firms production descending from their influence and underline the possible evolution towards elements with a deep weight on firms management.

In this regression observed, the developments successive of the collaborations have a positive impact on the firms profit, while the productive relapses variable is statistically significant but it has a negative effect on the firm profit: this is a result a bit contrasting with the positive coefficient of products or processes modifications and the only possible explanation could be related to the more deep transformation idea present in this last variable.

The New Orders Foresight variable results significant but with a negative coefficient: it's an odd result again, but looking to the other regressions, where the variable is significant too, we can notice how the sign of its coefficient is wavering between the two options: in particular, when the Potential Engagements variable has a positive impact on the Profits, then the future orders, has a negative

effects, and vice versa. This particular engage could be explained with the greater firms solidity idea implicitly present in the future engagements and with not still operating relationships with new clients.

II MODEL: DIPENDENT VARIABLE = SALES

Trying to put the Sales value as dependent variable, verifying the impact, on its, of some firms balance sheets figures and of the collaboration (see the enclosed document 56), in the first regressions the employees present in the firm and the Added Value made variables are all statistically significant and have a positive impact on the sales, as it was easily imaginable. The only variable related to the projects and significant is the one referring to the reached results, that has, instead, an unexpected negative value. It has been interesting to eliminate some variables and to check again the results.

For example we tried to cancel from the regression the variables related to labour productivity (that is summarized by the Added Value one), to the ATECO code and the juridical form, to the projects developed during the interventions (they are summarized by all the other variables related to the collaborations) and, at last, the variable expressing the technological status changes: we have reached better results, with several significant variables related to the Consortium interventions.

We tried to cancel other variables and used the log version.

At last, the better model result has been constructed on a not balanced panel again, the proportion of explained variance is high (0,9293) and the regression is significant (Wald $\_^2$ test result: $\_^2(11) = 1331,6$; *p-value* = 0,000). That means the model fits very well the data.

LnSales	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Employees	.00017	.00004	4.49	0.000***	.0000985	.0002508
LnAddValue	.726	.0347	20.88	0.000***	.6574687	.7936959
ProjectsNum	.109	.0551	1.97	0.048*	.0008034	.216653
Canavese	-.231	.1238	-1.87	0.062*	-.4737213	.0115415
Small	-.320	.0711	-4.51	0.000***	-.4598154	-.1810215
FeasibilitySt	.305	.1396	2.19	0.029*	.0317756	.5790746
Reached Res.	-.384	.1462	-2.62	0.009**	-.6700713	-.0970653
Technol.Stat.	.112	.0597	1.87	0.061*	-.0051191	.229077
Produc.Relap	.078	.0359	2.19	0.029*	.0081366	.1489222
Relationsh.C.	-.267	.0949	-2.81	0.005**	-.4527111	-.0808314
NewOrders	.246	.1312	1.87	0.061*	-.0113017	.5025667
Cons	4.89	.5667	8.62	0.000***	3.775352	5.996856

* Significant level 90%
** Significant level 95%
*** Significant level 99%

Natural Log of Sales $_{it}$ = 4.89 + 0.00017 Employees $_{i, t}$ + 0.726 Natural Log Added Value $_{i,t}$ + **0,109 Projects Discrete variable $_{i,t}$** – 0.231 Canavese $_{i, t}$ -0.32 Small $_{i, t}$ + 0.305 Feasibility Studies $_{i, t}$ - 0.384 Reached Results $_{i, t}$ + 0.112 Technological Status $_{i, t}$ + 0.078 Productive Relapses$_{it}$ - 0.267 Relationship with the Centres $_{i, t}$ + 0.246 New Orders foresights + $\_{it}$

In it the employees, the natural logarithm of the Added value and the size variables are completely trustworthy, with positive coefficients the former and the second variables, a negative one the third, as it could be predictable, because of the larger market of the bigger enterprises, that leads to better sales (in this case, the firms size is expressed through the dummy variable). Next to them are very significant the Projects Discrete variable, the Feasibility Studies, the Productive Relapses and the Reached Results variables too, respectively the formers with positive, the last negative coefficients: these signs could be explained with the practical consequences of the collaborations on the firms production and sales, positive but implying a less attention by firms to the commercial aspects.

The same explanation could exist for the Relationship with the Centres variable: in this case, too, the use of the firm resources in the improvement of the productive technologies could decrease the firm attention to actions of promotions of its products.
Finally, the technological status coefficient point out the positive impact of improvement in it.

We have to underline that the Projects discrete variable has a positive coefficient, and that means that more projects have better results (this is not coherent with the previous results). If we try to consider the project dummy variable or the variables representing the participation to one of the specific 4 projects, they are not significant, and we find the same result for the greater part of the specific collaborations: the only ones that are significant are the H, I, E and the P collaborations (this last with a diverse regression function). The results show us the following equations (for a more defined explication see the enclosed document 56):

Collaboration H: Future activities (Wald $\_^2$ (11) = 1346.07; *p-value* = 0,000)

Natural Log of Sales $_{it}$ = 4.78 + 0.00017 Employees $_{i,t}$ + 0.7356 Natural Log Added Value $_{i,t}$ + **0,16 H Collaboration** $_{i,t}$ – 0.27 Canavese $_{i,t}$ -0.32 Small $_{i,t}$ + 0.32 Feasibility Studies $_{i,t}$ - 0.399 Reached Results $_{i,t}$ + 0.11 Technological Status $_{i,t}$ + 0.079 Productive Relapses$_{it}$ - 0.218 Relationship with the Centres $_{i,t}$ + 0.258 New Orders foresights + $\_{it}$

Collaboration I: Support in the pressing activities (Wald $\_^2$ (11) = 1364.73; *p-value* = 0,000)

Natural Log of Sales $_{it}$ = 4.85 + 0.00018 Employees $_{i,t}$ + 0.726 Natural Log Added Value $_{i,t}$ + **0,31 I Collaboration** $_{i,t}$ – 0.23 Canavese $_{i,t}$ -0.32 Small $_{i,t}$ + 0.35 Feasibility Studies $_{i,t}$ - 0.38 Reached Results $_{i,t}$ + 0.12 Technological Status $_{i,t}$ + 0.06 Productive Relapses$_{it}$ - 0.17 Relationship with the Centres $_{i,t}$ + 0.21 New Orders foresights + $\_{it}$

Collaboration E: Certifying of the products (Wald $\_^2$ (11) = 1435.38; *p-value* = 0,000)

Natural Log of Sales $_{it}$ = 4.56 + 0.00016 Employees $_{i,t}$ + 0.749 Natural Log Added Value $_{i,t}$ + **0,2 E Collaboration** $_{i,t}$ – 0.23 Canavese $_{i,t}$ -0.31 Small $_{i,t}$ + 0.31 Feasibility Studies $_{i,t}$ - 0.38 Reached Results $_{i,t}$ + 0.12 Technological Status $_{i,t}$ + 0.06 Productive Relapses$_{it}$ - 0.17 Relationship with the Centres $_{i,t}$ + 0.28 New Orders foresights + $\_{it}$

Collaboration P: Cellular sheets activities (Wald $\_^2$ (8) = 1416.97; *p-value* = 0,000)

Natural Log of Sales $_{it}$ = 4.46 + 0.00014 Employees $_{i,t}$ + 0.749 Natural Log Added Value $_{i,t}$ + **0,61 P Collaboration** $_{i,t}$ – 0.34 Small $_{i,t}$ + 0.096 Technological Status $_{i,t}$ + 0.06 Productive Relapses$_{it}$ - 0.16 Relationship with the Centres $_{i,t}$ + 0.258 New Orders foresights + $\_{it}$

From all the regressions we can conclude that the different variables impacts are not so diverse in the first three equations, among which the I Collaboration, the one relating to the pressing activities, has the bigger one.

In the fourth case, were the impact of collaborations relating to the cellular sheets are analyzed, is emerging their high effect on the firm sales, that collects quite all the other collaboration variables.

III MODEL: DIPENDENT VARIABLE = EBITDA

If we evaluate the collaborations impact on the firms EBITDA the results are:

It has been constructed on a not balanced panel again and the proportion of variance explained by the model is medium (0.5397).
The Wald χ^2 test result ($\chi^2(5) = 165{,}17$, *p-value* = 0,000) indicates the regression is significant.

LnEbitda	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
Employees	.0003	.00014	2.09	0.036*	.0000186	.0005605
Addedvalue	4.40e-09	1.63e-09	2.69	0.007**	1.20e-09	7.60e-09
Canavese	-.570	.2203	-2.59	0.010*	-1.001902	-.1384018
Small	-.951	.1418	-6.74	0.000***	-1.227748	-.6743442
Product.Rel.	.120	.0470	2.56	0.010*	.0283778	.2127905
Cons	13.86	.1934	71.69	0.000***	13.48643	14.24454

* Significant level 90%
** Significant level 95%
*** Significant level 99%

$$\text{Ln Ebitda}_{it} = 13.86 + 0.0003\ \text{Employees}_{it} + 0.000000004\ \text{Added Value}_{it} - 0.57\ \text{Canavese}_{it} - 0.951\ \text{Small}_{it} + 0.12\ \text{Productive Relapses}_{it} + \varepsilon_{it}$$

Looking at it, it's important to notice the negative effects of the Canavese localization and of the firms size (that's expressed through the dummy variable). Although the Employees variable sign seems to contrast the last size result, this isn't completely true, because of the low absolute value of its coefficient.

The only variable linked to the collaborations allocated (productive relapses) has, instead, a positive effect, that underlines the CTDC services utility. However, to understand better their impact, a previous version of the dependent variable (not in a logarithmic one) could be analyzed:

The variance explained by the model is 0.9921, that is clearly better than before

The Wald χ^2 test result ($\chi^2(16) = 18624{,}04$ – *p-value = 0.0000*) indicates the regression is significant

Ebitda	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Employees	-28505.84	853.9624	-33.38	0.000***	-30179.57	-26832.1
Sales	-.0206	.0018158	-11.33	0.000***	-.0241227	-.0170051
AddedValue	.822	.0141844	57.93	0.000***	.7938867	.8494884
Lab_Produc.	102955.4	120045.3	0.86	0.391	-132329	338239.8
Year_firm	-35122.38	22004.56	-1.60	0.110	-78250.52	8005.771
AtecoDummy	-695482.9	1515618	-0.46	0.646	-3666039	2275073
Canavese	-2572606	791609.9	-3.25	0.001**	-4124133	-1021079
Obj_zone	-493243.9	886399.7	-0.56	0.578	-2230555	1244068
Small	-1804872	711566.7	-2.54	0.011*	-3199518	-410227.3
ReachdRes	-1195470	959350.9	-1.25	0.213	-3075763	684823
Prod.Modific	2275995	986177.5	2.31	0.021*	343122.3	4208867
SuccessDevel	1964312	829253.5	2.37	0.018*	339004.9	3589619
TechnologSt	1019965	451566.2	2.26	0.024*	134911.7	1905019
Product.Rel	-963655.3	322567.7	-2.99	0.003**	-1595876	-331434.1
Relationsh.C	-49953.43	953714.8	-0.05	0.958	-1919200	1819293
Engagement	942543.3	1325752	0.71	0.477	-1655882	3540969
Cons	1627777	1675906	0.97	0.331	-1656939	4912493

* Significant level 90%
** Significant level 95%
*** Significant level 99%

Keeping on only the significant variables:

Ebitda = 1627777 - 28505.84 Employees $_{it}$ - 0.021 Sales $_{it}$ + 0.822 Added Value $_{it}$ - 2572606 Canavese $_{it}$ -1804872 Small $_{it}$ + 2275995 Products/Processes Modifications $_{it}$ + 1964312 Successive Developments $_{it}$ + 1019965 Technological Status $_{it}$ - 963655.3 Productive Relapses $_{it}$ + _$_{it}$

IV MODEL: DIPENDENT VARIABLE = EMPLOYEES

If we evaluate the collaborations impact on the firms employees:

The model has been constructed on a not balanced panel again, the proportion of explained variance is low (0,2390), that means the model doesn't fit very well the data.

The Wald _^{2} test result [_^{2}(6) = 64,44 (*p-value* = 0,000)] indicates the regression is significant.

Employees	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
LnPers_Cost	125.777	20.28794	6.20	0.000***	86.0138	165.5411
Lab_produc	11.040	4.154	2.66	0.008**	2.898729	19.18211

Obj_zone	-710.161	233.5293	-3.04	0.002**	-1167.87	-252.4521
ReachedRes	156.381	49.67043	3.15	0.002**	59.02887	253.7334
SuccessDevel	-202.877	56.31565	-3.60	0.000***	-313.2539	-92.50063
Relationsh.C	-94.149	36.451	-2.58	0.010*	-165.5924	-22.7071
_cons	-880.098	369.061	-2.38	0.017*	-1603.445	-156.752

* Significant level 90%
** Significant level 95%
*** Significant level 99%

Then, the Employees model can be written as:

Employees $_{i, t}$ = -880.09 + 125.78 Ln Personal Costs $_{i, t}$ + 11.04 Labour Productivity $_{i, t}$ -710.16 Objective Zone $_{i, t}$ + 156.38 Reached Results $_{i, t}$ -202.88 Successive Developments $_{i, t}$ -94.15 Relationship with the Centre $_{i, t}$ + $_{it}$

It's important to underline the positive effect of the results reached with the collaborations with the Centres, that are, instead, contrasted by the impacts of the successive projects developments and of the relationship with the Centres themselves. It could be explained with the fact that the first variable of the last two could imply a rationalization of the present employees, while the second figure could imply a reduction of the centrality of their role and a substitution of them with the Centres researchers.

Or considering the location too:

The variance explained by the model is 0.3238, that is better than before.

The Wald $_{}^{2}$ test result [$_{}^{2}$(17) = 77.45 (*p-value* = 0,000)] indicates the regression is significant

Employees	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
LnEditda	10.483	14.16336	0.74	0.459	-17.27668	38.24269
LnPers_cost	188.882	36.40601	5.19	0.000***	117.5273	260.2362
Lab_Produc	14.708	5.561347	2.64	0.008**	3.808145	25.60822
ProjectsDum	-17.174	67.59299	-0.25	0.799	-149.6535	115.3062
Year_firm	-9.297	5.301854	-1.75	0.080*	-19.68847	1.094412
AtecoDummy	-541.347	535.4718	-1.01	0.312	-1590.853	508.1582
Canavese	-594.475	298.8322	-1.99	0.047*	-1180.176	-8.775055
Obj_zone	-826.676	325.2364	-2.54	0.011*	-1464.128	-189.2241
Small	36.055	55.20787	0.65	0.514	-72.15002	144.2609
Reached Res	216.741	125.0072	1.73	0.083	-28.26841	461.7507
Prod.Modif	-142.809	103.5843	-1.38	0.168	-345.8313	60.21184
SuccessDevel	-208.549	90.89193	-2.29	0.022*	-386.6943	-30.40445
TechnologSt	53.401	58.62355	0.91	0.362	-61.49852	168.3016
Intervent.Lev	13.959	41.02211	0.34	0.734	-66.44265	94.36108
Produc.Rel.	18.363	38.07543	0.48	0.630	-56.26295	92.99
Relationsh.C	-92.141	80.47996	-1.14	0.252	-249.8791	65.59656
NewOrders	-15.089	157.9913	-0.10	0.924	-324.7459	294.5685

Cons		-1351.568	662.8225	-2.04	0.041	-2650.677	-52.46018

* Significant level 90%
** Significant level 95%
*** Significant level 99%

Then, the Employees model can be written again and finally is:

Employees $_{i, t}$ = -1351.568 + 188.88 Ln Personal Costs $_{i, t}$ + 14.71 Labour Productivity – 9.297 Age of the Firm $_{i, t}$ - 594.47 Canavese – 826.676 Objective Zone $_{i, t}$ + 216.741 Reached Results – 208.545 Successive Developments + _it

V MODEL: DIPENDENT VARIABLE = ADDED VALUE

If we evaluate the collaborations impact on the firms ADDED VALUE, first of all we must consider the logarithmic version and the results are:

It has been constructed on a not balanced panel but the proportion of explained variance is high (0,9791), that means the model fits very well the data.

The Wald _ ^{2} test result (_ ^{2} (7) = 7519,76; *p-value* = 0.0000) indicates the regression is very significant.

LnAddValue	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Employees	.000053	.0000178	3.01	0.003**	.0000186	.0000882
LnPersCost	.928	.0136952	67.77	0.000***	.9012518	.954936
Lab.Produc	.095	.0054621	17.48	0.000***	.0847509	.1061619
AtecoDummy	-.169	.0919025	-1.84	0.066*	-.3493012	.0109502
Canavese	-.139	.0432935	-3.22	0.001**	-.2244259	-.0547186
ReachedRes	.082	.0355994	2.31	0.021*	.0123299	.151877
Engagement	.186	.0928761	2.01	0.045*	.0043398	.3684076
Cons	1.29	.2034612	6.38	0.000***	.9000593	1.697612

* Significant level 90%
** Significant level 95%
*** Significant level 99%

Then the Added Value Model is:

Ln Added Value $_{i,t}$ = 1.29 + 0.0000534 Employees $_{i,t}$ + 0.928 Ln Personal Costs $_{i,t}$ + 0.095 Labour Productivity $_{i,t}$ – 0.17 Ateco Dummy $_{i,t}$ – 0.14 Canavese $_{i,t}$ + 0.08 Reached Results $_{i,t}$ + 0.19 Engagements Made $_{i,t}$ + _it

In this case, all the relationship among the variables are perfectly explainable. The only surprising factor is the sign of the ATECO dummy variable, indicating the firms active in the more advanced and technical sector, that create, in this case, a lower added value.

VI MODEL: DIPENDENT VARIABLE = NATURAL LOG LABOUR PRODUCTIVITY

If we evaluate, with a Random Effects Model, the collaborations impact on the firm labour productivity the results are:

The model has been constructed on a not balanced panel and the proportion of explained variance is very low (0,0011), that means the model doesn't fit well the data.

The Wald _ ^{2} test result [_ ^{2} (8) = 98,27 (*p-value* = 0.000)] indicates the regression is very significant.

LabProduc.	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Employees	.0005	.0001228	3.75	0.000***	.0002199	.0007012
LnPersCost	-.7505	.112571	-6.67	0.000***	-.9711906	-.5299203
AtecoDummy	-1.267	.6297943	-2.01	0.044*	-2.501068	-.0323193
Small	-.8245	.3080824	-2.68	0.007**	-1.428335	-.2206738
ProductModif	-.7615	.3404397	-2.24	0.025*	-1.428769	-.0942697
Success.Devel	.6468	.339606	1.90	0.057*	-.0188503	1.312381
Product.Relap	-.1896	.1026165	-1.85	0.065*	-.3907247	.0115248
Engagement	-3.266	.6309896	-5.18	0.000***	-4.502769	-2.029335
Cons	13.16	1.706298	7.71	0.000***	9.817151	16.50572

* Significant level 90%
** Significant level 95%
*** Significant level 99%

Then, the Labour Productivity model is:

Labour Productivity $_{i,t}$ = 13.16 + 0.0005 Employees $_{i,t}$ – 0.75 LnPersonal Costs $_{i,t}$ – 1.27 ATECO dummy $_{i,t}$ – 0.82 Small $_{i,t}$ – 0.76 Products / Processes Modifications $_{i,t}$ – 0.65 Successive Developments $_{i,t}$ – 0.19 Productive Relapses $_{i,t}$ – 3.27 Engagements Made $_{i,t}$ + _it

In it, quite all the relationship are predictable, because the increase of the personal costs could imply an increase of the employees number and then have a negative effect on the labour productivity, as well the firms Size has a positive impact. The ATECO dummy variable sign could surprise, but it's coherent with the previous model (the added value one), as for all the collaboration variables considered are valid the previous explanations.

VII MODEL: DIPENDENT VARIABLE = ROE

If we evaluate the collaborations impact on the firms ROE:

The model has been constructed on a not balanced panel and the proportion of explained variance is very low (0,0191), that means the model doesn't fit well the data.

The Wald χ^2 test result [$\chi^2(3) = 17,71$ (*p-value* = 0.0005)] indicates the regression is significant.

ROE	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
Sales	-0.0008	7.46e-09	-1.90	0.058*	-00288	0.00451
Employees	-0.0105	.0033583	-3.13	0.002**	-.017103	-.0039386
AddedValue	0.007	5.10e-08	4.12	0.000***	0.00110	0.00910
Cons	6.651	1.600242	4.16	0.000***	3.514533	9.787368

* Significant level 90%
** Significant level 95%
*** Significant level 99%

Then, the ROE model can be written as:

$$ROE_{i,t} = 6.65 - 0,008\ Sales_{i,t} - 0,0105\ Employees_{i,t} + 0.007\ Added\ Value_{i,t} + \varepsilon_{it}$$

Or, considering the solution with all the variables, to understand their specific impact:

The variance explained by the model is 0.0780, that is better than before, but is in any case too low. The Wald χ^2 test result ($\chi^2(22) = 27.89$) indicates the regression is not significant at 90% level, the only variables significant are the balance sheet ones.

