

**Contract No. 2008.CE.16.0.AT.020 concerning the ex post evaluation of
cohesion policy programmes 2000-2006 co-financed by the European
Regional Development Fund (Objectives 1 and 2)**

**Work Package 4
“Structural Change and Globalisation”**

CASE STUDY

TUSCANY (IT)

Prepared by: Manuela Crescini and Tommaso Pela
(Resco)

for: European Commission
Directorate General Regional Policy
Policy Development
Evaluation Unit

CSIL, Centre for Industrial Studies, Milan, Italy

Joanneum Research, Graz, Austria

Technopolis Group, Brussels, Belgium

In association with

Nordregio, *the Nordic Centre for Spatial Development*, Stockholm, Sweden

KITE, *Centre for Knowledge, Innovation, Technology and Enterprise*, Newcastle, UK

Acronyms

BERD	Business Expenditure on R&D
DEFP	Documents of Economic and Financial Programming
DG REGIO	Directorate General for Regional Policy
DTI	Department of Trade and Industry
EC	European Commission
ERDF	European Regional Development Fund
ESF	European Social Fund
EU	European Union
FDI	Foreign Direct Investment
FEA	Fund Eligible Area
FIFG	Financial Instrument for Fisheries Guidance
GDP	Gross Domestic Product
GERD	Gross Domestic Expenditure on R&D
ICT	Information and Communication Technology
IRPET	Regional Institute for the Economic Programming of Tuscany
ISTAT	Italian Statistical Office
NSRF	National Strategic Reference Framework
NURV	Regional Evaluation Department (Nucleo Regionale di Valutazione)
NWDA	West Development Agency
OECD	Organisation for Economic Co-operation and Development
PC	Programme Complement
PISL	Integrated Local Development Planning
PMC	Programme Management Committee
R&D	Research and Development
RDA	Regional Development Agency
RDP	Regional Development Programme
RES	Regional Economic Strategy
ROP	Regional Operational Programme
RTDI	Research, Technological Development and Innovation
SF	Structural Fund
SME	Small and Medium Enterprise
SPD	Single Programming Document
WP	Work Package

Table of contents

Executive summary	1
Introduction	7
1. Structural change and globalisation in perspective	9
1.1 The region at glance	9
1.2 Searching the roots of change: socio-economic history of the region	13
1.3 Regional structural change and globalisation issues in 2000-2006	15
1.3.1 Dimensions of structural change	15
1.3.2 Understanding the geography of structural change	21
2. Regional policy 2000-2006: strategy and objectives	27
2.1 Regional policy mix for structural change and globalisation	27
2.2 Overall strategy of the 2000-2006 Objective 2 programme	27
2.3 Selected fields of intervention and measures	30
3. Effects of the selected ERDF measures on the process of structural change and adaptation to globalisation	39
3.1. Assessment of the structural and socio-economic effects	39
3.1.1 Performance of selected measures	39
3.1.2 Contribution of selected measures to structural change and globalisation	41
3.2 Assessment of the effects on institutional capacity and policy learning	53
4. Conclusions: key findings and main message	57
5. Annexes	61
5.1 Bibliographical references	61
5.2 List of persons interviewed	62

List of tables

Table 1.1 – Population and employment in Tuscany	11
Table 1.2 – Objective 2 and Ob. 2 Transitional Eligibility areas in Tuscany	11
Table 1.3 – Ob. 2 areas and Ob. 2 Transitional Eligibility areas by Tuscan province	12
Table 1.4 – Macro-economic indicators: annual growth rates on previous years	12
Table 1.5 – Crude rate of net migration with respect to foreign countries (per thousand inhabitants)	22
Table 1.6 – Education and training	22
Table 1.7 – Employment by sector (percentages of total employment)	22
Table 1.8 – Value added by manufacturing industry in Tuscany (percentages of manufacturing value added)	23
Table 1.9 – Tuscan exports by industry (percentages of total exports)	23
Table 1.10 - Degree of active and passive internationalisation* (January 1, 2006)	23
Table 1.11 – Economic and structural indicators for Tuscan provinces	24
Table 1.12 – Tuscan industrial districts*	24
Table 2.1 - Synoptic view of the Objective 2 programme. SPD JULY 2001 and mid-term revised SPD	28
Table 2.2 - Measures relevant to structural change and globalisation: main features	31
Table 2.3 - Characteristics of the universe of beneficiaries and of the sample	37
Table 3.1 – Results produced by intervention 1.4 at 31.12.07	39
Table 3.2 – The results produced by intervention 1.7 at 31.12.07	40
Table 3.3 – Results produced by intervention 1.8 at 31.12.07	41
Table 3.4 – Location distribution of the firms interviewed and of regional firms	42
Table 3.5 – Sectors of activity of the firms interviewed	42
Table 3.6 – Size of the interviewed firms at 31.12.08 in terms of workforce	43
Table 3.7 – Size of the interviewed firms at 31.12.08 in terms of turnover	44
Table 3.8 – Number of firms interviewed that systematically carry out R&D activities	44
Table 3.9 – Employment effects	45
Table 3.10 – Effects in terms of the economic performances of the firms	46
Table 3.11 – Employment effects of Measure 1.4 on the beneficiary and counterfactual firms	46
Table 3.12 – Effects in terms of the economic performances of Measure 1.4 beneficiary and counterfactual firms	46
Table 3.13 – Firms’ perception of their own competitive level on their main foreign outlet market	48

Table 3.14 – Specific effects in relation to the five dimensions “Did the incentives offered by the SPD help to qualify the workforce in your firm?”	49
Table 3.15 – What are the major negative effects deriving from international competition? (The question allowed for more than one reply)	50
Table 3.16 – Has the SPD contributed to limiting the criticalities encountered by the firms on the international markets?	50
Table 3.17 – Has your firm introduced innovations in the last three years?	51
Table 3.18 – Types of innovation introduced by the firms interviewed (the question allowed for more than one reply)	52
Table 3.19 – What role has R&D played in your dealings with the foreign markets?	52
Table 3.20 – What was the role of the SPD in incentivising R&D and innovation?	52
Table 3.21 – Has your firm made use of any form of financial engineering?	53
Table 3.22 – Has your firm ever considered the possibility of relocating its facilities abroad?	53

List of figures

Figure 1.1 – Tuscany Objective 2 eligible areas	11
Figure 1.2 – Tuscany Industrial Districts (Council Resolution No. 69/2000)	25

Tuscany case study

Executive summary

Scope and research methods

This report has been prepared in the framework of the ex post evaluation of cohesion policy programmes 2000-2006 co-financed by the European Regional Development Fund (Objectives 1 and 2). It is part of the Work Package 4: Structural Change and Globalisation. The present evaluation study, carried out on the Single Programming Document (SPD) Objective 2 2000-2006 implemented in the Tuscany region, aimed to verify whether:

1. the initial programming paid adequate attention to the issues related to globalisation and structural change and whether the regional government adopted suitable strategies;
2. the operational choices made (type of measures put in place and the relative allocation of resources) were coherent with the needs of the territory and with the initial programming characteristics of the SPD;
3. the effects on end-users of the resources of the SPD contributed to limiting the concerns about falling competitiveness.

This case study focuses on analysing the results and outcomes of a set of specific measures, in particular:

- Measure 1.4 “Activities to support the promotion of exports of quality products”;
- Measure 1.8 “Aid for industrial research and pre-competitiveness”;
- Measure 1.7 “Networks for the transfer of technology”.

The study is based on various information sources: an in-depth analysis of available documents (programming documents, programme complement, annual implementation reports, mid-term and final evaluations, regional studies); monitoring data of the programme; as well as data from the Italian statistical office (ISTAT), other national sources and Eurostat. Moreover, a direct survey that involved 100 beneficiary firms (roughly 12% of the universe of projects completed at 31.12.08) was carried out. Furthermore, with a view to ascertaining which effects achieved were attributable to the SPD (net effects), a small counterfactual sample of non-beneficiaries was interviewed. The control group was made up of 19 firms that had applied to benefit from the incentives offered by one of the selected measure (Measure 1.4), but were not financed.

Key research question and hypothesis tested in the case study

The assessment of the effects of the selected ERDF measures aims to highlight the contribution of the Objective 2 programme to structural change in the region, and in doing so tests some of the working hypotheses proposed in the conceptual model developed by the study. The main research questions addressed by this case study relate to the extent to which regional policy measures, co-financed by the ERDF influenced the regional specialisation of the region and have helped to reinforce the production system and

the innovation potential of the region. The case study demonstrates that the key research hypotheses are verified and the ERDF had a positive effect on the selected dimensions of structural change.

Regional context and key findings

In the second half of the 1980s the Tuscany Region interrupted its export-lead sustained growth trend. Over the period 2001 to 2005 exports from Tuscany contracted every year by 2.9%, whilst the decrease for Italy was 0.6%. This fact led to important structural changes in the regional economic system. The industrial sector lost weight overall, particularly manufacturing. Secondly, the regional productive system changed its specialisation pattern. Until 1985 the most important sector (in terms of both its contribution to value added and exports) was fashion (textiles, clothing, leather, hides and footwear). Subsequently there was a progressive loss of importance in favour of mechanical engineering, which around 2003 became the leading industry in the region. Another problem, together with the difficulty in exporting, weakens the regional competitive potential. This is the low labour productivity: the region shows rates of growth in GDP that are too low compared to the growth in the population (due exclusively to significant migration inflows) and, especially, in employment. This led to a very limited increase in per capita GDP and a reduction in labour productivity.