ROE	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
Sales	-1.45e-08	8.08e-09	-1.80	0.072*	-3.04e-08	1.29e-09
Employees	-.0097122	.0036961	-2.63	0.009**	-.0169564	-.002468
AddedValue	2.12e-07	5.59e-08	3.79	0.000***	1.02e-07	3.21e-07
ProjectsDum	-4.599435	5.319793	-0.86	0.387	-15.02604	5.827168
Year_firm	.0134934	.1323714	0.10	0.919	-.2459498	.2729365
AtecoDummy	-2.053071	8.686814	-0.24	0.813	-19.07891	14.97277
Jur_form	-3.120366	4.858539	-0.64	0.521	-12.64293	6.402197
Canavese	9.430491	4.743745	1.99	0.047*	.1329213	18.72806
Obj_zone	-2.907135	5.189962	-0.56	0.575	-13.07927	7.265004
Small	-4.387102	4.105108	-1.07	0.285	-12.43297	3.658763
FeasibilitSt	-6.733009	6.993488	-0.96	0.336	-20.43999	6.973976
Reached Res	7.32596	7.098339	1.03	0.302	-6.586528	21.23845
Product Mod	2.054082	5.542587	0.37	0.711	-8.80919	12.91735
Project	-2.67439	4.799268	-0.56	0.577	-12.08078	6.732002

SuccessDevel	5.369148	5.203385	1.03	0.302	-4.829298	15.56759
Technolog.St	-2.83701	2.582622	-1.10	0.272	-7.898856	2.224837
Intervent.Lev	-.7460834	2.465407	-0.30	0.762	-5.578192	4.086026
Produc.Rel	.0625536	2.134483	0.03	0.977	-4.120957	4.246064
RelationshC	2.332588	6.198214	0.38	0.707	-9.815689	14.48086
Engagement	9.942907	8.888423	1.12	0.263	-7.478083	27.3639
NewOrders	7.89959	8.128659	0.97	0.331	-8.032289	23.83147
PotentialEmp	-5.681357	10.7049	-0.53	0.596	-26.66258	15.29986
Cons	16.90538	10.19732	1.66	0.097*	-3.081003	36.89176

* Significant level 90%
** Significant level 95%
*** Significant level 99%

$ROE_{i,t} = 16.9 - 0{,}0000000145\ Sales_{i,t} - 0{,}009\ Employees_{i,t} + 0.000000212\ Added\ Value_{i,t} + 9.43\ Canavese_{i,t} + \_it$

In this case it's interesting to notice the positive Canavese sign.

THE CANAVESE MODELS:

Concluding, from the research results just found, it's possible to observe the following models:

$Profit_{i,t} = -1426989 - 0.015\ Sales_{i,t} + 3489.9\ Employees_{i,t} + 119445\ Age_{i,t} + 2886702\ Size_{i,t} + 6911715\ Products/Processes\ Modification_{i,t} + 4813323\ Successive\ Development_{i,t} - 3943767\ Productive\ Relapses_{i,t} - 8984826\ New\ Orders\ Foreseen_{i,t} + 11500000\ Potential\ Engagements_{i,t} + \_i,t$

$Natural\ Log\ of\ Sales_{it} = 4.89 + 0.00017\ Employees_{i,t} + 0.726\ Natural\ Log\ Added\ Value_{i,t} + 0{,}109\ Projects\ Discrete\ variable_{i,t} - 0.231\ Canavese_{i,t} - 0.32\ Small_{i,t} + 0.305\ Feasibility\ Studies_{i,t} - 0.384\ Reached\ Results_{i,t} + 0.112\ Technological\ Status_{i,t} + 0.078\ Productive\ Relapses_{it} - 0.267\ Relationship\ with\ the\ Centres_{i,t} + 0.246\ New\ Orders\ foresights + \_it$

$Ln\ Ebitda_{it} = 13.86 + 0.0003\ Employees_{it} + 0.000000004\ Added\ Value_{it} - 0.57\ Canavese_{it} - 0.951\ Small_{it} + 0.12\ Productive\ Relapses_{it} + \_it$

$Employees_{i,t} = -880.09 + 125.78\ Ln\ Personal\ Costs_{i,t} + 11.04\ Labour\ Productivity_{i,t} - 710.16\ Objective\ Zone_{i,t} + 156.38\ Reached\ Results_{i,t} - 202.88\ Successive\ Developments_{i,t} - 94.15\ Relationship\ with\ the\ Centre_{i,t} + \_it$

$Ln\ Added\ Value_{i,t} = 1.29 + 0.0000534\ Employees_{i,t} + 0.928\ Ln\ Personal\ Costs_{i,t} + 0.095\ Labour\ Productivity_{i,t} - 0.17\ Ateco\ Dummy_{i,t} - 0.14\ Canavese_{i,t} + 0.08\ Reached\ Results_{i,t} + 0.19\ Engagements\ Made_{i,t} + \_it$

$Ln\ Labour\ Productivity_{i,t} = 13.16 + 0.0005\ Employees_{i,t} - 0.75\ LnPersonal\ Costs_{i,t} - 1.27\ ATECO\ dummy_{i,t} - 0.82\ Small_{i,t} - 0.76\ Products\ /\ Processes\ Modifications_{i,t} - 0.65\ Successive\ Developments_{i,t} - 0.19\ Productive\ Relapses_{i,t} - 3.27\ Engagements\ Made_{i,t} + \_it$

$ROE_{i,t} = 6.65 - 0{,}008\ Sales_{i,t} - 0{,}0105\ Employees_{i,t} + 0.007\ Added\ Value_{i,t} + \_it$

They all contain many balance sheet values, because, obviously, these last are explaining in a clear way the firms' economic performances, but, next to them, we can find some other elements important too, more near to this research purpose:

- The Age of the firms is important and it has a positive impact on the profits earned, on the Added Value and on the Labour Productivity (see the enclosed document 56), because they all are made stronger by the stability of an old firm (and it's coherent with the literature, see Gabriele *et al.*, 2007), but it has different negative impact on other diverse variables, as the employment of the firms, probably because the old firms are not inclined to change very often the employees engaged.
- The Size of the firms has always positive impacts: it has a large and positive effect on the firms profit, on the labour productivity and on the Ebitda, probably because the big firms tend to be more profitable; it has a little impact on the sales, but is possible to interpret these results as relative.
- The Canavese location has, obviously, a negative correlation with all the observed variables (see enclosed 56), especially on the Ebitda value. But while this last relation could be still explained by the more subjection of the Ebitda to other variables changes, the relation between the Canavese location and the employees is clearly explained by the problematic history of the area. To conclude the analysis of this variable, it's important to underline as it has an only little negative effect on the labour productivity, and this is an encouraging point over which construct several hypothesis of innovative actions.

- The same reasons of Canavese negative impact on the employees in the firms are valid to explain the relation with the Objective Two zone location.
- As it can be easily imagined, the Feasibility Studies has a positive impact on the Sales, but it's strange to see they don't weigh on the other firms figures.
- The Reached Results have a positive effect on the firms employees and added value, probably because they imply new techniques of production and the engagement of new employees, but they have, surprising, a negative impact on the sales: an explanation could be, as already exposed before, the minus quote of advertisement expenditure, because of the use of the firm financial resources to change the productive apparatus.
- It's interesting notice how the products and processes modifications have, obviously, a negative impact on the labour productivity (the employees have to learn new ways to product and it could require time and imply a loose in productivity); the same modifications have instead a good and large impact on the profit value: it could be explained by the consequent presence of new products.
- A different explanation could be given to the large negative impact of the productive relapses on the profit and on the labour productivity, while they have positive effects on the sales and on the Ebitda: it seems to suggest that the relapses in production have positive effect on the core business production and its sales, but it imply however new costs and losses of time.
- The fact that the successive developments of the researches and collaborations have a negative impact on the employees of the firms and on their productivity could be explained thinking in rationalizations of the utilized resources; instead, their positive effect on the profit value could again depends on the greater development of new and innovative production techniques.
- In any case, for the reasons already explained with reference on the Reached Results, a continuous relationship with the Centres has a negative impact on the firms sales, while, the more advanced technological status weights, on them, in a positive way.
- To conclude, the variables related to the new engagements made underline that, although their positive effect on the firms added value, it's important don't forget their negative impact on the labour productivity.
- To confirm this previous comment, it's important to notice the positive effect of the potential new engagement on the firms profit, although exists a negative weigh of the new orders foresight: it's an odd result and could be probably justified by the fact that the foresight of new orders doesn't touch the more current evolution of the firms, while the same mechanism doesn't work for the engagement preview, that are probably linked to a more solid financial situation.

Till now, the research concludes that the innovative collaborations with the Centres have had an only partially positive impacts on the firms balance-sheet values and on their growth.
Their effects are clearly greater and positive on the firms profits (they are expressed through the products or processes modifications and their successive developments) and it's possible to observe good impacts too, although smaller, of the feasibility studies made and of the productive relapses obtained, on the sales values and on the Ebitda ones, while the results reached have positive effects mostly on the firms employment and on their added values.
All these positive effects are however balanced by negative influences of other quantities linked to the CTDC interventions. More exactly, the only dependent variables that have only positive consequences deriving from the collaborations with the Canavese Technological District Consortium are the Ebitda and added value of the firms; the other dependent variables here studied receive both positive and negative effects from the collaborations and so makes their valuation lower.

These last conclusions are explained and confirmed by the Probit models and the Propensity Score matching models results too, following in the next part.

IV.3.c. THE PROBIT MODELS

Till now, the research results remember us that most of innovations needs a solid previous patrimonial stability and requires an high expenditure, before the first economic advantages and profits rise. Moreover, the choice of the right innovations to apply to the production processes is a fundamental step in the innovative path, because not all the new methods are correct anyway.

PROBIT MODEL APPLICATIONS

The aim of this section of work is to investigate about the probability of success of the public interventions made by the Canavese TD Consortium, to support the developement of the local firms. The objective has been gained through the construction of a Probit Model, built on the panel of 166 firms (in the years since 1999 to 2006), that considers the balance sheets firms data and technical information of the collaborations with the Centre. The central question analyzed is which is the probability that this public innovative intervention has success and brings economic growth for the involved firms. The question, obviously, is constructed for the future innovative actions advantage and the answer is gained with the results of the past.

To introduce the following Probit model applications, it's necessary the more precise definition of the Canavese economy evolution, in the considered years, that is present in the Tab. IV/13 and of the effects on the firms performances of the Consortium interventions.

I PROBIT MODEL: BETTER / WORSE RESPECT TO CANAVESE

In the I Probit model application, we pay attention to the collaborations variables impacts on the probability that a Canavese firm has an evolution better than the local average. This last is pointed out by the economic indexes presented in the Tab. IV/13, while the data summarizing each single unit evolution (that are equal to 1 for the firm has had a performance better than the Canavese one, to 0 if it doesn't happen and which are the elements whose the probability is valuated) have been defined with an accurate comparison of the evolution of each unit with the Canavese one.

The model identified (see document enclosed 57) is the following (in it it's possible to find some balance sheet variables, too, because also these last have been considered in the identification of the factors that allow the units to evolve in a way better than the area) :

It's statistically pertinent to the data [Wald test $\chi^2(4) = 5665.23$ (*p-value* = 0.000)]

Better / Worse	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
ProjectsDum	50.69	16.53381	3.07	0.002**	18.28598	83.09733
employees	.213	.0039101	54.55	0.000***	.2056301	.2209573
Sales	-7.96e-07	1.65e-08	-48.11	0.000***	-8.28e-07	-7.63e-07
Product. Rel	160.29	20.74861	7.73	0.000***	119.6299	200.963
Cons	-487.57	.	.	.	.	

Y (Better / Worse) $_{i,t}$ = -487.57 + 50.7 Projects Dummy $_{i,t}$ + 0.21 Employees$_{i,t}$ – 0.000008 Sales$_{i,t}$ + 160.3 Productive Relapses$_{i,t}$ + _$_{i,t}$

In this case, the model is perfectly balanced, it results very significant [_^{2} (4) Test = 5665,23 (*p-value* = 0.000)], but the total variance proportion of the individual effects is high (0,99): it means that the pooled and the panel tests are very different. In this case, the residual correlation is not very good and that points out how the model is probable too simple.

Looking at it (that has been reached after several attempts), it's necessary to underline how we have chosen, among the different possibilities available, the model including most of the variables directly related to the Consortium interventions.
In it, it's important the high and positive effect on $Y_{i,t}$ of the projects realized: about them it's important to notice how it's confirmed their not incremental effect (in fact it's considered the dummy variable instead the discrete one). As it is foreseeable, also the presence of productive relapses has a good impact on the probability that a firm evolves better than the Canavese area as a whole: this last data confirms the Projects dummy positive effect.

It could be a bit surprising the positive impact of the employees, if compared with the sales coefficient sign: indeed, in this model, is underlined their rule in terms of firm stability and the very low negative sales impact is probable due to the costs implied in them.
Looking at the results of other Probit model test, here not directly considered, but with some significant variables too (see the enclosed document 57), it is unexpected to see the negative effect of the reached results variables, in the only one models where they are present and significant. The same speech is valid for the profit figure too, but it could be explained as in the sales variable case.

On the contrary, it's important the great weight of the realization of feasibility studies in the Centres laboratories and the importance of the existence of product or processes modifications or patent suppositions in the firms. This last voice is highly indicative of an innovative pattern followed by them.
Also the Successive Developments variable, where it's present in the model, has always positive coefficients, that underline the importance of future collaborations with the Centres.

The ATECO 2002 dummy variable has a positive weight too, underlining how the sector of activity has a great role in the realization of positive effects following the Consortium interventions, but we have to point out how, when the ATECO variable is present, it explains the greatest part of all the variables significance, making the other ones quite not-influential. The mechanism just exposed happens for the sales, the profit and the other balance sheet figures variables too and it makes us to conclude, in agreement with the previous random effect model, **the only light direct influence, on the firms evolution, of the Consortium actions, that operate more through the balance sheet figures.**
In fact, as we can see by the random model regression, the profit is positively influenced by the products or processes modifications, by the possible successive developments and by the foresights of new engagements; the sales are instead sensible to the realization of feasibility studies, to their productive relapses, to the technological status modifications (thanks to Centres interventions) and to the structure variations that lead to the foresight of new orders, and same observations could be done for all the other dependent variables analyzed: none of them is directly and deeply influenced by the projects realized, but they all receive their effects through the other balance sheet variables considered.

II PROBIT MODEL: IMPACT EFFECT OF CONSORTIUM SERVICES

If we instead analyze the immediate impact of the Consortium collaborations variables on the firms evolution, in the following 2-3 years, we reached different results (see document enclosed 57).

Obviously, in this second application, the significance of the attended projects dummy is total, but the other collaborations variables loose it quite completely: only the labour productivity and the employees variables, that could be influenced by the Consortium collaborations, are significant and have a positive effect in the Y here analyzed. Next to them, we can find other figures related to the employees component too (that has a great weight), as the Personal Costs, that, although they are less significant that the former, have an unexpected negative impact on the firms evolution in these cases.

So the model is the following:

Also in this case, the model explains in a good way the data [χ^2 (7) Test = 139,71 (*p-value* = 0.000)], but the total variance proportion for individual effects (0,97) shows that the pooled and the panel tests are different.

impacteffect	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
projectsdu~y	1.717	.3503406	4.90	0.000***	1.029924	2.403234
lab_produc~y	.5194	.2251182	2.31	0.021*	.078151	.9605979
atecodummy	1.925	.6600569	2.92	0.004**	.6310508	3.218426
canavese	2.533	.3685523	6.87	0.000***	1.811007	3.255706
small	1.567	.3337733	4.69	0.000***	.9126281	2.220995
employees	.0016	.0006586	2.51	0.012*	.0003638	.0029456
pers_costs	-3.22e-08	1.56e-08	-2.06	0.039**	-6.28e-08	-1.59e-09
_cons	.2343	.	.	.	.	

Y (Impact Effect) $_{i,t}$ = 0.234 + 1.7 Projects Dummy $_{i,t}$ + 0.52 Labour Productivity$_{i,t}$ + 1.92 Ateco Dummy$_{i,t}$ + 2.53 Canavese$_{i,t}$ + 1.57 Small$_{i,t}$ + 0.0016 Employees$_{i,t}$ – 0.00000003 Personal Costs$_{i,t}$+ $\varepsilon_{i,t}$

Observing the coefficient in the other regressions that have not been chosen but have some significant variable too, we again see unexpected results, as the negative effects of the of the products/processes modifications and of the reached results on the evolution of the firms in the 2-3 years after the interventions. A possible explanation of it could be the fact that this variables could don't touch the firm in a concrete way in such a short period. The Projects, instead, have been practically realized, then they have had a real impact on the firm productivity and evolution, thanks to knowledge and the technical instrument acquired for them.

IV.3.d THE PROPENSITY SCORE CANAVESE MATCHING MODELS

In this last section, the impact effects of the Canavese Consortium services have been valuated with some matching model. More exactly, 4 probability models have been identified (one for each project, TS, PIA01, PIA 02-03, DIADI, see document enclosed n°58): they count the propensity of

each firm to have a good economical evolution (these levels are expressed through propensity scores). Successively, these values have been calculated for the control group units, too, that have been matched with the formers.

The evolution of the profit values within each couple have been compared, to gain different measures of the Canavese projects impact. To evaluate it, the differences among the profit evolution of each analyzed firm and the twin firm of the control group, have been considered for 4 years, different for each project.
At last, their average values have been considered, to obtain mean values of the impact.
(The propensity model coefficients are in the enclosed document 58)

- TS IMPACT

In the TS project the profits differences have been counted in the following years, specifically indicative for this project, that started in 1998:

- form 2000 to 2002
- from 2001 to 2002
- from 2001 to 2003
- from 2001 to 2004

The average results of the subtractions among the profit values of different firms in diverse years are:

82 TS FIRMS PROFIT IMPACT			
Average Diff. Diff. 2000-2002	Average Diff. Diff. 2001-2002	Average Diff. Diff. 2001-2003	Average Diff. Diff. 2001-2004
-7987849.28	-4800122.866	-5274490.134	-1502683.451
N¡ Positive Cases			
37	**45**	**38**	**35**
45.1%	54.9%	46.3%	42.7%

They are all negative, that means the firms that didn't joined the Canavese projects have had results better than the involved ones.

Considering the first profits difference, the one 2000 - 2002, we can find, among 82 units, 37 firms (45%) that reached a positive results from the Consortium services: this is a good percentage, but if we consider the mean value of all the units, it is negative and it means the absence of a real growth deriving from the services allocated.
The second difference, the one 2001-2002, is the smaller, with the higher number of positive cases: that confirms the projects immediate positive impact effect, that however gradually disappears in the 2003. The good value of the last difference (35 positive cases in the 2001-2004) is already influenced by the successive projects PIA01-PIA02-03.

Concluding, in all the exposed cases the mean values are negative and it's not possible to recognize a real improvement of the economical performances among the TS firms, except a light better

situation in the 2002, that completely confirms the results already found in the preceding analysis and regarding the immediate positive effects of the collaborations (the ones of the following 2-3 years).

- PIA01 IMPACT

The couples of years considered for PIA01 project are:

- the 2001-2003,
- the 2002-2004
- the 2002-2006.

The average results of the subtractions among the profit values of different firms in diverse years are:

44 PIA01 FIRMS PROFIT IMPACT		
Average Diff. Diff. 2001-2003	Average Diff. Diff. 2002-2004	Average Diff. Diff. 2002-2006
-183765.43	-318045.66	-447665.05
n¡ Positive Cases		
22	**19**	**17**
50.0%	43.2%	38.6%

In this case the comment is similar to the preceding: all the results are negative, although it's clearly possible to see the positive immediate impact of the project PIA01 in the last month of the 2003, that decreases in the following times.

- PIA 02-03 IMPACT

The PIA02-03 valuation have been made on the profit differences between the following couples of years:

- 2002 – 2004
- 2003 – 2005
- 2003 – 2006

The average results of the subtractions among the profit values of different firms in diverse years are:

20 PIA02 FIRMS PROFIT IMPACT		
Average Diff. Diff. 2002-2004	Average Diff. Diff. 2003-2005	Average Diff. Diff. 2003-2006
126076.85	-141204.50	-301710.25
N¡ Positive Cases		
8	**6**	**8**
40%	30%	40%

The results of this case are the first to show a positive impact of the Consortium projects at the end of the first year in which PIA02-03 is allocated. Successively the positive effects are disappearing.

- DIADI IMPACT

The average results of the subtractions among the profit values of different firms in diverse years are:

42 DIADI FIRMS PROFIT IMPACT		
Average Diff. Diff. 2002-2004	Average Diff. Diff. 2003-2005	Average Diff. Diff. 2003-2006
-4380904.8	-4534199.3	2368635.0
n¡ Positive Cases		
26	**18**	**26**
62%	43%	62%

Finally, looking at the results of DIADI we find more evidently the positive effect of the collaborations during their development. This is the only case in which it's possible to see some positive effects (26 cases) in the first year of the service (2004) and the collaboration immediate good impact, in the 2006 (they are calculated in comparison with the 2003, the last year before DIADI project).