The regional productive specialisation played a fundamental role in slowing down foreign trade in the region. The firms operating in the fashion sector, most of which are small and specialised in productive phases of low value added and/or products of low-middle quality, suffered far more than other productive segments from the international competition. The inability of small firms to respond by making investments to increase their size and/or launch processes aimed at improving the value of the production led to a huge downsizing of the industry. Over the period 2001-2006 firm mortality rates were high.

Another factor that had a significant influence on the regional firms' slowdown, was the low innovative potential shown by most firms. This problem was already apparent in previous years and still unsolved in the period 2000-2006. If we consider various types of innovation indicators (for example, private R&D on GDP, employment in high-tech sectors), Tuscany's position is significantly lower than the average for the Italian regions included in the Competitiveness and Employment Objective. Even more sporadic (despite some important successful experiences) are good practices of knowledge transfer from Universities and public research institutes to firms.

Another more recent trend that should also be taken into consideration, especially with regard to the problem of low labour productivity, is a 'dilution effect' of human capital. With Tuscany having a high rate of immigration it is very probable that the low level of qualifications of some of the new workers in low-productivity sectors delivering tradable goods or services may have influenced the modest levels of labour productivity mentioned above.

The key findings of this case study are the following:

The regional authorities were fully aware, since the beginning of the programming period, of the importance of the effects of globalisation and the need to support structural change

If one considers the socio-economic background on which the SPD was programmed, one can infer that the Region operated in the awareness of the importance of the foreign market for regional development and

with full knowledge of which sectors showed the greatest difficulties (textiles and clothing), those that were being reorganised (leather, hides and footwear) and the segments that did not appear to suffer from international competition (mechanical). In 2004 during the mid-term programming the Region took further steps. In addition to confirming the importance of the elements already identified in the launch of the SPD, it also pointed out that the main criticalities are the scarce propensity for innovation and the modest level of human capital in smaller firms, which thus have internal barriers to the adoption of radically innovative approaches. Furthermore, our analysis of the aims and strategies identified by the Tuscany Region for the SPD Objective 2 2000-2006 highlighted that the objectives foreseen were coherent with the context analysis carried out by the SPD. The strategies thus were potentially capable of triggering off processes to overcome the existing weak points in the economic structure. In particular, both in the launch phase of the programming and during the mid-term reprogramming, the attention paid by the Region to the internationalisation of the firms emerges with clear evidence in the Regional Development Plan and adopted by the SPD. The crucial aspects highlighted by the regional strategies ("clustering" and the diffusion of innovation") are in fact core factors for the purpose of increasing the firms' competitiveness, especially on foreign markets. Moreover, these elements were further qualified in 2004. In 2001 the largest quota of financial resources of the SPD was destined for Axis I "Development and strengthening of the SMEs" (which is the only one oriented towards the type of intervention potentially capable of interacting with structural changes). In 2004 the dominance granted to Axis I was dropped but there was increased interest in measures destined (within Axis I) to the diffusion of R&D and of innovation in the environment field (pursued mainly through Axis III), indirectly impacting on the competitive profiles of the firms.

The Tuscany SPD 2000-2006 invested a lot of resources aimed at encouraging structural change, in particular for strengthening the regional specialisation model of the region by improving the internationalisation of the firms

Our analysis shows that the Tuscany Region, in line with the context analysis and the strategic priorities laid down during the original and mid-term programming, made several operational choices linked to the phenomenon of globalisation. The amount of the financial resources that were destined, to encourage structural change, was equivalent to 70% of the total expenditure foreseen in the Financial Plan in force in 2004. As regards the approach used, the interventions destined to strengthen the regional specialisation model received the highest concentration of resources (56%). There was also attention (9%) to support for the diffusion of innovation especially considering that the specific types of intervention show considerable levels of uncertainty from the realisation point of view, and thus prompt a precautionary approach in respect of the restriction of de-commitment. Lastly, 4% of the resources was destined for measures that promote interventions directly oriented towards internationalisation.

The evaluation confirms that the Regional Administration adopted a policy aimed at raising the competitive profile of the firms on the international markets.

Within the limit of the resources invested, the Tuscany SPD 2000-2006 had positive effects on the beneficiary firms by accompanying them in raising labour productivity, improving the qualification of workers and diffusing the innovation. However, the contribution of the measures in tackling other globalisation challenges such as price competitiveness or organisational modifications is fairly modest

Firstly, looking at the general effects that were mentioned by the beneficiaries of the three measures, the effects found potentially capable (obviously within the limits of the resources invested in the measures) of reducing the issue of low labour productivity. In fact, if we look at the net effects (that is the difference between the rate of growth of the beneficiaries and that of the counterfactual subjects including general statistical data), we see that the beneficiaries' employment grew at an annual rate that was 0.8% faster than those that had not received any incentives. Moreover, the net annual increase in turnover was 3.5% higher. If we compare the net employment effects with those of turnover, we can infer that the larger gap in the latter denotes an increase in the turnover per employee ratio, which may be considered a reasonable proxy for labour productivity.