Concluding, the results of the impact effect valuations are again confirming the results of the previous econometric applications (Random Effect Model and Probit Model), except for one couple of years of the Consortium projects, PIA02, and one couple for DIADI.

The presence of positive immediate impact effects following the projects allocation is showed by all the econometric model, as the double and not unidirectional projects effect in the long period.

To avoid these last ambiguous consequences, the results of this work remark the role of a **solid previous patrimonial stability, of the choose of the right innovations to applied to the production process, the importance of an high previous technological status of the involved enterprises and the centrality of a continuity in the services allocated.**

CHAPTER V:

THE PACA CASE

The PACA region (Provence – Alpes – Côte d'Azur) is divided in 6 *d partements* (*Hautes Alpes, Alpes de Haute Provence, Alpes Maritimes, Bouches du Rh ne, Var, Vaucluse*), where the 7,8% of the French metropolitan population is localized.

V.1. THE PACA ECONOMIC EVOLUTION 2001/ 2007

(Insee web site: conjunctural studies; Banque de France web site: regional trend)

In a national economic context characterized by a high growth in the third quarter 2007, that became slower at the end of the year and in the first months of 2008, the PACA evolution has followed the national performance and appears very different by the Canavese area.

The PACA economy is usually subject to strong seasonal phenomena, mostly due to the centrality of the touristic component in its economic structure. They usually lead to an high production in the first months of the year, that decreases in April and May, re-starts its growth, in a strong way, in June, to keep it lower in July and August and to growth strongly in the last months of the year.

Inside these cyclical movements, the PACA French region produces, in average, the 7% of the national growth (after Ile de France, 28%, and Rhone Alpes, 9%), with a *per capita* income higher than other French regions (indeed, the PACA income range is higher than the national one because of the internal large work diversification) and a gross operative margin near the national average, of 112 mld of Euro in the 2006.

This last margin has been improving at a rate of 5% since the 1997 till the 2001. In the years 2002 and 2003, it was decreasing (-15% for year), although the great series of central interventions sustaining some disadvantage classes (taxes reduction, sustain for the unemployment benefits and exploitation of the old-age pensions). In the years 2004-2007 the higher expense for the APA (*Allocation Personnalis e d Autonomie*) and other central interventions in the economy have helped the regional income improvement (+20% each year) and the decentralization processes: these last

have involved all the nation, but have specifically brought the PACA zone to acquire a stronger economical position.
In this framework, in the years since the 2002 to the 2006, the local labour market saw an increase of the active population, because of the entry of immigrant forces and of women. More exactly, in the 2003 the employment increased of the 0,5%, that was a growth lower than the 2002, but higher than the France one (-0,4% in the 2003) and in the 2004 its growth was of the 1,8% (mostly in the construction and in the services to the firms sectors) (see document enclosed V.1).

In these years the PACA represented, in average, the 7,3% of the national occupation and the employees' remunerations were higher than at the national level.
In a specular way, the number of unemployed people has decreased since the 1999 and while in the 2003 the unemployment was the 12,1%, in the 2004 the quote diminished to the 11,8%.
To conclude this picture, it's important to underline the presence, in the PACA region, of an high percentage (22%) of retired people, that next to the several students, represents a large quote of inactive population: this social composition has had a strong influence on the economic activities developed in the area, that are, in a good percentage, oriented to meet the local social needs.

In fact, a large quote of the PACA firms belongs to the services sector, which produces the 80% of the regional GDP. These units are active for a 50% in social services, as the ones of education, health, tourism, hotels and restaurants, and for the remaining part they are specialized in commercial services for the firms (see document attached V.2).

The industrial sector is strongly present too, with the 80% of the establishments, although they produce only the 11% of the regional GDP. The 50% of the sector it's represented by agriculture, food and consumers' goods firms; the 41% of it it's composed by intermediary goods and equipments firms, among which a quote of 3,9%, that's low but higher than the national level, is active in the electric and electronic sectors (see Table 3 below).

Tab. V/3: Industrial sectorial factories at 01/2004

Departments	04	05	06	13	83	84	PACA	PACA/ France %
Food and agrarian Industries	314	290	1157	2309	1500	927	6405	8,7
Consumption goods Industries	169	180	2183	2389	1228	817	6966	8,3
Car Industry	2	6	30	79	29	25	171	6,2
Instrumental goods Industry	103	89	1263	2018	1042	501	5016	10,1
Intermediary goods Industry	245	147	1201	1856	908	787	5144	6,7
Metallurgy Industry	23	22	261	565	207	219	1297	4,8
Elettronic and elettric components	3	4	132	160	56	38	393	8,0
Constructions	1334	1268	9957	10542	8707	4464	36272	10,1

The PACA zone is also characterized by a medium manufacturer mechanical specialization: it's more developed than an electronic one and this is a point of difference by the Canavese. Anyway, in the mechanical sector it's possible to find some firms constructing and trading abroad too, work machinery.

The PACA productive structure, in the 2004, is represented by the following table 4:

Tab. V/4: The PACA productive structure in 2004

Industrial sectors	quote %
Immovable activities	14,3%
Education, social services, health	11,6%
Home services	10,4%
Commerce	10,3%
Instrumental goods industries	9,2%
Constructions	9,1%
Firms services	8%
Agrarian and alimentary industries	7,7%
Consumers' goods industries	7,3%
Energy	6,1%
Intermediary goods industries	4,7%
Car industries	1,3%

Although the quite complete productive structure, the good position in the metallurgic, electric and electronic sectors (respectively the 4,8% and the 8% of the national production) and the development of the commercial and distributive ones, the PACA region is one of the less autonomous in the nation, because the local economic tissue is mostly characterized by SMEs (in the 2004 the 50% of the establishments in PACA was without employees, the 6% with more than 10 and less than the 0,9% of the firms was with more than 500 employees), that have the legal siege in other French zones.
These industrial units are mostly localized in the 3 local productive poles (*Toulon* and *Marseille*, *Nice* and *Sopjia Antipolis* and in the one of the *Rh ne* valley) and in the years since the 1998 to the 2006 it was possible to see their increase: several new firms born, generally at a rate higher than the national one, mostly in the commercial and construction sectors, producing a renewal of the productive tissue (see document attached V.5).
All these units are usually characterized by a full use of the internal productive capacities and particularly, the ones of the sector of the intermediary goods increased their activity in the 2006: they overcame the 2005 level and kept the positive evolution in the following years, observing how, in all the period, the sector prices and the use of their products were growing.
Among the intermediary sectors, the metallurgic one saw a decrease in its production, but the keeping of its demand and its prices; while the one of the electric and electronic components remained the stronger step in the productive spinneret, characterized by an high level of production and renewal of the orders.
In this context, the economic sectors more active in the import and export activities (that increased respectively of the 13% and 8% in the 2004) are the ones of mechanical equipments (NES[6] definition: E2), of electric and electronic equipments and components (E3) and of metallurgic structures and works (F5). The greater part of PACA commercial exchanges is with the neighbouring European nations (Italy, Spain and Germany) and with the north Africa zone.

[6] *Nomenclature conomique de Synth se*

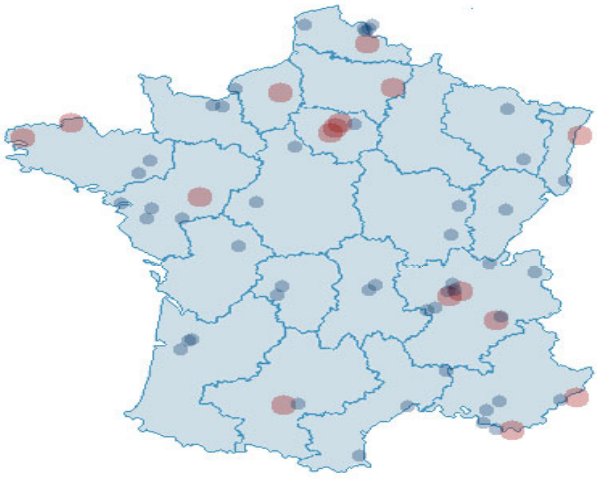
After the period 2001/2005 characterized by the local decrease in the activities volumes (see table V.2 attached), the year 2006 was generally characterized by a new increase in the profitability and in the activities in PACA (respectively of the 7% and 13%), that indeed weren't sustained by the SMEs investments. Particularly, the SMEs investments in ICT equipments became slower and lower than the national average (except in the cases of firms with an internet web site bigger than 6 pages. The web sites are an usual instrument for the French SMEs to communicate with the customers and receive the orders).
As a support of the ICT units, it's important to underline the existence of a national and active D.R.R.T. (*D legation R gionale la Recherche et la Technologie)* that acts thanks to the contracts State-region for:

- the born and the strengthening of the regional technological poles,
- the reduction of the economical – administrative barriers for the research,
- the increase of the communication of the regional economies,
- the sustain of the intangible investments of the SMEs (skilled employees recruiting),
- the sustain of the material investments in the SMEs production, competitiveness and technology.

Next to this organism it's possible to find other bodies like the FDPME (*Fond D veloppement PME)* or programs, like the *Atout* or the *Atout Drop* ones, that collect different initiatives sustaining different activity fields, like the microelectronic one, the one of the information systems, of the advanced materials and of the development of modern production techniques (like the ones of the automated assembly, the high speedy metal works and the laser cut and welding).

This framework, of an historical local attention of the region to the ICT sectors (already evidenced by the presence of the *Sophia Antipolis*), has brought the central government to push an innovative local development and to increase the research institutes role.
The PACA region has gained some advantage positions in the new technologies field, respect to the national level, and in the 2005/2006 it was a pressing need the introduction of innovative technologies in the national productive processes.
With this gain, the government sustained several local realties with public policies targeted to the development of specific *Poles de Comp titivit* (Competition Poles - CP) (*Contrat de Projets tat-Region* 2007-2013 – *Insee — Mediterranee Technologies*). Their objective was the development of specific **technological projects** oriented to the application of innovative technologies to different productive processes, signalized by the firms themselves. These collaborations, realized since the 2006/2007 and still active nowadays, have involved the productive units, the research institutes and the Poles and have been supported by an increase of the scientific instruction level in the single regions and of the interaction among the quoted actors.
A first effect of the Poles creation, in the PACA region, was the decrease of the number of *Rmistes* (a french word meaning the disadvantage poor people that need the financial government helps, that are allocated with the RMI (*Revenu Minimum d insertion*). The quote of people depending by the RMI decreased in a net way in the 2005, 2006 and 2007 (-11,7% the last year) in the PACA region, although it has maintained the higher number of *Rmistes* in the nation.

V.2. THE COMPETITION POLES



Source: Insee

The French *Poles de Comp titivit* birth isn't so centred on **an historical territorial tradition and on a common heritage** of the units involved, as it happens in the Italian districts, but they are a network of enterprises, bodies of superior training and education, and public or private research bodies, that work together to realize projects for an innovative local development (Competition Poles web site, 2007).

The French competition poles are specifically born thanks to the new central industrial policy, started in the 2004, that joins territorial targets of innovation to industrial objectives, with the aims to increase the local attraction and stop the delocalization processes.

The poles have been labelled, in December 2005, with a decision of the CIACT (*Comit Interminist riel d Am nagement et de Competitivit des Territories*). This public body, that's directed by the prime minister and defines the government orientations in terms of territorial governance and reorganization, has defined the standards to which the over-quoted technological projects should agree to be financed.

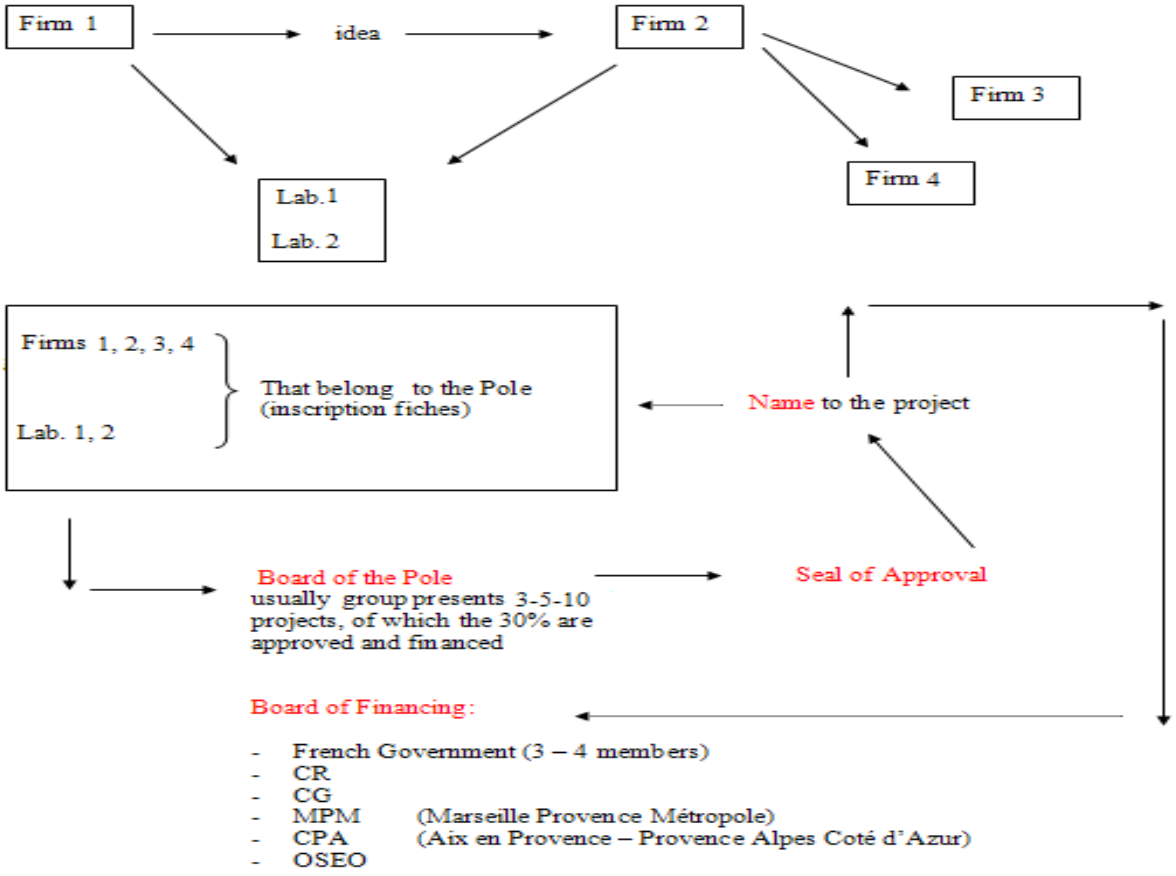
These specific R&D projects, realized in each CP, are defined by different announcements of financing and by "Call for Projects", made by some government bodies, like the F.U.I. (Unique Fund Interdepartmental), the D.G.E. (Enterprises General Direction) and the F.C.E. (Enterprises Competitiveness Fund), and by a public research body, the A.N.R. (National Research Agency). They are direct to groups of firms that show specific economical characteristics and belong to different productive area (more or less innovative), that are jointed in common objectives (Competition Poles web site, 2007).

V.2.a. French CP projects: the processes of creation and financing

How it's possible to see in the figure below n°6, the different local subjects (firms and research laboratories) belonging to the competition pole, meet to develop some ideas of common projects (usually R&D projects), that are a necessary complement for the involved firms competitiveness and for the economic local development.
These projects are presented to the board of the pole and the successive step is the gain, by projects, of the seal of approval, after which a specific name is given to them (usually the same group present 3-5-10 projects, the 30% of which is approved and then financed).
In fact, only at this point, the projects are ready to be financed: the CP are defined as association, thus regulated by a law of the 1901 in the financing modalities. They are no profit associations and

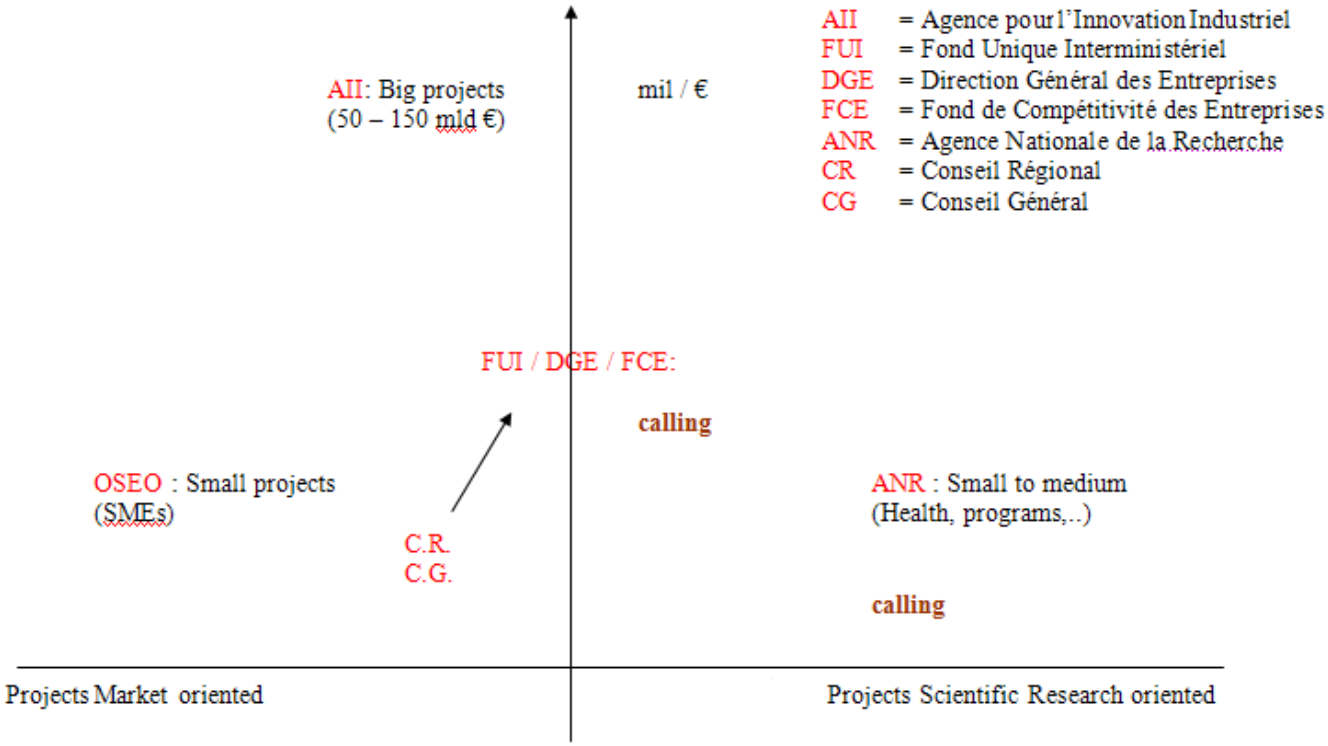
have a budget of 1,3 Mil € / year, provided both by the State and the private sector. Specifically, their board of financing is made by 3 or 4 members of the French government, some members of the Regional Council (CR), of the General Council (CG) and of the OSEO (a group that sustains the technological innovation projects presented by the local SMEs) and representatives of other specific public bodies, as it's possible to see in the figures n° 6 and 7 below. In the CP specifically analyzed in this work - the SCS (Secured Communication Solution) Pole, localized in the Provence-Alpes-Coté d'Azur region, we find, for example, some local public bodies as the M.P.M. (Marseille Provence Métropole) and C.P.A. (Provence-Alpes-Coté d'Azur).

Figure V/6: Projects creation. A bottom-up mechanism



Paying again attention to the mechanism of financing that's working in the French competition poles (see figure n°7), it's confirmed the high bureaucratization of the mechanisms and the strong role of the different public bodies involved.
In the scheme in object, we find, on the horizontal axis, the preponderant projects orientation, to the market or to the scientific research; on the vertical axis the degree of financing; in the four quadrants the public financing bodies involved in the process.

Figure V/7: Projects financing mechanism



For the specific subdivision of the financing quotes and for the all process chronology, see the attached Table n°V/8.

The French CP exist in quite all the traditional economic sectors (as the agro-food, the mechanical, the textile, the commerce and the transport ones) and their aim is to sustain the innovation, in each considered field, and to improve the local competitiveness: in this context, new innovative practices are analyzed and applied to the productive processes and products and the firms of the poles, that find their economic activity classification in the N.E.S. (Nomenclatue économique de sinthèse) or N.A.F. (Nomenclature d'Activités Francaise) nomenclatures, cover a wide range of economical specializations (Insee, 2007).

The aims of the competition poles initiatives are:

- developing interactions and cooperations among the actors of each pole and between poles themselves;
- strengthening France's industrial competitiveness and its leadership in innovative technologies;
- enhancing economic development;
- placing the enterprises at the centre of innovation processes;
- favouring synergies with local R&D potentials in order to attract new investment and skills;
- involving the local authorities on all the aspects of development and realization of the projects.