Considering the competitive position abroad, in 40% of cases the firms declared that they had improved their competitive position on the international markets over the period "prior to the intervention" and "after the intervention". The counterfactual comparison (in this case possible only for Measure 1.4) indicates that the beneficiaries recorded a better positioning on the foreign markets in 49% of cases, compared to the figure for the control sample that was 18%.

Moving on to the analysis of the more significant effects related to the five dimensions of structural change, as described in the First Intermediate Report, the analysis carried out shows that the most important results were recorded in relation to:

- the qualification of the workers of the beneficiary firms – as an indirect effect of the selected measures - which was declared by 64% of the interviewees (in this area the greatest concentration was among firms that had realised projects of R&D and technological transfer),
- the diffusion of innovation, which affected 81% of the beneficiaries, a result that should be seen positively especially considering that the firms that acquired services destined for internationalisation showed also strong propensity to innovation.

As regards the other three issues that are important for the purposes of structural change, the results were far more modest, given the type of intervention. For example, the firms declared they felt the negative effects of globalisation, especially in terms of price competitiveness, and just a minority of them felt the SPD had contributed to tackling that problem in a decisive manner. Equally limited was the response of firms in terms of the adoption of organisational modifications aimed at coping with international competition. The diffusion of web-based investments is still only marginal. On the other hand, in the rare case where it was implemented, produced satisfying results in terms of improving firms' positioning on foreign markets.

Main message

To conclude, the evaluation study highlights two key issues, some of which refer to the SPD as a whole, while others refer to the measures being analysed in greater detail.

The first message is that the development of high quality planning (solidity of the socio-economic context analysis and the capacity to interpret emerging needs) and, second, a deeply-rooted political conviction to intervene on local development, constitute two fundamental aspects for the success of the initiative.

The Region's choice of intervening to increase the regional innovative potential and promote internationalisation strategies was successful according to our ex-post evaluation, based on direct interviews to a sample of one hundred beneficiaries. The impacts recorded show the achievement of interesting results in terms of the increase in labour productivity, the improvement in positioning of the firms on foreign markets, and the increased propensity to innovate on the part of the participating firms. These were better than for non-beneficiaries.

In conclusion it should be pointed out, however, that, judging by the responses of the firms interviewed, there are still many problems to be solved that cause difficulties in the internationalisation process. These are modest capacity of the firms to tackle international price competition and little response to the needs of globalisation in terms of adapting the organisation of production. The ERDF interventions in 2000-2006 could not reverse these features, while they were helpful in supporting a better performance of the beneficiaries.

Introduction

In this study we have first taken into consideration (see section 1) the socio-economic situation of the reference region: i) the main context variables that connote the development dynamics of the Objective 2 area, ii) the historical vision of the most significant structural changes, iii) the regional characteristics in relation to crucial factors that influence structural change (socio-economic change and human capital, regional specialisation, etc.).

Subsequently, in sections 2 and 3 we evaluate the SPD in depth, taking into consideration its capacity to mirror, in the context analysis, the structural changes underway. Then we evaluate the coherence of the strategic and operational choices according to the regional peculiarities that emerged in the context analysis. Lastly, the core of the analysis is addressed by first examining the specific measures that show direct links to changes resulting from the internationalisation of production and then, choosing from among these, those deemed to be the most interesting to investigate. For these we then carry out a field analysis to discover the horizontal and specific impacts with respect to the five crucial factors that influence the structural changes. Lastly, the results from the direct interviews with beneficiaries are compared with those of interviews with similar firms who did not, however, benefit from public resources (control sample) in order to highlight the net effects attributable to the measures implemented by means of the SPD.

Finally, section 4 contains the main findings and concluding remarks stemming from the work carried out.

1. Structural change and globalisation in perspective

1.1 The region at glance

Tuscany is home to roughly 3,630,000 people (2006 data) with a population density of 158 inhabitants per square kilometre. This density is below average for Italy and is the result of a combination of the metropolitan area of Florence and vast sparsely-populated rural zones (located mainly in the province of Grosseto). Over the decade between the two population censuses (1991-2001) the number of people resident in Tuscany fell, whereas, as shown by Table 1.1, between 2000 and 2006 it increased by 3.9%.

As we shall explain further in section 1.3.1, this favourable population dynamics was entirely due to immigration. It should also be stressed that, while there are sizeable flows of relatively young immigrants, Tuscany is particularly affected by a process of ageing of the population, with a decidedly higher proportion of older residents than the rest of Italy¹.