In this context, the SMEs of the Poles objectives are:

- The identification of similar or complementary technologies within other clusters in Europe;
- The creation of platforms where to exchange ideas and projects within the Pole;
- Fostering relationships/partnerships with other clusters/poles at national and European level;

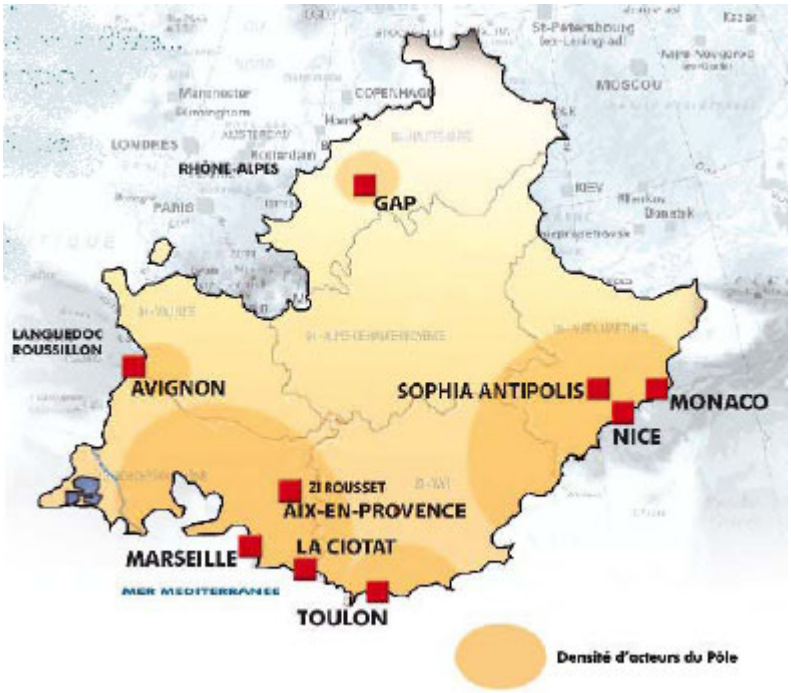
- To have information and to be involved in European projects.

They are all included in the bigger purpose of a network connection among firms, innovation centres, training bodies and research centres, which is finalized to increase the local competences and the competitiveness. These linkages are managed by the local actors of the governance within new strategic planes, finalized to improve the local *savoir faire* and to give the territory a technological innovative specificity, which allows its international visibility.

The increase of the firm collaborations rapidity in the innovative projects has created the necessity of common norms of relationship, the base of an interactive behaviour. The scientific knowledge diffusion requires, in fact, besides specialized competencies, the use of a scientific common language, that supports the information transmission among the firms: the knowledge tends to be tacit, to remain strongly related to the individuals who have develop it and tens to be spread through the communities with an opportune scientific background (Calabrese, Rolfo, 2006) and a good absorptive capacity (Cohen, Levinthal, 1989).

These common local idioms are also useful for the **training of the local labour forces**, that's an important distinctive characterization of the CP: the French typical high attention to the human capital growth and to the social components has defined the training capacity as a Poles proper specificity, that improves their role in the creation of labour skilled forces, as element of growth and employment propellant.

V.3. THE SCS POLE



Source: *Insee*

In the present work, our attention is specifically paid to the *Solutions Communicantes Securis e* Pole, localized in the PACA zone, labelled the 12 July 2005 and involving firms active in the electronic, in the communication and in the ICT sectors, both in the hardware and software parts (SCS Pole web site, 2008).

The Pole aim is to favour the development of these sectors, the creation of innovative cooperative projects, shared by the local subjects and regarding solution systems for a secure managing and exchange of private information in the tourism, health, mobile telephony and environmental management fields.

It joins these target sustaining projects inserted in four particular thematic groups:

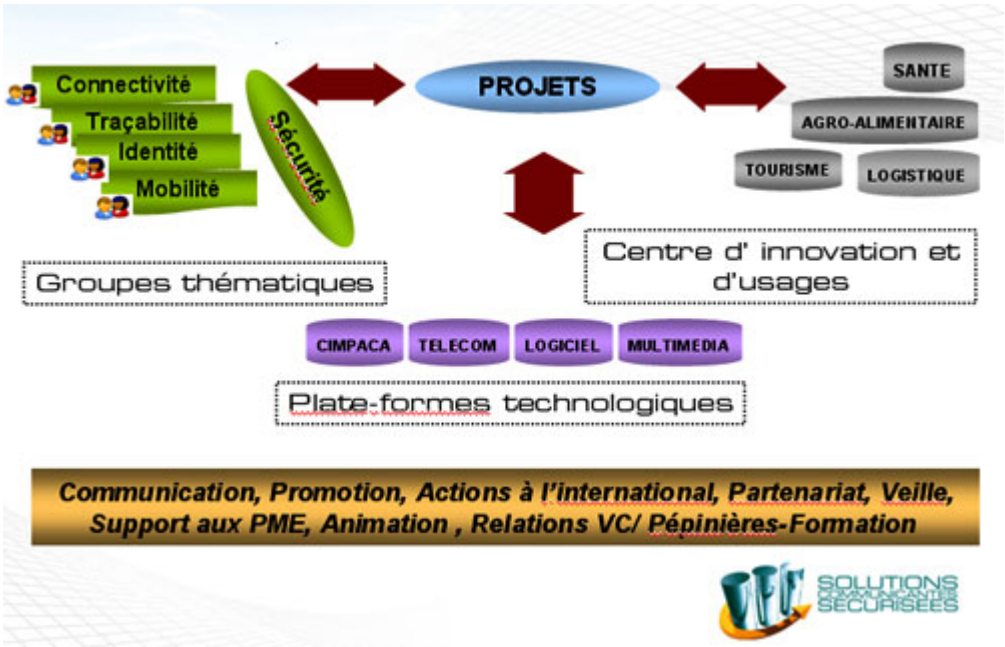
- mobility
- identity
- traceability
- connectivity

These groups have the purposes of identify the principal markets of the Pole interest, their evolutions and to define the "road maps" of the projects, through the identification of their technological and scientific ties and their medium/long period fields.

The secure exchange of information, researched by the projects development, is realized thanks to silicon components (micro-card, electronic tagging, software packages, telecommunications platform, internet solutions, etc..) that define the technological excellence and innovativeness of the Pole solutions and underline its contribute for the local development of the ICT (French – Italy Technological Pole meeting, 2007).
The Pole evolution has implied the construction of technological platforms, in which are located common technical supports, useful for the projects realization, that can be used by all the firms

member. Next to these platforms, some Centres of innovation and use have been founded too: the firms, belonging to the 4 sectors over-quoted, meet in them, to develop the common projects (see Tab. N° 9 below).

Figure V/9: SCS Pole architecture



Source: SCS Pole web site

The firms involved in the present research are 99 and they are, in the 55,6% of the considered cases, younger than 10 years.

In the last period (2006-2007), that often coincide with the first years of their existence, they met specific production and competitiveness problems and decided to agree to the SCS Pole to discover new market spaces and innovative applications in the computer and electronic sectors.

The SCS Pole interventions were realized through the development of the specific projects, that met the firm interests. These last were identified by the firms themselves, that presented, in the 37,4% of the 99 cases considered, peculiar projects to the Pole commission, that selected them considering the standard given in a *Cahier des charges* to the Poles management. The standards require that the proposed collaborations are:

- coherent with the economic development plane of the Pole;
- with a good international visibility in their industrial or technological aspects;
- cooperative projects among different actors, with a structured and defined way of management;
- able to create R&D synergic relationships, sustained by a strong financial base: the R&D projects are considered, specifically, the principal Pole competitiveness factors.

The selection process has been made with a triple analysis, which completes the CIACT decision. It's based on:

- a regional analysis made by the regional prefect;

- a *Groupe de travail interminist riel (GTI)* valuation, (the GTI collects all the Pole boards);
- an independent valuation of a *Groupe des personnalite s qualifi es (GPQ)* , that is made by a pool of selected managers, researchers and professors.

Through this specific mechanism, peculiar solutions have been found for each firm member of the Pole: obviously they are different in each case, but, in the present work, to gain a clearer analysis result, they have been classified in 5 typologies (see Tab. n° V/10), summarizing the main interventions principles and objectives.

Tab. n¡ V/10: Projects typologies

Projects Typologies	
1	Searching computer systems and engines development
2	Electronic components planning, formulation and development
3	Control and analysis computer systems development
4	Safety
5	New technologies applications

The first projects typology collects all the interventions developing searching engines, for the goods in the stores, for information in big panel of heterogeneous data and for the people: in these last cases, specialized tracing engines have been developed for the safety of the old persons.

The second typology relates to the collaborations finalized to the nanometrics components, multiprocessors and microsystems production and to the composition of electronic engines for the wireless communication, contactless engines for the body or the subjects recognition and other hardware components for the secure planning.

The third type represents the interventions helping in the development of computer control and simulation systems for the electronic fabrications and the circuit for the optical stimulation.

The fourth category of projects involved all the collaborations finalized to improve the security in the electronic components, for the old or sick people, for some natural event (as fire in the forest, for example) and for the security in the streets and in the travels.

The fifth typology is less homogeneous and relates to the projects implying the application of the new technologies discovered to different firms problems: they concern the laser applications, the application of the control technologies to the tourism market, of the wireless technologies to the advertising systems and the RFID (Radio Frequency Identification) technologies use.

If we pay attention to the projects developed, we can clearly notice how the typologies 2, 4 and 5 appeared more useful and interesting to the French firms, that developed them in a bigger quote (see tab.n° V/ 11 and 12)

Tab. n¡ V/11: Number of firms for each project

Units that agree to each projects		
Projects 1	3	3.0%
Projects 2	9	9.1%
Projects 3	4	4.0%
Projects 4	19	19.2%
Projects 5	13	14.1%

Analysing the different typologies of projects we can conclude that the second, the fourth and the fifth appear more interesting because they could have a more immediate effect respect to the other: confirming this, the following table n° 12 shows how some involved firms applied more than a project and how the 4 and 5 typologies have been the more requested, in these cases.

Tab. n¡ V/ 12: Number of projects developed for typology

Number of Projects		
Total Projects	**63**	**100%**
N° of Projects 1	3	4.8%
N° of Projects 2	12	19.0%
N° of Projects 3	4	6.3%
N° of Projects 4	26	41.3%
N° of Projects 5	18	28.6%

In this point of the analysis, it's important to specify that not all the firms agreed to the projects: some of them (62 firms) hasn't still used the Pole services at the time of this research. **This suggests us how the participation has been interpreted, by most of the involved units, as a future interesting possibility of sustain or help, and, probably, not as a necessarily immediate opportunity of growth.**

Confirming that, among the firms that have already applied to the projects it s clearly emerging the idea of their use as rescue solutions: the projects application is quite always (18 cases) preceded by negative or decreasing balance sheet values.

How we can see in the next table n¡ 13, this last typology of firms has been more disposed to apply the over quoted project typologies 4 and 5, that have brought immediate positive results and have allowed 9 units (50%) to gain better balance sheet values in the last year analyzed (2006).

Tab. n¡ V/13: Typologies of projects applied as rescue solutions and immediate positive results gained

Projects applied as rescue solution		
Projects	**N¡**	**Immediate positive results**
1	1	1
2	5	1
3	3	2
4	10	4
5	6	1

More generally, from the following tables n° 14 and 15 we can conclude that 22 SCS Pole interventions have had immediate good impacts (that is the 59,5% of the 37 collaborations realized between the firms and the Pole, here analyzed) and we can see the typologies of projects that have had these immediate positive effects are again the 4 and 5, as over said.

Tab. n¡ V/ 14:

Firms that developed projects	
37 units	
Positive effect	**No effect**
22 units	15 units
59,5%	40,5%

Tab. n¡ V/ 15:

Good impact effect	
Projects	**N¡ of good cases**
1	2
2	4
3	3
4	**10**
5	5

Confirming again the relative importance of the 4 and 5 collaborations, in the following table n° 16 we can observe as the several start-up units (55) were also inclined to require them.

Tab. n¡ V/ 16:

Projects requested by the start-up	
Projects	N° of cases
1	2
2	4
3	3
4	**14**
5	**6**

This last group of start-up (they are since 1 to a maximum of 7 years old) have often used the collaborations with the SCS Pole as a form of help in the first years of life (12 cases): often the projects developed resulted useful, because they pushed these units to survive in the first years and to exceed the negative results of the first accounting period. During it, their profits were usually negative, the added value, the operative margin and the gross operative margin were usually very low or negative again and the only positive balance sheet signals were the sales and the employees' number, usually increasing in the considered years. These last values were the only ones allowing these firms to bet on the projects as resolutive solutions (in this contest we had to specify that some start-up were able to maintain positive values of the profit and sales in the first years, but, although these different performances, they weren't sufficient to define their evolution as better than PACA, so that the SCS Pole interventions have been considered, indeed, as rescue solutions).

In this picture, a statistical evaluation work of the action made till to now by the Pole SCS and a comparison with the Canavese case is useful, to better identify the most successful methods for an efficient technological transfer supporting the firm growth and innovation.

CHAPTER VI:

THE PACA RESULTS

VI.1. THE DATA

To analyze the impact of the projects allocated by the SCS Pole in the PACA area, the balance sheet data of the 99 involved firms have been analyzed, for the period since the 1999 to the 2006, as in the previous case. A more detailed picture of these firms' typologies is reported in the attached table VI/1, but among them we can notice the large part of private units, characterized by a larger management freedom and less juridical ties. Following the EU classification, the sizes of the involved units, in T1, are:

Tab. n¡ VI / 2: The size of SCS firms in T1

Size in T1		
Big	15	15.2%
Medium	8	8.1%
Small	76	76.8%
TOT.	**99**	**100.0%**

During the years of collaboration with the SCS Pole, several firms changed their dimension: 10 of them improved their size and only 4 of them became littler (see Tab n° 3).

Tab. n¡ VI / 3: Variations in SCS pole firm size

Size variations from T1 to T2			
Small		Medium	7 firms
Small		Big	1 firm
Medium		Small	3 firms
Medium		Big	2 firms
Big		Medium	1 firm

Among these variations it's important to notice also how a big unit in T1, became medium and, successively, in T2, after SCS Pole services, came back to the previous big status.

At the end of the analysis, in T2, the panel of SCS firms is so represented (see Tab.4):

Tab. n¡ VI / 4: Variations in SCS pole firm size

Size in T2		
Big	17	17.2%
Medium	11	11.1%
Small	71	71.7%
TOT.	**99**	**100.0%**

The Tab.4 underlines again the increase of big and medium units, to the prejudice of the small ones.

Among all the 99 firms considered, 55 units (55,6%) were born in the analyzed period of 8 years: it could suggest the utility and the usefulness of the SCS Pole projects, that have helped several new units to start their activity, or, at least, have given them new growth possibilities.

Paying attention to the economic sectors of the observed firms (and extending the analysis to 4 other units, for which we haven't the balance sheets data but only some information - see Tab. n° 5 and to the Tab. VI/5 bis attached), we can conclude that the greater part of firms (83 units) belongs to consulting and computer sectors (the firsts divided in the manufacture and in the computer services ones): these two economic section, with the one of R&D, could be considered the more innovative and representing exactly the ICT firms to which these interventions are directed.

Tab. n¡ VI / 5: SCS firm sectors

N¡	POLE SCS FIRMS SECTORS	CLASSIFICATION		N¡ Firms
1	158P - Processing of tea and coffee	**1**	**Alimentary activities**	1
1 1	222C - Other printing 295N - Manufacture of mould and paterns	**2**	**Print activities**	2
2	246L - Manufacture of chemical products of industrial use	**3**	**Chemical activities**	1
1 1 9 2 1	300C - Manufacture of computer and other information processing equipment 321A - Manufacture of condensers and passive components 321C - Manufacture of active electronic components 321D - Assembling of electronic cards 725Z - Maintenance and repair of office machinery and equipment	**4**	**Informatic and electronic manufacture and maintenance**	14

2	322A - Manufacture of transmitting and receiving set of radio relay system	**5**	**Fabrication of machineries and equipments**	5
2	333Z - Manufacture of checking and industrial processing equipment			
1	343Z – Manufacture of car equipments			
1	452B - Building of other construction	**6**	**Construction and renting**	3
1	702A - Letting of houses			
1	713E - Renting of office machinery and equipment including computers			
2	514F - Wholesale of household appliances and radio and television goods	**7**	**Commerce**	3
1	518G - Wholesale of computers, computer peripheral equipment and software			
3	642C - Telecommunication (except audiovisual transmission)	**8**	**Telecommunication activities**	4
1	921B - Production of institutional and advertising films			
10	721Z - Hardware consultancy	**9**	**Informatic services**	41
10	722A - Publishing of software			
17	722C - Other software consultancy and supply			
3	723Z – Data processing			
1	724Z – Data base activities			
3	731Z - Research and development on physical and natural sciences	**10**	**R & D**	3
5	741G - Business and management consultancy activities	**11**	**Consulting activities**	25
4	741J - Management company			
12	742C - Engineering and technical design			
1	743B - Testing and technical analysis			
1	744B - Advertising agencies and publicity consultants			
1	748K – Other business activities			
1	804C - Adult and other education	**12**	**Education activities**	1

To have a better idea of the typology of the involved firms and of their size (that's fundamental for the control group identification) we had to define again the sizes classifications (see Tab.6).

Tab. n¡ VI/ 6: Size of the firms

Typology of firm	Size (n¡ of employees)
Micro	1 – 5
Very Small	6 – 19
Small	20 – 50
Small – Medium	51 – 100
Medium	101 – 150
Medium – Big	151 – 500
Big	501 – 3000
Very Big	more than 3000

Now we can classify the SCS Pole firms as mostly micro or very small, but with some big or very big units too (see Tab. VI/7 attached). They are all located in the PACA zone, except 2 of them, located in the north of the nation (at Lille and Rennes regions).

As we have already said, several local firms decided to apply to the pole, but only a quote of them has already agreed to some projects. Our analysis develops on 99 units, about which only 37 firms carried on the Pole projects in the last year of our analysis. More exactly, some of them decided to adhere to more than a Pole action (see Tab. n° 8):

Tab. n¡ 8 : Number of firms that were present in more than a project

Relationship with SCS Pole		
Units that agree to the projects	**37**	**37.4%**
Units that agree to 1 project	27	70.3%
Units that agree to 2 projects	7	18.9%
Units that agree to 4 projects	1	2.7%
Units that agree to 8 projects	1	2.7%
Units that agree to 10 projects	1	2.7%
Tot.	37	100.0%

The participation to repeated projects confirms their utility. Particularly, a firm, born in the 1997, decided to agree to 10 collaborations with the SCS Pole: it will be interesting to see at its economic development in the analyzed years, for which we postpone to the VII.2.b paragraph.

VI.2. THE DESCRIPTIVE-STATISTICAL ANALYSIS

Looking at the balance sheets values of the 99 analyzed units and talking in mean terms (see Tab.9), the sales average amount is expressing the presence of several small and medium units, but the added value, equal to its 62%, is underling a good contribution to the regional growth.
It's a bit surprising, but meaningful, the negative mean value of the result of the accounting period: we can again imagine that the collaborations with the SCS Pole have been accepted by the firms as rescue solutions.
Indeed the operating profit and the gross operative margin mean values are both positive, indicating good results deriving from the core business firms activities.

Tab. n¡ VI/ 9 : Mean balance sheet values of the 99 SCS Pole firms

Mean Values	
Net sales	7274270.245
Added value	4473979.598
Profit/Loss	-303196.395
Operating profit	241580.8096
Gross operative margin	604756.7337

To better explain the picture of the SCS firms panel, it's important to underline that several units, among the ones born in the considered years (55,6%) show particular and specific "starting situations", where we find high and increasing values of sales and increasing numbers of employees, that are balanced by negative values of the profit, the gross operative margin and the operating profit, due to the increasing investments in new assets, and by high values of the debts and negative or very low indexes as the ROS, ROI and ROT.
These cases have been usually considered with an evolution worse than the PACA zone, as a whole, because it's evident the critic situation in which they are, although it's clear their effort to gain better sales results or to make the firms structure larger and more stable.

The few cases that, instead, have already reached, in the first years of life, positive results of the accounting period, have been judged better than the PACA zone.

VI.2.a. Firms which agreed to one project only

Considering these last typology of units, it's important to observe that only 34 units on 99 have been considered with an evolution better than the PACA in the years preceding the SCS Pole interventions: this gives the immediate strong idea that the projects have been mostly considered as extreme rescue solutions and have been used mostly by units in difficulties. More exactly, 45 units decided to agree to SCS projects, or simply to SCS Pole, after years of negative results or in the first phase of their activity, to be helped in it.

It's important to notice again how not all the 99 considered units have already started a practical collaboration with the Pole in the year of valuation (2008) and we can imagine that several of them (62 firms) decided to simply agree to the Pole for future potential rescue collaborations.
Among the 37 units that realized some projects with the SCS Pole, 18 of them applied the collaborations after years of bad balance sheet values, and 9 of them (50%) received immediately advantages (see Tab. n° 10).