Over the period 2000-2006 Tuscany experienced an extremely favourable employment trend. Employment in the region rose by 8.5%, that is, by more than double the increase in the population (again, see Table 1.1). However, as we shall show below, although there was a marked increase in employment, regional GDP in real terms increased at a much slower pace. This translated into a fall in labour productivity, and this, in turn, indicates that the competitiveness of the region was significantly reduced.

The ERDF 2000-2006 involved a very large area of Tuscany. As shown in Figure 1.1 and in Table 1.2, 42% of the regional population lives in Objective 2 areas, which account for almost 50% of the total territory. If we add to the Objective 2 areas those qualifying for Transitional Eligibility², the area included in ERDF accounts for 87% of the region and the population resident in the ERDF areas rises to 77% of the regional total.

Table 1.3 shows that the provinces of Grosseto and Livorno are wholly classified as Objective 2 areas, followed, in order of quota of resident population, by the provinces of Massa-Carrara, Florence and Siena. The provinces most involved in Transitional Support are Prato (the whole zone is included) and also Pisa and Arezzo.

The main macro-economic indicators for Tuscany suggest that in the early years of the new millennium the regional system continued to suffer from the problems that had already become evident during the preceding decade. Furthermore, in some ways the situation appeared to worsen slightly. In particular, the region suffers from a competitiveness deficit due to too low growth of GDP in real terms (see Table 1.4). Although there was a significant increase in the population and, especially, in the number of people employed, growth in GDP was low and this led to a very small improvement in per capita GDP and a reduction in labour productivity. If we consider the period 2001-2006 the weak growth in per capita GDP and the drop in productivity are in line with the levels of Italy as a whole. They are, however, worse than in other Italian Objective 2 regions, such as, for example, Marche, which can be considered to some extent as a

¹ In 2004 the quota of people aged over 65 was equivalent to 34% of the population in working age (15-64 years) while the average figure for Italy is 28%. See “Informazioni sulla Toscana” from Irpet website (www.irpet.it).

² Those classified as Objective 2 Transitional Eligibility are the areas that were included in the previous round of Objective 2 and 5b funding allocations from 1994-99, but that were no longer eligible under the new round of Objective 2 funding from 2000-06. These areas have undertaken actions to incorporate exit strategies for projects that were started under the last round of Objective 2 and 5b funding up to December 1999. Objective 2 Transitional funding ran from 2000-05 only.

term of comparison due to its territorial proximity to Tuscany and a similar regional productive system. This result is far from being comforting given, above all, that the average performances of the EU15 were decidedly better than those of Italy and Tuscany. Furthermore, if we limit the analysis to the period 2002-2006, the macroeconomic performance of Tuscany is also worse than that of Italy as a whole. The rate of growth of per capita GDP is almost zero (it was negative in the three middle years of the period studied) while the fall in labour productivity is more marked than the average for Italy. In 2006 Tuscany witnessed a recovery in real GDP in line with the national level, but, again, below the performance obtained by Marche. This allowed for positive growth in the per capita GDP but not in labour productivity which, even in this year of relative recovery, showed a decline.

To sum up, the good performance of employment recorded in Tuscany seems to have come about at the expense of quality. Evidently, many of the people who joined the regional labour market are workers with few qualifications (probably largely immigrants) and/or employed in low productivity sectors (such as personal services, commerce and catering).

However, the worsening of the average quality of those employed only partly explains the drop in productivity in the regional system. In fact, as shown in the ex-ante analysis of the ROP ERDF Tuscany 2007-2013, the performance of value added in the tertiary sector was in line with that of the Italian regions included in the Competitiveness and Employment Objective. Tuscany, on the other hand, is different from the other regions if we look at the value added by industry, which took a sharp drop in real terms starting in 2001. Again according to the analysis in the ROP, the decline in industry is due mainly to:

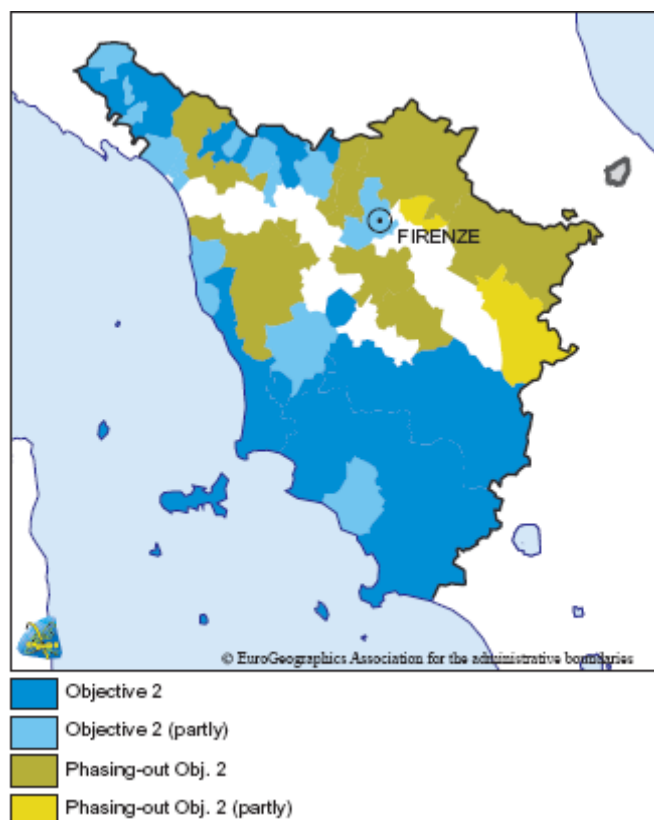
- the persistent difficulty in which manufacturing sectors exposed to international competition continue to find themselves (in particular, the textiles, clothing, leather and footwear sectors);
- the behaviour of the industrial firms that have reduced investments aimed at improving or expanding production capacity since 2000 and, at the same time, continue to show reduced capacity for innovation both in terms of products and processes and from the organisational and commercial points of view.

On the contrary, the deficits in the productivity and competitiveness of the regional economic system do not seem to derive from a poor endowment of infrastructures. There are, obviously, some exceptions: for example, the endowment of airports is poor and the road network in some provinces is insufficient. If we take into consideration the level of accessibility of particular areas, there are specific infrastructural shortages in areas where there is a concentration of productive systems (for example Santa Croce sull'Arno and Prato). More in general, as far as transport infrastructures go and, hence also accessibility indicators, Tuscany is totally in line with the Italian regions of the Competitiveness Objective.

Also the region does not show any particular concerns from the point of view of telecommunication infrastructures and the diffusion of ICT. Yet, it should be mentioned that the best results were those regarding the use of ICT on the part of families, while the performance of the firms was far less satisfactory. Once again, therefore, it is the company system that shows signs of relative backwardness.

Lastly, with regard to the endowment of infrastructures for higher education and research, Tuscany hosts a wide variety of universities and research institutes. In numerous cases these are known as centres of excellence of national and European importance. As a result, in terms of the supply of higher education and university research, the region ranks far above the national average.

Figure 1.1 – Tuscany Objective 2 eligible areas



Source: Dg Regio website

Table 1.1 – Population and employment in Tuscany

	2000	2006	Change 2000-06 (%)
Population (thousand)	3,493	3,629	3.88
Employment (thousand)	1,425	1,545	8.49
Employment/Population (%)	40.78	42.59	4.44

Source: authors processing on Eurostat data

Table 1.2 – Objective 2 and Ob. 2 Transitional Eligibility areas in Tuscany

	Population (2003)	Surface (Km ²)	Percentage of population	Percentage of surface
Objective 2 areas	1,466,787	11,403	41.71	49.60
Ob. 2 Transitional Eligibility areas	1,228,018	8,593	34.92	37.38
Ob. 2 and T.E. areas	2,694,805	19,996	76.64	86.98
Excluded areas	821,491	2,994	23.36	13.02
Total	3,516,296	22,990	100.00	100.00

Source: ISTAT data

Table 1.3 – Ob. 2 areas and Ob. 2 Transitional Eligibility areas by Tuscan province

	Share of population in Ob. 2 areas	Share of population in Ob. 2 T.E. areas	Share of population in Ob. 2 and T.E. areas
Arezzo	0.0	64.8	64.8
Firenze	53.2	22.8	76.0
Grosseto	100.0	0.0	100.0
Livorno	100.0	0.0	100.0
Lucca	15.5	12.6	28.1
Massa-Carrara	58.3	41.7	100.0
Pisa	14.9	85.1	100.0
Pistoia	24.8	36.6	61.4
Prato	0.0	100.0	100.0
Siena	51.8	5.7	57.5
Total	41.7	34.9	76.6