Tab. n¡ VI/ 10 : SCS Pole projects returns

Projects results	
99	Firms in the SCS Pole
37	Projects realized
45	Units agreed to the Pole as a saving or helping solution
18	Of them applied to the projects as an helping or a saving solution
9	Of them reached positive results

If we consider the typologies of projects that have been developed and their valuation results, we can conclude that the typologies n° 4 (Safety), 5 (New technologies applications) and 2 (development and planning of electronic components) have had an immediate good effect on the firm balance sheets (see Tab.n°11). They are followed by the typologies 3 (Control and analysis computer systems development) and 1 (Search computer systems and engine developments): these results are rather coherent with the explanation reported in the previous chapter, that recognize as with more probable immediate effects the projects typologies n° 1, 4 and 5.

Tab. n¡ VI/ 11: Typologies of projects / Immediate good effect

Projects Typologies	Good impact effect
4	10
5	7
2	6
3	2
1	2

Considering the projects chosen by the firms that show an evolution better than the PACA one (see Tab n° 12), we can notice that are the previous typologies again, but their order is different: the interest is more captures by the electronic components planning activities.

Tab. n¡ VI/ 12: Typologies of projects chosen by the better firms

Projects Typologies	Chosen by better firms
2	6
4	5
5	3
1	2

If we pay attention to the projects developed by firms active in specific sectors we had to define in a new way their economic classification, considering their peculiar topics (see Tab. n°13).

Tab. n¡ VI/ 13: Firms activities classification

Firms activities classification		N¡ of firms
A	ICT, consulting and computer systems services, data processing, technical studies.	38
B	Software	17
C	Development and selling of technical and electronic devices	28
D	Tracing	1
E	Computer security	5
F	Wireless telephony and telecommunication services	13
G	Aeronautical, aerospace	4
H	Materials	3
I	Torrefactions	1
L	Construction	1

The following table (n° 14) shows again that more units were attracted by the project typology n°4, the one related to the people safety and to the electric or electronic components security, and by the typology n° 5, that is less homogeneous and it's related to the new technologies applications. These

firms are active in the ICT, consulting and computer systems services, in the data processing and technical studies sectors and they often are technical offices, they develop electronic devices and they are also active in the wireless telephony and telecommunication services.

The firms active in the software sectors paid also attention to the projects typology n° 3, related to the development of computer systems for the processes analysis and control.
Obviously, the firms operating in the activities related to the tracing were more interested to the safety projects, while the enterprises of the computer security sectors paid attention to this last typology of projects, but were also interested by the planning and development of electronic components and of control computer systems. The only 3 units interested to the Projects of the first typology, related to the development of searching computer systems, were the ones of consulting services in computer systems, the ones of wireless telephony and telecommunication services and the ones active in sectors working on the surface analysis and impression of different materials.

Tab. n¡ VI/ 14 : Firms economic activities / Projects development

Projects /Activity Typology	Project 1	Project 2	Project 3	Project 4	Project 5
A	1	2	2	4	3
B			1	3	2
C		4		5	6
D				1	
E		1	1	2	1
F	1	2	2	6	2
G					1
H	1	1			
I					
L					

Going on the firms activities analysis (see Tab.15), it's interesting to notice that the greater quote of units belong to the sectors classified with the A typology (Consulting services in computer systems and ICT, data processing, technical studies) and, for instance:

- 12 units of the 38 considered show a better economical evolution than the PACA area average one, in the years preceding the interventions;
- the projects developed by all the 38 units have been 12 and 7 of them have had a positive impact effect;
- 12 firms among the 38 have joined the SCS Pole and its projects as rescue solution.

The same comments are valid for the other activities too.

Tab. n¡ VI/15 Firms economic activities / Projects development

Activities groups	Better than PACA	Firms that agreed to the Projects	Positive impact	Rescue Projects or Pole participation
A	12	12	7	12
B	3	6	4	7
C	9	11	7	13
D	0	1	1	0
E	1	3	0	3
F	6	8	6	7
G	1	1	0	2
H	2	1	1	1
I	1	0	0	0
L	1	0	0	0

Observing the employment rate variation for each activity (see Tab.16) we can notice the high results in the typologies of activity A, B and E. They are exactly the ones to which the SCS projects were direct (except the construction sector, that is less in the core business activities) and although they show also some negative variations, we can conclude the high positive effect on the number of job positions of the collaborations developed and their saving role.

Tab. n¡ VI/ 16: Firms activities and average employment variation

Firms activities classification		Average empl. Variation	Cases negative variations
A	Consulting services in computer systems and ICT, data processing, technical studies.	**143,5%**	**8**
B	Software	**295,5%**	1
C	Development and selling of technical and electronic devices	184%	**5**
D	Tracing	33,3%	0
E	Computer security	**375,6%**	2
F	Wireless telephony and telecommunication services	197,2%	2
G	Aeronautical, aerospace	61,4%	1
H	Materials	-31,2%	2
I	Torrefactions	63,8%	0
L	Construction	**359,2%**	0

VI.2.b. Firms which carried on more than one project

Concluding this more descriptive analysis, it's important to pay attention to the 10 units that carried on more than a project: they all are interesting example of the firm situations met in this analysis (see Tab. n°17):

- 3 of them, unfortunately, can't be valued, because of the lack of the data of the last year (2006), but we can observe that all of them decided to carry on the projects as saving solution.
    - 1 of the three cases is a just born firm (1 year old in the 2006), it's active in the development and selling of technical and electronic devices and decided to apply to 2 projects, of the typologies 2 and 5;
    - an other case is represented by a units that again decided to apply the more typologies of projects;
    - the last is a famous firm that carried on 10 projects, because it looks its balance sheet values decrease very fast. The typologies chosen by this last unit are again the 2 and the 5, but we find also the 3 and 4.

  All the firms of this group confirm that the typologies of projects 5 and 2 are interesting opportunities for the firms in difficulties or for the start up, to increase their balance sheet values;

- 2 units show an evolution worse than the PACA area in the years preceding the intervention and a bad reaction to the collaboration with the Pole. Both of them requested the Pole interventions as rescue solution: one of these two units was a small firm in the years preceding the 2006, became bigger in the last year, thank to the high values of its sales. But this increase didn't bring better balance sheet results and trying to overcome to this situation, the firm agreed to 8 projects of the Pole (1 project of the Typology 1, 4 of the typology 4 and 3 of the typology 5) but they weren't enough to gain better balance sheet values.

- 1 unit was a start up (2 years old in the 2006) that applied two times to projects of the 5 typology. Observing its balance sheet values, it shows the usual negative values of profit and added value in the 2005 (because it was just opened), that increase in the 2006, becoming positive. The operative profit, the gross operative margin and the ROS index were still negative, so that its evolution can't be considered better than the PACA one, but the last increase of profit, sales and added value allow consider the projects impact positive.

- The last 4 units are the ones showing, in the years preceding the Pole intervention (they were founded in the 1987, '89, '93 and in the 2000) an evolution better than the PACA one and reached good results from the collaborations made. Three of them have applied to 2 projects, of the typologies 1, 2 and 5 (more exactly, two of them, the ones founded in the '93 and in the '87 gave importance to the development of search computer systems and engines); the last carried on 4 collaborations, of the typologies 1, 2 and 4.

Tab. n¡ VI/17 : Firms that joined to more than a project

Firms that joined to more than a project								
Better / Worse than PACA	Projects immediate impac effect	Founded in the years between the 1997 and the 2006	Participation to the projects as a saving solution	N° of projects applied	Typologies of porjects applied			
Not available		Yes	Yes	2	2	5		
Not available		No	Yes	10	2	3	4	5
Not available		No	Yes	2	2	5		
Worse	No	No	Yes	8	2	4	5	
Worse	No	No	Yes	2	2	4		
Worse	Yes	Yes	No	2	5			
Better	Yes	No	Yes	2	1	2		
Better	Yes	No	No	2	1	5		
Better	Yes	No	No	2	2			
Better	Yes	No	No	4	1	2	4	

Concluding, several firms decided to apply to the SCS pole structure (99 in the panel here analyzed): they are mostly the ones of the *Consulting services in computer systems and ICT, data processing and technical studies* ; of the *Development and selling of software and technical and electronic devices* and of the *Wireless telephony and telecommunication services* sectors; only a part of them (37,4%) has decided to agree to the SCS Pole projects and they were mostly interested in the projects typologies regarding the people safety, the electronic engines and components security and the application of the new discovered technologies to the production systems, to the communication and tourism markets and to the RFID (typologies 4 and 5).

The recourse to the Pole is justified, in the 45,5% of the cases, by rescue reasons and the 59,5% of the collaborations made brought immediate positive results.

More exactly, the above cited projects typologies (the 4 and 5) were the ones that brought better immediate solutions, they were mostly chosen by the firms in difficulties, by the start up, but also by the firms that showed a better evolution in the years preceding the collaborations with the SCS Pole (in this last cases, next to the typology 2 of projects).

The SCS Pole firms size is not homogeneous, they usually are very small or very big, but after the years of the collaborations with the SCS Pole their size increased, in average.

The units that applied more than a project preferred again the 2, 5 and 4 typologies, with a greater preference for the second typology, the one about the new technologies application. Paying attention to the immediate results of them, the positive option is prevalent, we can't find a specific correlation with the firms oldness (except the fact that are mostly the older ones to request more than a project: we can imagine because they have more financial possibilities), but it's clear a negative correlation between the immediate positive effect of the projects and the

need of them as rescue solutions: as it was easily imaginable the firms that already showed a good evolution, are the ones that have had better results form the Pole collaborations.

After this first observation, it will be interesting to observe the models results, to gain more complete conclusions and make a comparison with the Canavese case.

VI.3. THE ECONOMETRICS RESULTS

VI.3.a. THE DATA

In the following part some econometric models will be applied to the data, to catch in a better way the correlations and the links found with the previous statistical analysis (see Table VI.18).
The constructed models are applied to some balance sheet data, explained in the previous part VI.1. More specifically they are the profit, the sales and the R.O.E. ones, the number of employees and the quotes of the added value, the labour productivity and the Ebitda.
In some cases, because of the data low homogeneity, the values have been transformed in natural logarithm.

VI.3.b. THE REGRESSION MODELS: FIXED MODELS

I MODEL: DIPENDENT VARIABLE = PROFIT

In SCS Pole analysis we started again to evaluate which is the impact on firms profit value of the intervention variable. It has been put near some firms balance sheet values (the average number of employees, the amount of the paid wages, the total and financial assets, the firms liabilities, the financial debts and the production of the trading period) because their possible impact on the profit too.

In this model some variable haven't been used, because they have been dropped by the specific model (fixed effects, that doesn't consider the variables unchanging in the time) and some figures haven't been considered because their low reliability (see the Hausman and the SCS Pole estimation tests in the enclosed Table VI/18 and VI/18 bis). In this case, the SCS projects participation is represented by a discrete variable, that considers the number of collaborations applied by each firm (the use of the dummy projects variable makes the model less significant).

The results are:

Tab. n¡ VI/18 : Profit fixed model

Profit / Loss	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Average Num.Employees	-586.49	72.02388	-8.14	0.000***	-728.0671	-444.9149
Project Discrete Variable	-2730598	393060.7	-6.95	0.000***	-3503231	-1957966
Wage / Salaries	-.725	.0782459	-9.27	0.000***	-.879364	-.5717508

Net Financial Assets	.170	.0276332	6.16	0.000***	.1158162	.2244526
Total Assets	-.210	.0353861	-5.94	0.000***	-.279737	-.1406223
Liabilities	-.255	.0624212	-4.08	0.000***	-.377326	-.1319259
Financial Debts	.346	.0457147	7.56	0.000***	.2559122	.4356335
Product.Traiding Period	.656	.0512622	12.81	0.000***	.5556696	.7571999
Constant	2096186	251175	8.35	0.000***	1602456	2589916

* Significant level 90%
** Significant level 95%
*** Significant level 99%

First of all we have to underline again that, looking at the statistical results, it's confirmed that the panel is not balanced, because the incoherence between the number of created groups (97) and the observations (521).
The variance explained by the model is 0.8040, that means the model fits the data very well, the F test result shows the regression is very significant [F(8,416) = 213.27 (*p-value* = 0.0000)].

The variables are all significant, at the 5% level and the signs of the coefficient are all predictable and not surprising except the one of the impact effect of the projects realization on the firms profit, that is high and negative: **this means not only that the realization of a project is making lower the profit value, but also that several projects have a worse impact on a firm**. That's not completely in disagreement with the previous results, of the descriptive statistical analysis, that underline as only the firms with an already good evolution could catch good results from the collaborations.

Than, concluding, the specific model is:

Profit / Loss $_{it}$ = 2096186 - 586.49 Average Num.Employees$_{it}$ – 2730598 Project Discrete Variable$_{it}$ – 0.725 Wage / Salaries$_{it}$ + 0.17 Net Financial Assets$_{it}$ - 0.21 Total Assets$_{it}$ – 0.255 Liabilities$_{it}$ + 0.346 Financial Debts$_{it}$ + 0.656 Production in the Traiding Period$_{it}$ + _$_{it}$

Making a comparison with the Canavese case, we can notice how the quotes of the sales and of the size are not present here, while the number of employees present has a different impact, negative in this case, positive in the former. The other firm variables aren t present, because the construction of the fixed effect model, or because a probable structural difference between the French and Italian firms, that gives a diverse weigh to the financial balance sheet components: to deep better the comparison between the two cases we send to the conclusive part (chapter VII).

II MODEL: DIPENDENT VARIABLE = SALES

Considering the impact of the SCS Pole projects on the firms sales, we have used the size discrete variable and the project dummy variable. Again, because of the fixed effect model, the location and economic activity variables have been dropped, and the results are (see document VI / 18 attached):

Tab. n¡ VI/19 : Sales fixed model

Sales Natural Log	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Wages / Salaries	-4.26e-08	1.99e-08	-2.14	0.033*	-8.17e-08	-3.50e-09
Small / Big Discrete Var.	.611	.1746335	3.50	0.001**	.2680424	.9546552
Project Dummy	.616	.1640965	3.75	0.000***	.2934988	.9386827
Product.Traiding Period	4.09e-08	1.32e-08	3.09	0.002**	1.48e-08	6.69e-08
Constant	12.78	.1203749	106.19	0.000***	12.54548	13.01876

* Significant level 90%
** Significant level 95%
*** Significant level 99%

The results show us again the panel is not balanced (93 groups for 500 observations), the model doesn't fit the data very well (proportion of explained variance: 0.1), but the regression is significant [F (4,403) test = 12 (*p-value* = 0.0000)]. The fraction of variance due to the individual effects is high (rho = 0,93) so the pooled and panel estimators aren't equal.

The variables are quite all significant, at the 5% level and their signs are again predictable. Obviously the wages and salaries expenditure has a negative impact on the sales (it's presumable that it weighs on the final goods price, although in a very light way), the bigger firms have advantages selling the production, that, clearly, has a little, but positive impact on the volume of the sales.

In this analysis, the projects made in the period, have a positive effect on the good sales: that s encouraging and suggest us to make other deepening about.

Than the specific model is:

Natural Log of Sales $_{it}$ = 12,78 – 0,000000043 Wages / Salaries$_{it}$ + 0,6 Small/ Big Discrete Var. $_{it}$ + 0,62 Project Dummy$_{it}$ + 0.00000004 Production in the Traiding Period$_{it}$ + _$_{it}$

To examine closely the projects impact on the sales, we tried to consider the projects discrete variable. Its sign continues to be positive, just a bit less significant and lighter than the previous. It means that more projects don't change in a high way the firm results, probably because the risk of a dispersion of the investments.

Tab. n¡ VI/20 : II Sales fixed model

Sales Natural Log	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
Wages / Salaries	-4.21e-08	1.99e-08	-2.11	0.035*	-8.13e-08	-2.94e-09
Small/Big Discr.Var	.6256	.1749017	3.58	0.000***	.2817415	.9694086
Projects Discr.Var.	.3787	.1085282	3.49	0.001**	.1653519	.592056
Prod.Trading Period	4.06e-08	1.33e-08	3.06	0.002**	1.45e-08	6.67e-08
Constant	12.77	.1207094	105.83	0.000***	12.53724	13.01184

* Significant level 90%
** Significant level 95%
*** Significant level 99%

F test : F(92, 403) = 38.65 (*p-value* = 0.0000)

Analyzing the different projects impact:

Project 1:

Considering only the firms that applied at the project 1, the results show how the quote of variance explained by the model is less (0.08) but the regression is highly significant (F(4,403) = 8.54; *p-value = 0.0000*). The variable coefficients are similar at the previous inquiry, but the project 1 variable hasn't a good significance.

Sales Natural Log	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
Wages / Salaries	-4.46e-08	2.02e-08	-2.21	0.028	-8.43e-08	-4.90e-09
Small / Big Discrete Var.	.6438	.177163	3.63	0.000	.2955064	.9920646
Project 1	.5950	.522401	1.14	0.255	-.4319447	1.621998
Product. Trading Period	4.26e-08	1.34e-08	3.17	0.002	1.61e-08	6.90e-08
Constant	12.79	.1222685	104.58	0.000	12.54622	13.02695

F test : F(92, 403) = 38.63 (*p-value* = 0.0000)

Project 2:

In the project 2 analysis the first results, about the variance explained by the model and the significance of the regression, are the same, but the significance of the variable in object is different and better:

Sales Natural Log	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
Wages / Salaries	-4.15e-08	2.02e-08	-2.06	0.040	-8.11e-08	-1.83e-09
Small / Big Discrete Var.	.648	.176375	3.67	0.000	.3012323	.9946921
Project 2	.591	.2652313	2.23	0.026	.0698961	1.112716
Product. Trading Period	4.02e-08	1.34e-08	3.00	0.003	1.38e-08	6.66e-08
Constant	12.78	.1217466	104.98	0.000	12.54205	13.02073

F test : F(92, 403) = 38.59 (*p-value* = 0.0000)

Project 3:

In the third case, again, the significance is low, but the coefficient is higher:

Sales Natural Log	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Wages / Salaries	-4.48e-08	2.02e-08	-2.22	0.027	-8.45e-08	-5.19e-09
Small / Big Discrete Var.	.643	.1770238	3.64	0.000	.2955156	.9915264
Project 3	.882	.6341801	1.39	0.165	-.3650653	2.128363
Product. Trading Period	4.27e-08	1.34e-08	3.18	0.002	1.63e-08	6.91e-08
Constant	12.78	.1221803	104.64	0.000	12.54529	13.02567

F test: F(92, 403) = 38.66 (*p-value* = 0.0000)

Project 4

The project 4 and 5 impacts are positive and rather high again (but lower than the previous cases, and it isn't coherent with the results of the descriptive analysis) and their significance of this result is very good.

Sales Natural Log	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Wages / Salaries	-4.49e-08	2.01e-08	-2.23	0.026	-8.44e-08	-5.40e-09
Small / Big Discrete Var.	.644	.1762347	3.65	0.000	.2973255	.9902339
Project 4	.503	.2130105	2.36	0.019	.0838419	.9213429
Product. Trading Period	4.27e-08	1.34e-08	3.19	0.002	1.64e-08	6.90e-08
Constant	12.77	.1218392	104.82	0.000	12.53179	13.01083

F test: F(92, 403) = 38.50 (*p-value* = 0.0000)

Project 5

Sales Natural Log	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Wages / Salaries	-4.42e-08	2.01e-08	-2.19	0.029	-8.37e-08	-4.60e-09
Small / Big Discrete Var.	.616	.1771839	3.47	0.001	.2673893	.9640296
Project 5	.496	.2538753	1.95	0.051	-.0029407	.9952298
Product. Trading Period	4.22e-08	1.34e-08	3.15	0.002	1.58e-08	6.85e-08
Constant	12.79	.1219532	104.94	0.000	12.55783	13.03732

F test : F(92, 403) = 37.57 (*p-value* = 0.0000)

Concluding, although the projects typologies 4 and 5 result, apparently, with a lower impact respect to the others, the values of all the coefficient significance confirm that we can focalize our attention exactly on the collaborations typologies number 2, 4 and 5, the more requested, that all have high, reliable and positive effects on the sales variable: this confirm a situation different from the Italian firms one (see the chapter VII).

III: DIPENDENT VARIABLE = GROSS OPERATIVE MARGIN

Analyzing the collaborations impact on the firm gross operative margin, we have obtained the following results (see document VI / 18 attached):

The panel isn't balanced, as usual, but the explain a good quote of the variance (Rho Sq = 0.7) and the regression is highly significant [F(6,421) = 178,69 (*p-value* = 0.0000)]. The results are the following:

Tab. n¡ VI/21 : The gross operative margin fixed model

Gross Operative Margin	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Project Variable	-1507526	198112.2	-7.61	0.000***	-1896938	-1118113
Small	2744000	646542.3	4.24	0.000***	1473147	4014853
Average Number	-80.30085	36.36691	-2.21	0.028*	-151.7842	-8.817515
Wages / Salaries	-.7373054	.0422267	-17.46	0.000***	-.8203068	-.6543041
Total Assets	-.0425191	.0065016	-6.54	0.000***	-.0552988	-.0297393
Production in the Trading	.6220732	.0270732	22.98	0.000***	.5688578	.6752887
Constant	-1604943	424704.2	-3.78	0.000***	-2439748	-770138.5

* Significant level 90%
** Significant level 95%
*** Significant level 99%

Than the regression function is the following:

Gross Operative Margin $_{it}$ = -1604943 – 1507526 Discrete Project Var. $_{it}$ + 2744000 Small $_{it}$ - 80.3 Employees average num. $_{it}$ – 0.7373 Wages / Salaries$_{it}$ -0.042 Total Assets $_{it}$ + 0.622 Production in the Traiding Period$_{it}$ + _$_{it}$

It's interesting to notice how, in this result, the little firms seem to be favoured in the effects on their gross operative margin, although obviously the production has a positive impact on its value. The projects discrete variable, in this case, has a negative effect, as in the profit regressions.

Observing the impact effect of more particular collaborations we can notice, firstly, that the significant projects are again the number 2, 4 and 5 and, secondly, but it's not less important, that they still have negative effects on the firms gross operative margin (the worse is the one of the Project typology 5), how it's possible to see in the following equations:

Project 2:

Gross Operative Margin	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Project 2	-1588689	573535.7	-2.77	0.006	-2716039	-461338.2
Small	3792320	665293.2	5.70	0.000	2484610	5100030
Average Number	-112.0837	38.13993	-2.94	0.003	-187.0521	-37.11528
Wages / Salaries	-.7599386	.0445801	-17.05	0.000	-.8475659	-.6723112
Total Assets	-.0632987	.0061194	-10.34	0.000	-.0753271	-.0512704
Production in the Trading	.6678265	.0278503	23.98	0.000	.6130836	.7225694
Constant	-2272860	437744.6	-5.19	0.000	-3133297	-1412423

F test: F(96, 421) = 5.25 (*p-value* = 0.0000)

Gross Operative Margin $_{it}$ = -2272860 – 1588689 Project 2$_{it}$ + 3792320 Small $_{it}$ - 112.08 Employees average num. $_{it}$ – 0.7599 Wages / Salaries $_{it}$ - 0.0633 Total Assets $_{it}$ + 0.668 Production in the Traiding Period$_{it}$ + _$_{it}$

Project 4:

Gross Operative Margin	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Project 4	-2926082	385064	-7.60	0.000	-3682970	-2169195
Small	3113058	636949	4.89	0.000	1861061	4365054
Average Number	-82.22935	36.34058	-2.26	0.024	-153.6609	-10.79778
Wages / Salaries	-.7228238	.0423874	-17.05	0.000	-.806141	-.6395065
Total Assets	-.043852	.0064202	-6.83	0.000	-.0564716	-.0312324
Production in the Trading	.6145055	.0273268	22.49	0.000	.5607915	.6682194
Constant	-1833659	418926.9	-4.38	0.000	-2657108	-1010210

F test : F(96, 421) = 5.06 (*p-value* = 0.0000)

Gross Operative Margin $_{it}$ = - 1833659 -2926082 Project 4$_{it}$ + 3113058 Small $_{it}$ - 82.23 Employees average num. $_{it}$ – 0.723 Wages / Salaries $_{it}$ - 0.044 Total Assets $_{it}$ + 0.614 Production in the Trading Period $_{it}$ + _ $_{it}$

Project 5:

Gross Operative Margin	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Project 5	-3129345	497956.2	-6.28	0.000	-4108135	-2150555
Small	2567708	675172.5	3.80	0.000	1240579	3894837
Average Number	-88.46	37.03939	-2.39	0.017	-161.2642	-15.65389
Wages / Salaries	-.744	.0430312	-17.29	0.000	-.8286967	-.6595312
Total Assets	-.0479	.0065137	-7.35	0.000	-.0606951	-.0350882
Production in the Trading	.633	.0274972	23.01	0.000	.5786925	.6867903
Constant	-1519973	441570.2	-3.44	0.001	-2387930	-652016.5

F test: F(96, 421) = 4.73 (*p-value* = 0.0000)

Gross Operative Margin $_{it}$ = - 1519973 - 3129345 Project 5$_{it}$ + 2567708 Small $_{it}$ – 88.46 Employees average num. $_{it}$ – 0.744 Wages / Salaries$_{it}$ - 0.048 Total Assets $_{it}$ + 0.633 Production in the Traiding Period$_{it}$ + _$_{it}$

For a comparison with the Canavese case, that have been analyzed in the Ebitda value, to see the following conclusive part (chapter VII).

IV: DIPENDENT VARIABLE = EMPLOYEES

Valuating the projects impact on the employees variable, we can notice their high positive effects, both in the dummy variable and in the discrete variable version (but the first one isn't significant) (see document VI / 18 attached).

Employees Average Num	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Project Discrete Var.	854.69	262.0927	3.26	0.001**	339.5196	1369.873
Net Sales	.0002113	.0000343	6.16	0.000***	.0001438	.0002788
Added Value	-.0002136	.0000449	-4.76	0.000***	-.0003018	-.0001254
Liabilities	-.0002155	.0000198	-10.87	0.000***	-.0002544	-.0001765
Financial Debts	.0002207	.000025	8.85	0.000***	.0001717	.0002698
Constant	2417.145	110.78	21.82	0.000***	2199.393	2634.897

F test: F(96, 420) = 130.00 (*p-value* = 0.0000)

* Significant level 90%
** Significant level 95%
*** Significant level 99%

Then the Average number of employees equation is:

Average Num.Employees $_{i, t}$ = 2417.14 + 854.7 Projects Discrete variable $_{i,t}$ + 0.00021 Net Sales$_{it}$ – 0.00021 Added Value$_{it}$ – 0.00021 Liabilities$_{it}$ + 0.00022 Financial Debts$_{it}$ + _$_{it}$

Observing the impact of specific projects, we conclude that again the 4 and 5 typologies are the more influential, as it's possible to see in the following models:

Projects 4:

Employees Average Num	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Project 4	1676.146	507.1866	3.30	0.001	679.2061	2673.087
Net Sales	.000215	.0000339	6.33	0.000	.0001483	.0002817
Added Value	-.0002173	.0000443	-4.91	0.000	-.0003044	-.0001302
Liabilities	-.000216	.0000198	-10.88	0.000	-.000255	-.000177
Financial Debts	.0002204	.0000249	8.85	0.000	.0001715	.0002694
Constant	2419.051	110.7291	21.85	0.000	2201.398	2636.703

F test : F(96, 420) = 132.49 (*p-value* = 0.0000)

Average Num.Employees $_{i,t}$ = 2419.05 + 1676.15 Projects 4$_{i,t}$ + 0.00021 Net Sales$_{it}$ – 0.00022 Added Value$_{it}$ – 0.00022 Liabilities$_{it}$ + 0.00022 Financial Debts$_{it}$ + _$_{it}$

Projects 5:

Employees Average Num	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Project 5	1761.79	628.2398	2.80	0.005	526.9039	2996.676
Net Sales	.0002174	.0000343	6.34	0.000	.00015	.0002848
Added Value	-.0002249	.0000446	-5.05	0.000	-.0003126	-.0001373
Liabilities	-.0002103	.0000196	-10.71	0.000	-.0002489	-.0001717
Financial Debts	.0002167	.0000249	8.70	0.000	.0001678	.0002657
Constant	2431.314	111.1155	21.88	0.000	2212.902	2649.726

F test : F(96, 420) = 134.58 (*p-value* = 0.0000)

Average Num.Employees $_{i,t}$ = 2431.31 + 1761.79 Projects 5$_{i,t}$ + 0.00022 Net Sales$_{it}$ – 0.00022 Added Value$_{it}$ – 0.00021 Liabilities$_{it}$ + 0.00022 Financial Debts$_{it}$ + _$_{it}$

Making a comparing with the Canavese case, first of all we have to underline how the projects impact is always positive in the SCS Pole employees variable, but this is not true for the Canavese case where the reached results variable has a positive coefficient, but the successive development and the relationship with the centre variable have a negative impact. In the Canavese case we find also a reference to the personal costs, that's not present in the SCS Pole: it could again indicate a structural difference between the two typologies of firms.

V: DIPENDENT VARIABLE = ADDED VALUE

If we consider the projects impact on the firms Added Value (see document VI / 18 attached) we can conclude their low influence, in fact, in the result model, that is very explicative of the variance of the data (Rho Sq = 0,999) and gives a significant regression [F(7,388) = 347166.78 (*p-value* = 0.0000)], the projects variables aren't present.

The model finally is:

Added Value	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Net Sales	-.0043	.0023367	-1.84	0.066	-.0088958	.0002926
Profit / Loss	.07	.0028995	2.29	0.023	.0009301	.0123314
Fixed Employees	-.0009	.0005158	-1.73	0.084	-.001909	.0001192
Wage / Salaries	.985	.0038176	258.16	0.000	.9780209	.9930322
GrossOperMarg	.980	.0048351	202.79	0.000	.9709895	.9900019
Financial Debts	.001	.0007899	1.96	0.051	-5.41e-06	.0031005
Production in the period	.016	.0033497	4.82	0.000	.0095593	.0227308
Constant	11181.66	5572.35	2.01	0.045	225.8849	22137.44

Added Value $_{i,\ t}$ = 11181.66 - 0.0043 Sales + 0.07 Profit – 0.0009 Fixed Employees + 0.98 Wages/Salaries + 0.098 Gross Operative Margin + 0.001 Financial Debts + 0.016 Production + $_{it}$

Observing the result, it's highly surprising the negative impact of the sales on the added value, while it's realistic the double impact of the employees (considered as the number and with the wages expenditure), less present in the Canavese case, for which a comparison we sent to the following conclusive part.

VI: DIPENDENT VARIABLE = LABOUR PRODUCTIVITY

It's surprising to notice the result valuating the projects impact on the labour productivity in the PACA case, as it's expressed in the following equation (see document VI / 18 attached):

Ln Labour Product	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
ROE	.2420549	.051103	4.74	0.000	.1415909	.3425189
ROI	.5997949	.1010118	5.94	0.000	.4012146	.7983753
ROT	.2118302	.0497716	4.26	0.000	.1139835	.3096768
Financial Indip.	.1301616	.0372107	3.50	0.001	.0570087	.2033146
Constant	-.0641957	.0763195	-0.84	0.401	-.2142331	.0858418

F test : F(85, 400) = 17.90 (*p-value* = 0.0000)

Ln Labour Productivity $_{i,t}$ = -0.064 + 0.242 ROS_{it} + 0.59 ROI_{it} + 0.212 ROT_{it} + 0.13 Financial $Indipendence_{it}$ + $_{it}$

As in the Canavese case, we have preferred to use the logarithmic version of the labour productivity, and while the model doesn't explain in a good way the variance of the observed data, the regression is significant (F Test (4,400) = 19,08).

In the model presented here it's important to notice the presence of variables never considered before, as the indexes ROS, ROI and ROT and the financial independence:

from the first two figures the role of the operative profit is emerging, in its relationship with the amount of the sales and the investments; the ROT, the operative capital rotation index, that is the ratio between the previous values, it's again confirming their weight in the labour productivity result; the last amount, the financial independence, that's the ratio between the quote of liabilities and the total assets, underlines the firms capacity to support their investments: probably it has an high influence on the labour productivity because the atmosphere that exist in a firm when there is a stable financial situation.

Finally, the SCS Pole projects, in all the possible formulation analyzed till to now, haven't any high influence on the dependent variable.

Making a comparison with the Canavese case, we notice the high difference of the regressions, for which we send again to the conclusive part (chapter VII).

VI.3.c. THE PROBIT MODELS

The aim of this section of work is to investigate again about the probability of success of the public interventions, made by local public bodies, to support the developement of the firms. In this section, the objective has been reached through the construction of a Probit Model relating to the probability of success of public interventions as the SCS Pole ones. The question, obviously, is referred again to the future and the answer is gained with the results of the past, about the economic growth made by the involved firms.

It's necessary, in this case too, a more precise definition of the two evaluated effects of SCS Pole projects, already presented in the previous part: the first results are relating to the SCS Pole firms evolution in the years preceding the Pole interventions and show us as that only the 35,4% of the involved firms have had an economic development better than the PACA area in the considered years; the second typology of results considers the specific projects impact on the firms evolution, measured in the only one year considered (2006) in which they have been allocated: the result is better than the previous, because, on 37 collaborations made, 22 (59,5%) have had an important and positive impact on the involved firms economies.
In this specific case of analysis, at this moment, it's not possible to valuate the projects effects after some years, as in the Canavese case, because the interventions are very young: the hope is to deep this gap in the future.

The analyzed Probit Model is built on a panel of 96 firms, with their balances data and the technical information about the typologies of collaborations made (the panel, in some cases, cover the range of years from 1999 to 2004, but more often regards only 3 or 2 years, because the greater part of the involved firms is very young and have been founded during the considered period, as we have already said).

PROVENCE-ALPES-COTE D'AZUR ECONOMICAL EVOLUTION 2001/2008

To introduce the following Probit model application, it's necessary to send to the more precise definition of the PACA economy evolution in the considered years (presented in the previous chapter), that has been the comparison benchmark.
As we have already explained, the PACA economy is usually subject to strong seasonal phenomena, mostly due to the central touristic component of its economic structure, that has had a deep weight in the observed period too.

BETTER / WORSE PROBIT MODEL RESPECT TO PACA ZONE

To start the Probit model results analysis, we point our attention to the model application that show the projects impacts on the probability that a firm in the PACA region has an evolution better than the local average (for all the steps, see the Tab. VI/22 enclosed).

The model is:

$$Y - \text{Better / Worse}_{i,t} = -2.67 - 1.42\ \text{Projects Dummy}_{i,t} + \_{i,t}$$

The regression doesn't results very significant (Wald $\_^2$ (1) Test = 1,88; *p-value = 0.1699*) and the total variance proportion of the individual effects is high ($\_ = \_^2 / (\_^2 + 1) =$ 0,96): it means that the pooled and the panel tests are very different. Also in this case, the residual correlation is not very good and that point out how the model is probable too simple.

This final equation it's a singular result, because we don't find, in it, the balance sheet variables considered and because the negative impact of the projects made (although considered in a dummy version). Looking to the other Probit model applications (see Tab.22), where the coefficients found haven't an high significance, we can observe that, while the labour productivity variable has a little but positive influence on the firms evolution in the considered period, the production of the period has negative effects (although very little): an explanation of these surprising result could be related to the costs faced in the period, linked to the projects and to the production.
Because of the high individual effects variance (log $\_^2$ = 2,78) and the high difference between the panel and pooled estimates, it's also interesting to valuate the coefficient of a more complete model, as the one that considers all the Canavese model variables, that could result more explanatory:

Y – Better / Worse $_{i,t}$ = -1.32 – 0.91 Projects Dummy $_{i,t}$ – 0.00026 Employees + 0.0000000124 Sales - 0.000000014 Production in the period + $\_{i,t}$

In this last, the impact effect of the projects is still negative, although smaller, the aspects related to the employees present in the firms and to their productivity have a very light but with negative impact on the firms evolution, while the sales values, in contrast with the Canavese model, have a light but positive impact.

The marginal effects aren't differ by the coefficients of the model also in this case, because of its linearity, and they show us again how a change in the labour productivity or in the production of the period has a little impact on the firms evolution, while the coefficient of the project dummy show us the bigger and negative weigh of the projects. The residual correlation is again not very good..

IMPACT EFFECT PROBIT MODEL

If we instead analyze the direct weight of the SCS Pole interventions on the firm evolution in the only considered year (2006), we reached different results.

Impact Effect	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
NAF / NES	-1.545	.2560855	-6.03	0.000	-2.046674	-1.042837
Project Dum	13.61	2.257175	6.03	0.000	9.185107	18.03307
Small	-51.09	54.21251	-0.94	0.346	-157.3515	55.15763
Sma / Big	9809.57	106.0396	92.51	0.000	9601.733	10017.4
Net Sales	7.65e-06	2.99e-06	2.56	0.010	1.80e-06	.0000135
Profit / Loss	.000068	.0000124	5.48	0.000	.0000437	.0000923
Employees	-1.041	.1377215	-7.56	0.000	-1.311491	-.7716322
Fixed Empl	3.09e-06	1.34e-06	2.31	0.021	4.72e-07	5.71e-06
Wages / Salar	.000023	4.98e-06	4.69	0.000	.0000136	.0000331
OeratingProf	.000019	4.85e-06	3.92	0.000	9.52e-06	.0000285
ROT	41.11	4.972209	8.27	0.000	31.36785	50.85855
Financial Ind	-9.27	4.669121	-1.99	0.047	-18.42102	-.1184065
Vert. Integr.	-.700	.2042223	-3.43	0.001	-1.100421	-.2998843
Leverage	-9.92	1.411003	-7.03	0.000	-12.68924	-7.158207
Labour Prod	-8.57	1.038243	-8.26	0.000	-10.60751	-6.53767
Total Assets	.00005	6.34e-06	7.34	0.000	.0000341	.0000589
Liabilities	.00004	9.86e-06	4.46	0.000	.0000246	.0000633
Financial Deb	-.00005	8.30e-06	-5.79	0.000	-.0000644	-.0000318

ShortTermDeb	-.00013	.0000162	-8.19	0.000	-.0001645	-.000101
Prod.in period	-.00007	8.64e-06	-8.01	0.000	-.0000862	-.0000523
Constant	-18097.3	54.23386	-333.7	0.000	-18203.59	-17991

The model is:

Y – Impact Effect $_{i,t}$ = -18097 -1.544756 NAF Discrete Var. $_{i,t}$ + 13.6 Projects Dummy $_{i,t}$ -51,09 Small $_{i,t}$ + 9809.6 Small / Big$_{i,t}$ + 0.00000765 Sales + 0.000068 Profit/Loss $_{i,t}$ – 1.04 Employees $_{i,t}$ + 0.0000031 Fixed Employees $_{i,t}$ + 0.000023 Wages $_{i,t}$ + 0.000019 Operating Profit $_{i,t}$ + 41.1 ROT $_{i,t}$ – 9.27 Financial Independence $_{i,t}$ – 0.7 Vertical Integration $_{i,t}$ – 9.9 Leverage $_{i,t}$ – 8.57 Labour Productivity $_{i,t}$ + 0.000046 Total Assets $_{i,t}$ + 0.000044 Liabilities $_{i,t}$ – 0.000048 Financial Debts $_{i,t}$ - 0.00013 Short term financial debts $_{i,t}$ – 0.000069 Production in the Trading Period $_{i,t}$ + _$_{i,t}$

In this case the model is extremely more explanatory (Wald _^{2} (20) Test = 42,54; *p-value = 0.0000*): first of all we can notice the negative coefficient of the discrete NAF variable, confirming the over quoted importance of the firms activity sectors; secondary, we can notice the hoped answer related to the projects effect: in this case, a firm belonging to the computer sector is extremely benefit by the SCS Pole projects.

The firm size variable effects are also deepening: if we consider only the dummy version (that is equal to 1 when a firm is small; to 0 otherwise) the big firms result favoured; if we value the discrete version (that is equal to 0 when a firm is little, to 1 when is medium and to 2 when the considered is big), then it is confirmed the advantage of the big firms, but also the medium ones are not completely excluded by the probability of a good evolution.

In this case we find a reasonable positive impact on the firm evolution of the sales of the year, of the ROT and of the profit, in all its forms, while the employees element weighs in a controversial way: the number of fixed employees has a positive impact on the positive evolution of the firm in the year after the collaboration (probably because they give stability to the unit), the number of general employees present has a negative impact, because of the cost they represent (but this is not confirmed by the wages coefficient, that is positive).

It is clear how the leverage impacts in a negative way on the firms, but it's surprising the negative sign of the financial independence and of the vertical integration coefficients: this last effect is however confirmed by the labour productivity too (and this result isn't completely opposite to the literature ones), while the financial independence negative impact is partly balanced by the positive impacts of the total assets and liabilities; the financial debts of the period confirm the negative impact of the leverage value, while it's surprising the negative impact of the production of the period, that's quite balancing the profit positive effects.
As in the previous case, the marginal effects are the same than the coefficients and confirm all the effects (see the enclosed Table 22).

VI.3.d. THE PROPENSITY SCORE PACA MATCHING MODEL

In this case, to evaluate the collaborations impact, the differences among some balance sheet values of the analyzed firms and some control group units have been considered.

The matching procedure has been made, as in the previous Canavese case, through the construction of a probability model that weights the propensity of each firm to have a positive evolution in the

years following the SCS Pole collaborations (see tab. VI/23 enclosed). The coefficients found with it have been then used to calculate the propensity scores of each unit of the two panel (the analyzed one and the control group), that have allowed the individualization of the firms couples. Within these last, three typologies of firm balance sheet values have been matched and their average levels have been considered.

More exactly we have observed the profit, the sales and the added values evolutions, from the 2004 to the 2006 of 48 units: at this point we have to specify that, because of the young age of the considered firms, in some cases, it doesn't exist an historical sequence of their balance sheet data, so we have been obliged to not consider all the firms or to use only a couple of years for their valuation: the 2006, the one in which the SCS projects have been lavished and the 2004.