Source: ISTAT data

Table 1.4 – Macro-economic indicators: annual growth rates on previous years

	2001	2002	2003	2004	2005	2006	Average 2001-06	Average 2002-06
Tuscany								
Real GDP	2.40	0.50	0.50	0.90	-0.10	2.00	1.03	0.76
Population	0.08	0.30	0.98	1.16	0.75	0.55	0.64	0.75
Employment	1.98	0.50	1.60	0.30	1.49	2.36	1.37	1.25
Real GDP per capita	2.32	0.20	-0.48	-0.26	-0.85	1.45	0.40	0.01
Labour productivity	0.42	0.00	-1.10	0.60	-1.59	-0.36	-0.34	-0.49
Marche								
Real GDP	2.40	2.10	-0.30	1.30	0.50	2.60	1.43	1.27
Population	0.47	0.71	1.14	1.14	0.79	0.57	0.80	0.86
Employment	1.93	1.71	1.83	1.51	0.19	1.95	1.52	1.45
Real GDP per capita	1.93	1.39	-1.44	0.16	-0.29	2.03	0.63	0.41
Labour productivity	0.47	0.39	-2.13	-0.21	0.31	0.65	-0.09	-0.18
Italy								
Real GDP	1.80	0.50	0.00	1.50	0.70	2.00	1.08	0.94
Population	0.00	0.40	0.80	1.00	0.80	0.50	0.58	0.70
Employment	2.02	1.71	1.50	0.44	0.58	1.96	1.37	1.24
Real GDP per capita	1.80	0.10	-0.80	0.50	-0.10	1.50	0.50	0.24
Labour productivity	-0.22	-1.21	-1.50	1.06	0.12	0.04	-0.28	-0.30
EU15								
Real GDP	1.90	1.20	1.20	2.30	1.80	2.90	1.88	1.88
Population	0.40	0.60	0.60	0.60	0.60	0.50	0.55	0.58
Employment	1.42	0.69	0.46	0.79	0.95	1.51	0.97	0.88
Real GDP per capita	1.50	0.60	0.60	1.70	1.20	2.40	1.33	1.30
Labour productivity	0.48	0.51	0.74	1.51	0.85	1.39	0.91	1.00

Source: authors processing on Eurostat data

1.2 Searching the roots of change: socio-economic history of the region

From the end of World War II to the early 1970s Tuscany experienced an intense process of economic development characterised by high growth rates in per capita GDP and the transition from agriculture to industry. Unlike in the already industrialised regions of the North West (in particular, Piedmont and Lombardy), development in Tuscany was driven mainly by the so-called “light industries” of textiles, clothing, leather, footwear, wood and furniture (Becattini, 1978). These sectors benefitted from the boom in consumption goods that began in the 1950s. The fact that the markets for these goods were highly differentiated and fragmented, and their demand extremely variable, made this kind of production particularly suited to the small firm. The expansion of the light industries was also encouraged by a policy of weak exchange rate pursued by the Italian government in order to increase exports, especially those towards the other European countries that joined the Common Market in 1957.

Alongside these favourable conditions of an external nature, the considerable expansion of light industry in Tuscany and in other regions of the North East and Centre was also due to a series of endogenous factors (Becattini, 1978; 2000). In particular, the presence of numerous highly skilled artisans was combined with a noticeable propensity to entrepreneurship on the part of the population, who were historically linked to sharecropping as a system of agricultural production. These characteristics, together with the abundant workforce willing to abandon poorly paid farming activities, facilitated the rapid formation of small businesses in the various light manufacturing segments as soon as domestic and international demand began to flourish.

The small firms belonging to the same segment tended to locate themselves in neighbouring geographical areas thus giving birth to the famous phenomenon of industrial districts. These can be defined as spatial agglomerations of small firms that, over the course of time, tend to specialise in specific phases of the production of different goods and to be linked by long-term productive relations based on personal relationships and trust. This division of labour among small productive units linked by a network of stable working relationships, meant that the districts were as efficient as the large vertically integrated firms elsewhere. At the same time, the district offered the great flexibility required by the variability of demand.

Historically the main industrial districts of Tuscany have been located not far from the city of Florence. In the panorama of Italian districts, the textile and clothing district of Prato is without a doubt one of the most emblematic cases (Becattini, 2000). Other important districts were those of leather and footwear (for example, Santa Croce sull’Arno) while the wood and furniture districts, although present, were far less important to the regional economy.

The emphasis on small firms in no way implies that large and medium-sized companies do not exist in Tuscany. The shipbuilding industry in Livorno, the iron and steel works in Piombino (with the firm Ilva) and the chemical industry in Rosignano (with Solvay) are proof of this. However, the economic impact of these isolated experiences was confined to a limited area of the coast and, as a stimulus for setting up new companies, was not particularly relevant. As a result the “golden age” of economic development in Tuscany – which roughly went from the 1950s to the end of the 1970s – depended mainly on the expansion of light industries based on the small business pattern. The most dynamic of these were textiles and clothing and leather and footwear, which can be grouped together in the so-called “fashion industry” category. In the 1970s about two thirds of all Tuscan exports were from these industries (Cavaliere, 1999).

Starting in 1973, with the first oil crisis and the collapse of the international monetary system based on the Bretton Woods agreement, the international economy entered a long phase of slowdown and instability.

Over the course of the 1970s, thanks to their flexibility, the small Tuscan firms seemed better equipped than the large ones to tackle the international crisis. However, from the early 1980s the traditional advantages of the small firm began to disappear. This was linked, to a great extent, to Italy's joining the European Monetary System (1979) and to the reduced chances of devaluating the lira against other European currencies. This had only a much reduced effect on the industries in Tuscany since about a quarter of their exports were destined for the USA and in the early 1980s the favourable exchange rate against the dollar enabled them to maintain their position.