Looking at the three impact effect medium values (see the Tab.24 below), they are again confirming the results of the previous econometric applications (Random Effect Model and Probit Model), resulting negative: it means that the Pole SCS firms show an evolution worse, in average, than the control group ones, in the year preceding the collaboration with the Pole and in the year in which the services have been allocated.

Tab. n¡ VI/24 : The impact effect results

48 SCS POLE FIRMS IMPACT			
Diff.Diff Sales 2004-2006	Diff.Diff. Added Value 2004-2006	Diff.Diff. Profit 2004 - 2006	Diff.Diff. Employees 2004 - 2006
-130996868.6	-47707317.06	-19252105.73	40.66413191
n¡ Positive Cases			
21	**19**	**24**	**26**
43.8%	39.6%	50.0%	54.2%

This last point confirms the existence of an adverse auto-selection phenomenon too, the one quoted above, relating to the firms that have chosen the SCS Pole projects as rescue solutions. In fact, looking at the panel firms characteristics, it's immediate to see how it's difficult to find realistic matches between the control group and the SCS Pole units: these last show balance sheet values that, in most of the cases, were negative, becoming worse, or, on the contrary, in some cases, were particularly high.
The analyzed panel isn't then uniform, for this reason some control group firms have been used more than a time and we can imagine the existence of a selection bias.

Indeed, observing the single balance sheets results (Tab.24), we can notice how the profit values are the ones where the positive impact is stronger (we have the 50% of positive cases), while the added value has answered with a more limited growth (the 39,6% of positive results).

We can also notice (see Tab.25) how the 23% of the involved firms have had a stronger progress in the observed years, respect to the control group units: they mostly belong to the computer services and consulting activities sectors (respectively 6 and 3units), while we find only a firm in the computer and electronic manufacture sector and an unit actives in the equipments and machineries production: this is coherent with the previous results, in fact they are the units that mostly joined the projects typologies n° 5, 4 and 2, but we had to underline how 2 units of the ones here considered haven't still request any collaboration at the inquiry time (see the table n°25): this, implicitly,

underlines again the importance of a preceding solid economic status in the firms that agree to the SCS Pole initiatives, to gain with them positive results, as the Canavese inquiry is also showing.

Tab. n¡ VI/25 : Firms with a better evolution respect to the control group units

Firms with a better evolution in the sales, profit and added value figures, respect to the control group units		
Typology of Activity	Typology of Projects	Number of Projects
A	5	1
B	NO PROJECT	0
B	5	1
C	2	2
B	NO PROJECT	0
F	5	2
A	3	1
A	2	1
F	1	1
	2	1
	4	2
C	4	1
F	5	1

CHAPTER VII:

THE COMPARISON

- VII.1. THE CANAVESE CASE

Concluding, the different parts of Canavese interventions analysis underline and reach, quite unanimously, two different results:

- A) one it's pertinent to the firms that reached immediate positive results during the collaborations with the Centres and the following 2-3 years (how it's coherent with the literature: see Gabriele *et al.,* 2006, chapter I);
- B) the other it's relative to the units that show good impact effects also in a longer period.

The difference among the number of units that could be grouped in these two just presented agglomerations is always high, but the first typology is particularly incisive in the TS and PIA02 projects, that are, instead, preceded by the PIA01 firms in the long period effects (see the table IV/14).

A) Observing the specificities of the firms that reached **good immediate results in the period of the collaborations and during the following 2-3 years** (TS and PIA02 units)**,** it's possible to notice they are generally **less advanced**, and operating in the **traditional manufacturing, metallurgic** and **mechanical sectors,** as the ones of general mechanical works, of construction of metallic structures and of the first metal manufactures (as forging, drawing and pressing).

Among them, indeed, it's possible to find some top technology units too (in relation to the intervention area technological level), operating in the software and computer consulting activities and in the engineering services, working in the refrigeration and ventilation equipments production and in the sectors of the electrical equipment installation.

The immediate positive results showed by the whole of these units are often visible more in the **employment** and **sales** variables, than in the **profit** or **Ebitda** ones, and, between these two last values, **the second is quite always worse than the former:** it could be explained because of the increase of skilled technicians in the firms (thanks to the Consortium collaborations). This phenomenon has led the observed productive units to sustain higher costs, at least for salaries, that have had a negative impact, in general, on the profit, and, specifically, on the Ebitda values, expressing these last the results of the firms characteristic management, more sensible to the cost decisions.

In the cases here observed, the differentiated activity sectors of the involved firms justify the typologies of collaborations allocated, that, are anyhow **very technologically advanced**, but diversified.

The services in object are answering to specific requests of the firms involved and are partially regarding the **techniques of laser use** and oriented to catch the **Centres knowledge through analysis and consulting activities**, but in some cases the interventions are linked to **more specific and technologically complex problems**, as the ones regarding the **sensors analysis,** the works of the **cellular sheets,** the **materials analysis** and the **support to the pressing activities.**
These last collaborations, more technically specific, have brought less results, in the long period, probably because, although they were in the firms technological necessities, they would have require a more advanced technological status in the receivers units. Instead, they have been mostly allocated in less innovative firms, representing the "core business" of the manufacturer, metallurgic and mechanical Canavese activities. These last units hadn't still reached the innovation top levels required and, we can presume, weren't able to catch completely the advantages from the projects developed.
This gap has brought the observed units to **higher results in the immediate short period, during the Consortium collaboration and support, and during the following 2-3 years,** but to **worse results (relatively worse, not particularly increasing if compared with the collaboration moments) in the longer time, when they should have been able to get their own advantages in an autonomous way.**

Confirming the consciousness acquired by the TS units of the better innovative status required by the services described, these last didn't arise the interest of the firms involved in the just successive project (PIA01), but they restarted to be attractive during the following PIA02 and DIADI collaborations.
At this point, we have to underline again that some units involved in TS and PIA02 projects felt to need an exogenous aid during crisis years, when they looked their balance-sheet results decrease: in these firms the Consortium services have acquired a "rescue solutions" value, although, usually, they weren't enough to overcome the economical regression, except in the years during the interventions.

B) On the contrary, the firms that reached **positive results also in a longer period after the collaborations** (the PIA01 units) can be considered more technologically advanced, because they belong to sectors where engines and equipments are fabricated, machineries, processors, computer systems, communication equipments and electrical components are constructed, software and computer consulting activities are realized and engineering services are sold (these last firms are the 15,82% in the PIA01 project against the 9,17% in TS, for example – see Tab. IV/12 tris, ATECO sectors 72 and 74). Next to these units, it's possible to find also some less technologically developed firms, active in the more traditional sectors, where the basilar metals works and the metallurgic products are made. These units were probably more open to the innovative changes in their productive processes, indeed, if compared with the ones of the A) group.

Paradoxically, the whole of these firms decided to require **more traditional services or more specific collaborations respect to the production made.** They were relating to the **laser use**, to **more concrete feasibility studies** and to the **products certification tests** (this last were no more requested in the other successive projects). The PIA01 units also asked to the Centre, in a great part, services of **general consulting support**, in the present or postponed to future collaborations too.

While the Consortium interventions requested by the previous group of firms have often had only medium productive relapses, **because of the not technologically advanced status of the units involved**, these last have showed high productive consequences, immediate (their results have been often directly inserted in the production systems) and in the long period too.

Thus it's the different typology of the Consortium activities and the diverse technological status of the Canavese firms to explains the dissimilar results reached by the two group of firms, that are:

- **in the first case, positive and high in the short period, when the collaborations with the Centres were still supporting the units involved in the application of very technically specific collaborations, and not influential the longer time, when the firms are alone;**
- **in the second case, more positive in a longer period, during which less technological developed and more product specific interventions, also direct to the Centres knowledge acquisition, have been applied by more advanced firms.**

It's also peculiar, in the four projects realized, a process of **variation and correction of the collaboration dynamic** in the time:
after the first experience, more opened to very advanced and technologically specific services, the involved units oriented themselves towards more traditional interventions, to reconvert themselves, after the second good experience, to consider again the first more advanced collaborations, that have lastly conduct to lower results again.

In the context of this first general conclusion, specific elements of the analyzed collaborations weighted in a different way on the reached result:

- In all the projects experiences, the ***feasibility studies*** developed in collaboration with the Centres, that make more concrete the innovations presented, weigh heavily on the positive results reached by the firms, in terms of **profit, sales** and **employment.** In several cases, **unfortunately, this phenomenon has been usually holding out only for 2-3 years after the services, but the more innovative units have generally had a deep and permanent positive effect by it.** This conclusion is further confirmed by the better performances showed by the firms **that carried on more than a Consortium project**. These units were particularly interested in the **consulting services**, next to the **feasibility studies** and to keep on the **relationships with the Centres** (although their opinion of this last point isn't always so positive). These experiences confirm that the **key factors for the collaborations success are the choice of more concrete services and their continuity in the time, and not their number.** Indeed, **when more services are simultaneously allocated, it isn t possible to see a particular improvement in the firm balance sheet data, compared to the cases in which only one project is carried on.**

- It's surprising that, in a part of the units that carried on more than a project, the feeling was different: they have been available to develop several ***successive projects***, making the Centre advices more concrete, but they have judged their utility low. This last fact underlines again the **different firm/ research centre point of view** and partially explains the not completely satisfactory results of the Consortium collaborations (due to the firms not advanced technological status and to the not enough open SMEs mentality).

- Relating to the balance sheet results it's important to underline the **positive weight, on the firm profits**, of the ***products and processes modifications*** introduced after the collaborations with the Centres. They point out the possible innovative transformations descending from the projects developed, although they have had a **negative impact on the firms sales**, that have generally been negatively influenced also by the continuous ***relationship with the Centres***. An explanation of these negative effects could be found, as already exposed:

- in the opportunity costs deriving form the "new use" of the internal employees, that have to face different modalities of production;
- in the costs due to a reorganization of the productive apparatus;
- in the possible minus quote of advertisement attention and expenditure.

- On the contrary, the ***successive developments*** variable, expressing the previous availability of the firm to keep on the collaborations with the Centres, has always positive coefficients in the regressions made: **it s an important element that gives back the right weight to the continuity of the services allocated and of the Consortium activities**.

- In this innovation context, it's deviant to note how the ***products and processes modifications*** have a **negative impact on the firms employment and labour productivity** (that's not confirmed by the literature, see Gabriele *et al.*, 2007): it could be explained thinking to the rationalizations of the utilized resources and to the time lost learning the new processes functioning (Lucas, 1988).

- Confirming this last explanation, the ***technological status improvements***, reached through the different incremental innovation suggested by the Consortium, have generally a **positive value on firms sales**, because they make indirectly easier the productive processes execution (in this context it's important to underline again how the Centre interventions are continuing today exactly as fabrication facilities – see the chapter III.3).

- In this economic picture, the ***productive relapses*** have always a negative impact on the firms profit, as it happens for the ***reached results*** and the ***new orders foreseen*** variables. It could be again explained considering the innovations effects in the first years of their introduction: they aren't immediately completely profitable and could originate new costs, because of the products or processes changes need.

- On the contrary, the ***potential engagements*** are clearly expressing the foreseen more solid state of the observed firms and are always positively correlated with the balance sheet values.

- The firms ***size*** and the ***old age*** are generally contributing on their performances too, expressing the higher solidness and the financial availability of the old big firms. But, more exactly, it's important to underline they impact in a different way on some firm variables, as the profit, for which they both weigh positively, or the employment, for which the age has a negative effect, or the labour productivity, that is negatively influenced by the size.

- On the contrary, the ***location*** variables have always a negative connotation on the firms development, being relative to depressed zones.

Finally, to corroborate the positive judge on the CTDC services, it's important to notice that **some firms are born in the analyzed years, because probably they have been helped by the Centres in their evolution;** that **little different groups of firms have changed their juridical forms towards more sophisticated ones, have increased their technological level or have decided for the engagement of new employees**.
In some cases, with the CTDC collaborations **some innovation gaps have been filled**, **some commercial relationships with foreign enterprises started** and several **consulting services in the planning, in the productive processes or for the control of the products conformity with the European rules have helped the involved firms in their economical performances.**

The conclusive point of this research is then the **positive influence, on the firms evolution, of the Consortium actions**, that have had their first effects on some firms central **balance sheet figures** (as the sales, the profit and the employment)**.** Unfortunately, these last impacts are high in the short time, during the collaborations and the following 2-3 years, but only in few cases they are going on in a longer period. This underlines the Consortium interventions limit, but also their role to get over the crisis in analyzed short period.

A **concrete modality to hold out the positive effects of the collaborations** and to keep on the area development it's to subordinate the interventions selection to a **calibrated valuation of the technological status of each firm**. After the choose of the **right services** to allocate, it's an essential decision **their maintenance in the time**. Only following these two strategic steps, a lasting positive effect could be assured, and, indeed both these solutions underline the positive and central role of the Consortium actions.

- VII.2. THE PACA CASE

This part of analysis, realized on 99 SCS Pole firms, all localized in the *Provence Alpes et C te d Azur* French region, leads to results similar to the Canavese ones.

The French observed firms, that in the first year considered in our analysis (1999) were polarized in a very big or a very small sizes (respectively 15 and 76 firms), belong to the computer systems, to the ICT, the data processing and the consulting sectors, to the ones of development and selling of technical and electronic devices, of software creation, of wireless telephony and telecommunication services: they can be considered the ones representing the **most innovative and high tech regional economic sections, the most important for the growth of the local competitiveness.**

Among the 99 French units, 37 firms (37,4%) decided, in the year 2006, to carry on one or more SCS Pole projects: the analysis of their balance sheet results highlights firstly how the projects participation has allowed the involved units to **improve their sizes** (in the 2006 the panel is composed by 17 big units, 11 medium and 71 small). Particularly, this last variation, that is a first important analysis conclusion, was stronger in the firms working in the computer systems sectors, in the software creation and in computer security divisions.

The typologies of collaborations considered in this work, that have been grouped in 5 classes, have led **22 of the 37 considered firms (59,5%) to gain immediate positive balance sheet results**.
In particular, the typologies of projects that have been the more requested and that have led to the more positive balance sheet impacts, are the ones regarding the human and electronic safety (typology n° 4), the new technologies applications (typology n°5) and the electronic components planning, formulation and development (typology n°2).

In this context, **45 units** among the 99 analyzed firms, **applied to the SCS Pole mostly for rescue reasons**, because of their economical status deterioration: more exactly, the average quote of the sales values (7 millions of Euro) of this last group of firms, in the 8 years considered, is revealing the presence of only a medium market of small or declining big firms, but however with mean added values (in average the 62% of sales) and other balance sheet figures (mean operative profit and gross operative margin) indicative of a solid productive structure, that result more touched by problems of financial nature.
18 firms among the last 45 units **(40%), decided to carry on the projects allocated** by the Pole (particularly to the typologies of collaborations n° 2, 4 and 5, among which the 4 typology has brought immediate positive results). As in the previous Canavese case, these observed enterprises

were characterized, before the projects realization, by particularly decreasing balance sheet values, that changed in **better ones in the 50% of the cases (9 firms reached immediate positive results**).

This last evolution anticipates the results arising from **the firms that carried on more than one project (10 units)**, by which we can conclude that **the services allocated by the SCS Pole were particularly useful for the old units, already existing before the SCS Pole interventions, that used them not as rescue solutions, but as effective innovations.** These 10 units were again **more favoured by services relating to the development of electronic components (typology 2), to the human and electronic security (typology 4) and to the new technologies application in the productive processes (typology 5).**
This conclusion is confirmed by the fact that these last typologies of projects were the ones chosen with the **higher frequency by the firms born in the period (55 units — 56%),** that indeed didn't catch with them immediate positive results, probably because of their specific negative starting economic status, characterized by high and negative profit values, values negative, again, but lower, of gross operating profit and added value, and positive and growing figures of sales and employees: this economic situation was peculiar of the start up of the panel and it's tied to a negative judgement of their general performance.

The same typologies of collaborations (typologies 2, 4 and 5) were selected by the 34 firms **that showed an evolution better than the PACA** one in the years preceding the projects allocation: these units were the ones that **showed the better impact effects from them (13 firms of the 22 that showed the better results belong to this last group)**.

Paying attention to the activity sectors of all the SCS Pole analyzed firms, the **larger group** of them belongs to the already quoted ICT, consulting and computer systems services one **(typology A),** to the technical and electronic devices sector **(C),** to the software one **(B)** and to the one of wireless communication systems **(F).**
In this framework, the **greater percentage** of firms that decided to **develop some projects belongs to the F and E sectors** (respectively 60% and 61,5%), that are also the ones with the higher number of projects developed by each firm (respectively 1,67 and 1,63).
Although the picture just presented, considering the **impact of the collaborations,** we can find, on the contrary, **the higher absolute number of immediate positive cases** in the **A** and **C sectors** (respectively the 58,3% and the 50,6% of the projects developed), that were successively followed by the **F** one (46,2%), where there is the lower quote of firms that decided to participate to the Pole projects for rescue reasons.

All these descriptive results are confirmed by the ones found in the other models of the research, in which the impact of a previous economically stable firm position on the projects effect and the controversial impact of the development of more than a project are valued.

- The first point is highlighted by the Propensity Score model, that underlines the **absence of a general positive effect of the projects on the firms evolution and the strong presence of an adverse auto-selection mechanism among the them** (problem already recognized in the literature, for example by Lichtenberg, 1984): these two elements conduct to the conclusion of the **importance of a solid previous status in the involved firms** to gain good results from the collaborations. The Propensity Score model in object underlines also, again, the importance of the 2, 4 and 5 services typologies, the favoured situation of the firms belonging to the A and F sectors and how it's possible to find the **more positive impact results in the profit values:** this is apparently **not coherent with the profit regression model, in which the projects impact in a negative way on it**,

but, really, the answer is different in the **two option of the projects variable,** the **dummy** one and the **discrete** one: in the former case the impact is positive, although it's less significant (see enclosed table n° VI.18).

- Analyzing the second point, in fact, also in the **gross operative margin regression model** the **project discrete variable** has a negative correlation with it: this means that **more projects have a negative impact on the firms profits, probably because the opportunity costs that they imply, at labour force level or at level of a projected reorganization of the firm internal structure.** Looking at the **Probit model** evaluation, instead, **the dummy project variable is coherent with the Propensity Score results: in both models is underlined the positive impact of the realization of a project on the probability to gain optimal result after it.**

The diversified reactions just exposed to the project variables is due to the fact that, when a firm agrees only to a project, probably, it has only a "single" or "well identify" need, that could be solved with an only one collaboration; when the projects are more than one, it underlines a particular firm situation, in which there is uncertainty on the useful choices, there are different technological gaps and there is a need of change the productive structure or to be open to new innovative ideas: such situation is obviously linked to new costs and to lower profits, as the regression models confirm.

This last interpretation is confirmed by the **projects impact on the sales too**, that is **positive, but stronger if we consider only a project** (dummy project variable coefficient = 0,62), **lower if more collaborations are valued** (discrete project variable coefficient = 0,38). These results explain again how, when a firm decides to use more than one collaboration with the SCS Pole, the projects successive to the first have a lower good impact. This can be explained firstly by the probable instable economic situation of this unit, that looks for a strong aid with the Centre collaborations, secondly by the possible dispersion of its strengths in investments only indirectly linked its core business, and finally with the risks engaged to the introduction of new productive methodology in the firm systems (and it's important to underline how the young firms are more subject to the negative impact of several collaborations).

An other important point to underline is the **positive impact of the projects on the firms employment**: this aspect is evident considering the discrete project variable, that underlines how to more collaboration it's following an increase in the number of the employees. Particularly, analyzing the impact of the differ projects typologies, the type 4 is the one that better affects this increase.

Concluding the regression results comments, we can notice that the **projects don t impact on the added value created by the firms** and on **their labour productivity**. These are surprising correlations, but we can find more specification about them in the following comments of the **Probit models results**:

- The first Probit model, the one that considers all the firm evolutions in the years preceding the interventions, underlines again, next to the **positive impact of the elements linked to the employees** factors (n° of employees and labour productivity), the **adverse selection phenomenon** identified with the Propensity Score model: the units carrying on more projects have been characterized by an evolution worse than the PACA region.

- The second Probit model applied, the one that considers the specific impact effect of the projects in the year in which they have been allocated, underlines the **positive consequences of them, considered in their dummy version**.

In it it's highlighted how the **big firms** are more favoured in the projects positive effects, although the **controversial employees factors** impact on them: how it was already quoted, the fixed employees number has a low but positive effect on the firms reception of the projects immediate positive results, while the average number of employees has a negative impact on it, probably for the adjunctive costs that it implies. In this contest, the **wages impact,** that is **positive,** is partially incoherent with the previous results, but its coefficient is really very low (0,000023), so that the above said negative effect is prevalent.

In the analyzed second Probit model, the **sales** and the **R.O.T.** of the observed year have, how it was predictable, a positive impact on the success of the firm and of the projects made (in this context it's important remember the positive correlation between the projects - the single projects particularly - and the sales).
It's instead interesting to notice the **ambiguous effect of the profit** on the projects immediate results, that again confirms the double tie between these two elements: both **profit** and the **operating profit** have low positive coefficients, while, the **production** has a low negative impact on the interventions results. These points underline again the important costs aspect tied to the production processes, that is partially counterbalanced by the profit positive effects on the firms evolutions.
The model is also confirming the negative correlations of the **labour productivity** and the **vertical integration** with the results reached with the projects made: where the first two elements are higher, we found a lower positive impact of the last. This conclusion could seems a bit contrasting with the previous one, where the firms that used the projects not as rescue solutions were more favoured by them, but it could be explained considering a gradualness in this concept: in average, all the firms that decided to apply to the projects researched an aid in them and it's probable that they showed descending labour productivity values or a reducing vertical integration, without necessary to be considered in strong necessity conditions, to require the projects as rescue solutions.
The only two last notes relating to the last Probit model are regarding the logic negative impacts of the **leverage** and of the **financial debts** on the projects effect; the not surprising positive effects of the **total assets** and of the **liabilities**, that weigh in a little but positive way on the projects results, and the very strong negative impact of the **financial independence**, **that remember the importance of a balanced structure to gain immediate positive results from the projects developed.**
So, concluding, the general interpretation, in this case too it's confirmed how the firms that show a declining situation in the years preceding the SCS pole collaborations, don't display, after them, of an economical status better then the PACA one (it exists only during the period of the projects allocation), while the units that have an economically stable and increasing situation are particularly advantaged by the SCS services.

The preferred typologies of projects, chosen by all the firms (the start up, the ones that showed an evolution better than the PACA region before the collaborations allocated and the ones that chosen the projects as rescue solutions) were the n° 2, 4 and 5. They have been particularly useful for the units already existing before the Pole interventions, that didn't use them as a salving solution and belonged to the computer systems, software and electronic devices sectors.
It this context, it's anyhow evident a strong adverse auto-selection phenomenon, that brought to a double and controversial impact of the projects on the firms structure and evolution: more projects appear not particularly useful to the economical firms performances, while only one intervention results to be helping the involved units, because of pre-existing structural reasons.
The effect of the developed projects is, instead, quite always positive on the employees, while there is no effect on the added value or on the labour productivity.

Then, considering the effects of the differ elements on the projects immediate results we can conclude that, **while the sales, more directly tied to them, have a clear positive impact in the short time, the profit appears with an ambiguous influence, because of the costs of production.** It is also underlined the importance of **a balanced firm structure** (among liabilities and total assets) and the **useless of an high labour productivity or vertical integration**: by all these elements we can conclude that **the most important factors to gain positive results from the projects developed are a solid pre-existing structure, not necessarily perfectly already integrated.**

It would be interesting, in the future, keep on the observation of the firms involved in SCS Pole projects, to verify if, like in the Canavese case, it's possible to indentify a differentiation among the firms that have reached immediate positive results and the ones that have received positive influences in the longer time.

- VII.3. THE COMPARISON

Making a comparison between the two analyzed cases, we can argue how among the Canavese firms it's possible to recognize differentiated results for the two different typologies of involved firms and services allocated (the 47,6% of units, among the total number of firms that applied the CTDC projects, have had positive immediate impacts and the 32,7% of units have had a good evolutions in the long time).
It's not possible, instead, to gain the same conclusions in the PACA case, because of the short lapse of time passed from the projects realization, but it's possible to recognize, indeed, positive immediate results for the greater part of firms (59,5%) that developed the projects.
These last are higher for the projects typologies n° 4, 5 and 2, the ones regarding respectively the electronic security and health safety, the new technology applications and the development of electronic components: these services can be considered more technologically advanced respect to the Italian ones and the conclusive better French results (in the short time) are exactly explained by the more developed technological status of the foreign firms. **This confirms an other time the basic importance of the choice of the right services, corresponding to the technological status of the involved firms.**

Talking again about the services allocated, we can find a parallelism between the French ones and the Italian A, C, L, M, N, Q, R and S Canavese typologies: we can notice how the common collaborations are the more technologically advanced and how they were more appreciated in France respect that in Italy. This is true in all the case except the laser one: the projects more appreciated by the PACA firms have been the 2, 4 and 5 typology (in this last case it's included the laser technology use); the Italian firms were instead more interested in the laser use (C) and in the Centre consulting services (D).

Indeed, in both cases it's possible to find the more positive results in the employment values (33,2% in the Canavese case, 54,2% in the PACA case), that are immediately followed, in the Canavese case, by the added value and sales figures (that increased, respectively, of the 33% and 22,6%) and finally by the profit one, that growths only of the 12%; and, in the PACA study, by the profit and added value results (that increased respectively in the 39,6% and 50% of the cases) and successively by the sales ones (that growth only of the 43,8%). How we can immediately notice by this conclusion, **the employment values give the stronger answer to the services allocated in both cases**; but they are followed by the other 3 figures in a different order: this confirms an existing structural difference between the two typologies of analyzed firms (the Italian and the French ones).

In this context it's also immediately evident that the **PACA area firms seem to have answered better than the Canavese ones to the public bodies interventions**: it's possible to explain this point underlining again how the French firms belong all to more advanced economic sectors (that have received the right and more useful services), while the Canavese ones are less technological advanced and, although they tried to evolve using more advanced services (the ones that participated to TS and PIA02 projects), they weren't able to increase their status in such a short period.
Anyway, among the firms that applied the different SCS or Canavese projects:

- we can find several cases that decided to follow the collaboration as rescue solutions, and in both cases, these units reached results worse than the ones of the more stable units;
- we can recognize some firms born thanks to the allocated services, which are resulted a clear aid to let them to stay in the market;
- we can see firms that have increased their size, changed their juridical form in a more sophisticated one, improved their technological status, overcome some innovative gaps and particularly appreciated the consulting activities of the Centres and of the Pole and their knowledge transmission.

Further, in both analyzed cases, the firms that carried on more than one project have had relatively decreasing results: the most important point is the continuity of the collaboration and not their contemporaneity.

Paying attention to the **activity sectors** of the observed units:

- it's possible to see how the Canavese firms that mostly used the services allocated are the ones belonging to the **28 and 29 Ateco sectors** (the ones of works of metal products and equipments and machineries manufacture). These units have used the Centres **laser services, the consulting ones, the ones of support in the pressing activities and they have made, in a minor quote, feasibility studies, metallographic analysis, materials analysis and used services related to the sensors**. These units are followed by the ones operating in the metallic and alloys production (27 Ateco sector), in their commercialization (51 Ateco sector), in the industrial and electric instruments realization (33 and 31 Ateco sectors). All these firms have chosen again the collaborations related to the laser use and to the Centre knowledge transfer.
- Among the PACA firms, the ones that have more appreciate the SCS Pole projects belong to the sectors of **ICT, data processing and computer systems consulting services and to the ones of technical studies activities** (sector A): they chose, most of all, the services related to the **development of control and analysis computer systems (typology of project n¡3), the ones concerning the electronic components planning, formulation and development (typology n¡2), the electronic security and the people safety (typology 4), the application of the new technologies to the production systems (typology n¡5)**. They are followed by the firms of the B sectors, the software ones: among them it's interesting to notice the high quote of units that decided to take part to the SCS Pole, but not to carry on any project. The same notation is possible for the firms of the E sectors, the ones of computer security, of the wireless telephony and telecommunication services: these last were the only ones that appreciate the typology of projects n°1, the one relative to the searching computer systems and engines development.

Indeed, it's possible to argue a **parallelism between the two groups of firms**: **all the French units represent in a more detailed degree only some sectors of the Italian ones** (the 30, 31, 32 and 72 Ateco sectors, the more high tech[7]). From this simple notation it's possible conclude again the more technologically developed status of the French firms, that explain the better impact of the analyzed projects, and the larger differentiation of the Italian units, that covers a more complete range of activities, that implies a worse answer to the projects developed, because of the variety of the firms technological status and the allocation of services not always right.

- VII.3.a The regression models results

Observing the regression models results (see the attached document n° VII/1) we can argue again some similarities and some structural differences:

First of all, in the two analyzed cases, have been used two different regression models: the **fixed effects** one for the PACA firms and the **random effects** one in the Canavese analysis. From this we can argue how in the PACA data it is possible to catch a correlation among the individual effects and the variables of the models, that doesn't exist in the Canavese case.

Analyzing the two obtained **profit models** we can conclude for a structural difference between the French and Italian firms. In the Canavese case we can notice the positive impact of the firm oldness and of the number of employees (confirmed by the positive effects of a bigger size too): from all these results the idea of Italian firms that point on size advantages is rising; a different conclusion is, instead, emerging in the SCS model, in which the number of employees and the present material assets are weighting negatively on the firms profit: from this last framework the idea of French little enterprises that pay more attention to the employment and to the products quality, than to the dimension is rising and it's confirming the more developed status of these units.

Considering instead the variables more related to the **projects**, it's possible to find a parallelism between the two groups of firms in the differentiation among the interventions:

- the ones to which follows an increase in the production have, in both Italian and French cases, a positive impact on the firms performances;
- the ones to which follows a modification in the production processes, imply higher costs (for the management of the variation or for the opportunity costs, at least) and bring worse evolutions in the involved firms.

Analyzing, instead, the PACA firms **profit reaction to the size and sales variables,** that have been excluded in the first model but are important in the Canavese case (see the second SCS Profit model; document VII.1 attached), we can notice how the signs are not different in the two regressions, but this is not enough to eliminate the structural difference hypothesis.

Considering the two **sales regressions**, it's possible to notice a greater homogeneity in the results. More exactly, quite all the variables present in the SCS Pole regression model are present in the Canavese one and in both cases it's confirmed:

- the positive, but decreasing effect of the projects: this is evident in the SCS case, where it's emerging the different impact of a single project or more than one (the dummy variable coefficient is 0,62, the discrete one is 0,38);

[7] ATECO classification of the industry and services intermediary census (Cavallo, Lazzeroni, Patrono, Piccaluga, 2002, 2003 – see document enclosed III.1)

- the negative effect of a little size (the two variables considered are different: the Canavese one is a dummy variable, equal to 1 when the firm is small; the PACA one is a discrete variable, equal to 0 when the firm is small, 1, medium, 2 big);
- the obvious positive impact of the production.

Looking at the results of the variables that are **not significant in the SCS model, but that are important in the Canavese one** (employees, log added value and size: see the second SCS Pole sales model; document VII.1 attached), we can observe that the signs are again the same in the two models. It confirms an other time the homogeneity of the sales models answers (the location variable is dropped, in the SCS case, because of the fixed model) and the **project variables positive effects in the sales variation.**

Considering the **Gross Operative Margin models** we can notice, in both of them, the positive impact of the projects as general factors of an higher production (although their negative impact as overflowing interventions). It's also evident the negative effect of the number of employees on the operative margin: this is contrasting with the SCS Pole size dummy sign and it results instead more coherent in the Canavese model.

Adding in the SCS Pole case the variables present in the Canavese model and **previously not considered** (added value and location: the second SCS Pole Operative Margin model; document VII.1 enclosed) the first has a logically similar positive impact, the second is dropped because of the fixed model.

Paying attention to the **Employees models**, we can notice the different project variable results, if it is considered as a production factors or as an elements of variation of the productive processes. The only common element is the positive ones related to the projects that, in the PACA firms, can be associated to the number of reached results and, in the Canavese case, represent the results realization.
Considering now the variables that have been excluded in the SCS Pole employees model, because not significant (wages and labour productivity: see the second SCS Pole employees model; document VII.1 attached) it's important to underline how their signs are the same that the Canavese model ones, although the second variable coefficient is extremely lower than the Italian one.

Considering the **Added Value models**, it's surprising the different impact of the employees variables, the presence and the positive effect of the projects variables in the Canavese model and the absence of them in the SCS Pole one. The common aspect is the wages impact, that is always positive: the contrasting results of the French wages and employees are explainable considering that higher wages could imply less skilled employees in the firm.

Analyzing now the variable that has been excluded in the SCS Pole employees model, because not significant (**labour productivity**: see the second SCS Pole added value model; document VII.1 attached) it's surprising its negative sign in the SCS Pole model.

Analyzing, lastly, the Canavese and PACA **labour productivity models**, the high difference between the two regressions confirms again the structural diversity among the analyzed firms: the projects variable isn't present in the French regression, while in the Canavese case its negative effect is rising.
In this case we firstly consider the Canavese model in the comparison with the PACA one (see the II Canavese labour productivity model; document VII.1 attached): in it we can notice only the different sign of the ROI variable.

Secondarily, observing the two PACA models compared with the Canavese case, which consider the variables excluded before because of their less significance (**employees, wages natural logarithm, size and projects**) and the different impact of the project 5 (see the second SCS Pole labour productivity model; document VII.1 attached), we can notice the different effect of the employees variable, respect to the Canavese case (it confirms the bigger attention of the French firms to the quality of their product instead of the quantity), the different impact of the size (in France the small size is preferred) and the positive impact of the projects in the French case (most of all of the projects of typology 5).

- VII.3.b The Probit model results

Observing the results reached from the **Probit analyses** of the two different panels of data, it's surprising the different impact of the projects dummy variable and the lack of other figures.

In the first Probit model it's considered the influence of all the balance sheet figures for a firm better evolution and, while in the Canavese model we find different data, about which it has already been explained, the SCS Pole model is extremely parsimonious and point out the negative impact of the projects made in the periods.

To better compare the two cases, it's interesting to observe, for the PACA case, a model where the same Canavese variable are present (see the second SCS Pole Better / Worse Probit model; document VII.1 attached): in it we can argue, again, observing the different signs of the coefficients results, the structural difference between the French and the Italian firms. It's confirmed the negative impact of the realization of the projects on the French firms general evolution (because the projects are still young and the period valuated is too short); it's again underlined the importance, for their general good evolution, of a small size (expressed through the number of employees); it's logically pointed out the positive effect of the amount of sales, but the negative impact of the cost of production.

Observing, on the contrary, the **II Probit models**, the ones of the more immediate results (impact effects Probit models):

- first of all, in both of them we find the awaited positive impact of the project made: the projects variable considered is the dummy one and this point out again how the role of the projects isn't incremental.
- Secondarily, the firm size impacts are different and apparently they aren't coherent with what the models have said till now: the Canavese small firms seem to be more advantaged in the project impacts, while the SCS Pole model underlines the better position of the big ones.
  But this conclusion isn't in contrast with what said till now about the different targets of the Italian and French firm in terms of size evolution, because it considers a different aspect: in the previous cases it was analyzed the general balance sheets increase due to a more favourable dimension of the observed units; in this point it is observed how the firm dimension affects the probability of success of the services allocated.
  Surely we can say, from this results, that the observed Italian and French firms have to do a choice between the two objectives, to focalize better their strategies of growth.

- An other important point is concerning the activity sector influence on the probability of a positive impact of a projects developed: while the Canavese firms, that belong to the computer, research and consulting services sectors have a great probability to gain positive immediate results from the collaborations with the Centre, the French units of the same sectors result less favoured in them. These last results aren't in contrast with the first ones,

underlying the better answer of the PACA firms to the projects allocated (because of their more evolved technological status), but they give rather a more accurate and precise definition: **all the French firms belong to technologically more evolved sectors than the Italian one, but they reached only medium results from the SCS Pole projects; on the contrary, the low technologically developed Italian units received strong immediate positive effects from the collaborations**.

The last common effect is concerning the employment influence on the final project result: in both cases the stability factors and the costs effects are balanced, but, while in the Canavese model the higher firms stability (expressed through the presence of more employees) has a stronger role, in the PACA case the costs aspect is more heavy.

CHAPTER VIII:

THE CONCLUSIONS

Concluding, first of all it's important to underline how the Italian Canavese zone and the French PACA area are **characterized by two partially different economic situations**, mostly due to their different historical development, to the experience backgrounds and to the different development policies followed in the areas.

- The Canavese zone is mostly composed by two typologies of firms: the more traditional ones, active in the metallurgic and mechanical sectors, that derive by the local historical heritage and represent the old economy Canavese structure; and the less traditional ones, more innovative and specialized in high technology electronic and computer sectors, born as Olivetti suppliers and economic partners.
- The PACA zone is characterized by a lower historical tradition, by younger firms, mostly specialized in the electronic, computer and communication apparatus.

The **different models applied point out the projects impacts**, that sometimes are dissimilar or complementary. The general first conclusion we can gain from both statistical descriptive analysis is that the **interventions allocated have surely had positive effects on the firms evolutions, but, in several cases, these impacts are limited only to medium productive relapses and to a short time** (this is conformed to the Bonaccorsi, Giannangeli, Merito, 2007 solution)**, during which the services are still allocated and in the following 2-3 years**.

But indeed this partially negative result could be improved with the allocation, continuous in the time, of services more specific to the involved firms technological status (that's coherent with the Pellegrini and Centra (2006), the Altobelli *et al*. (2006) and the Gabriele, Zamarian, Zaninotto conclusion, 2007, that underlines the necessity of a more punctual discrimination of the subjects and of the services allocated, and with the Calabrese and Rolfo, 2006, and the Dodgson and Bessant, 1996, conclusions that point out the importance of the presence of internal structures of knowledge and expertise): **a strategic decision, for the firm improvement, is the continuity of the collaborations (more than their contemporaneity).**

This is confirmed by the fact that, for example, in the Canavese case the more traditional and basilar collaborations (relative to the laser use, to analysis and consulting activities) result more useful; in the PACA study the projects relative to the laser use (typology 5) are central, again, next to the electronic components security ones, to the ones for people safety, for the communication technologies and for the Radio Frequency Identification technology. All these last typologies of services are less traditional, more technologically advanced and more coherent with the French firms technological status and with the French policy, that pays more attention to the social aspects (in this context it's important to notice the different reaction, of the Italian and French firms, to the

RFId services: they are used, in France, for the human safety controls and in Italy they have been less requested and considered. This fact underlines again the diverse technologically status of all the involved units and the more arrear position of the electronic Canavese firms).

It's also important underline how some **Canavese firms consider, not unanimously, the same services received, that result more or less useful or with more or less productive relapses**: this fact depends on the different firm technological status again, that influence the projects results and the perception of their utility.

In this framework, two common results are the **negative correlation between the results reached and the use of the projects as rescue solutions** and the **positive tie between the start up firms and the collaborations made,** or between **the older and bigger units** and the **results gained**. From them it's possible to conclude about the importance of the collaborations as starting elements in the firms life and the centrality of a solid pre-existing structure of the involved firms.

The typologies of projects that have had a **better impact are the ones that give suggestions for the production, simply to increase it or to make it easier (incremental innovations), without introduce radical changes in the systems**: the technological solutions proposed by the Canavese Consortium or by the French Centres that imply a deep impact on the production methodologies used have, generally, **positive results on the firms profit (due to the lower costs) but they have negative impacts on the employees involved (they are anymore necessary), on their productivity, on the quantity produced and on the sales.** These surprising results could be explained, as already said, by the time lost by the managers and the employees, during the Centres interventions, in the training operations (that's coherent with the "learning by schooling" model; Lucas, 1988), by the lack of an adequate commercial firm propensity (as Powell and Moris, 2004, underline) and by a too rigid structure. All these factors bring to the final conclusion of a negative impact of relationships with the Centres on the firms growth.

In this contest it's important to underline how an other common effect regards the **employment influence on the projects results**: in both Italian and French cases the stability factors and the costs effects are balanced, but, while in the Canavese model the higher firms stability (due to the presence of more employees) has a stronger impact, in the PACA case the costs aspect (due to more skilled employees) has a more heavy effect.

It's also important to notice how**, in the Italian case,** the **different projects variables have often contrasting consequences on the same balance sheet data**: the only one element for which the projects have had only positive consequences is the Added Value, on which the cost reduction factors and the consequent increase of the produced value affect positively.

This fragmentized explanation of the collaborations effects **doesn t disagree** with the **more general results deriving from the firms comparison with the respective control groups units.** In them it's immediately evident the **absence of an average constant positive effect** of the services on the involved units (it exists only in some figures, as the PACA employment one and the profit values in the PIA02 and DIADI Canavese projects).
Lastly, it's also necessary to say how often **each element analyzed has not a completely clear unidirectional impact, but rather a double one: it s an advantage and a cost.** In fact, observing the probability of a positive result deriving from the services allocated we can generally conclude for a balancing situation between the more traditional Italian firms, for which the projects and their productive relapses have had positive impacts, and the more advanced French units, in which there is a stronger costs/advantage pondering process.

From all these conclusions it's possible to catch **an important general rule**: the innovation policies, in particular the typologies analyzed in this work, constituted by technical projects allocated, **are not able, alone, to help strongly the firms in the final evolutionary steps and to lead them to a more developed technological status** (and they could fail miserably, if not sustained by other characteristics, structures and strengths of the firms and by a general innovative internal context). **But indeed they are often able to increase the involved units economical and technological stability and they are incentive factors, that, if well used, could conduct the selected firms to a lasting better position.**

Really, it's difficult to bring out some *best practices* among the different analyzed experiences, because **this work doesn t lead to an univocal answer and to an ideal model of innovation policies**, but rather it explains how these last **have to be differentiated**, according to each local context and need: only following this general purpose it will be possible to fill the different local innovation gaps and confirm the link between innovation activities and positive firm performances.

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