The exchange rate advantage was then lost and this helps to explain the slowdown in the rate of economic growth in Tuscany from the second half of the 1980s. As a result, although it had not yet reached the same level of per capita GDP as the more developed Italian regions, in 1985 Tuscany interrupted its process of catching up.

Below, we summarise the main transformations of the regional socio-economic system over the period from 1985 to the end of the 1990s (see Varaldo et al. 1997; Cavalieri, 1999) and which, in many respects, continued over the period 2000-2006.

Firstly, the process of economic growth driven by exports was interrupted. Whereas until 1985 the largest and most dynamic component of regional demand had been linked to exports, in the 15 years that followed export was reduced significantly in favour of domestic consumption. From the point of view of structural change, exports linked to the fashion industry declined (although it still accounts for roughly 45% of Tuscan exports, making it the major exporting sector) and those related to the mechanical sector increased.

The mechanical sector, which carries increasing weight in the regional economy, is not dedicated exclusively to the production of machinery for light industry but also includes some high-tech segments. However, the high-tech firms of the region are not very large and they operate in relative isolation compared to the rest of the industrial fabric. Consequently, in terms of activities of research and innovation, Tuscany continues to be a relatively backward region.

With regard to internationalisation processes it over the course of the 1990s a large part of the Tuscan firms continued to pursue traditional strategies based on direct exports and appeared to be reluctant to adopt more advanced forms based on foreign investments or international agreements of a commercial or productive nature.

Secondly, in contrast to what was happening in the North East and Central regions, company investments slowed down. The existing firms made no effort to expand and the number of manufacturing companies remained more or less stable. As a result, Tuscan firms continue, on average, to be very small and, unlike in Emilia, Veneto and Marche, there is no significant and stable nucleus of medium-sized firms that can play the role of leaders within the industrial districts.

Another aspect to be stressed is the growth of the tertiary sector at the expense of the industrial one. This structural change came about later in Tuscany than in other regions. Furthermore, the most dynamic segments of the tertiary sector are not those related to services for firms, but commerce and tourism, which have very little to do with the manufacturing vocation of Tuscany.

Lastly, from the point of view of human capital, the level of education of the population increased, in terms of both those gaining a high school diploma and those with a university degree. However, among the younger generation the percentage of graduates is lower than in the other regions of the North and Centre and these young graduates are the ones having the greatest difficulty penetrating the regional productive

system. This is due, in part, to the fact that Tuscan firms will not willingly employ young people who are highly qualified.

In conclusion, and concentrating our attention on the manufacturing firms in Tuscany, we can say that over the course of the 1990s the majority of them did not adopt any important changes of strategy compared to previous decades and this led to their being insufficiently equipped to face the difficulties arising from the globalisation of the markets and, thus, to the increasing international competition.

Over the course of the 1990s, and especially starting with the launch of the SPD Objective 2 1994-96 and continuing with the 1997-99 programme and the interventions included in the SPD Objective 5B, the Tuscany Region aimed its strategies at the implementation of interventions to limit the threats mentioned above. In particular, the overall actions put into operation with the ERDF of the three programmes stated above led to interventions whose total cost amounted to roughly Euro 1,100 million. The available financial resources were destined to support the system of the small and medium-sized enterprises (which, as we have seen, showed considerable difficulty in adapting to the changes imposed by globalisation) with both traditional style interventions (support for investments aimed at redeveloping and expanding their business units), and innovative ones (purchase of technologically advanced machinery, introduction of innovations). Furthermore, entrepreneurial development was promoted by the increase and improvement in the structural endowment of the area, which was destined to increase the economies outside the SMEs: projects were undertaken whose objective was to promote aspects linked to the mobility of goods (ports and interports) and to the location of businesses (industrial areas). Alongside this type of intervention specifically targeting the development of the manufacturing system, Community planning aimed to improve the tourism sector and the cultural heritage and to promote the sustainable environmental development of the region.

1.3 Regional structural change and globalisation issues in 2000-2006

1.3.1 Dimensions of structural change

Socio-economic change and human capital

In order to deal with the issue of structural change in Tuscany two socio-economic aspects need to be analysed in depth: the first is the increasing presence of foreign workers and the second is the level of education and training of the population.

In section 1.1 we mentioned that the increase in the resident population in Tuscany is entirely due to flows of incoming migrants. Although there were also flows of migrants in the 1991-2001 decade, they were not sufficient to compensate for the decline in the natural rate of growth of the Tuscan population. The situation changed around the year 2000, when the incoming flows of foreigners more than compensated the negative natural growth. Over the period 2002-2005 the crude rate of net migration³ was, as an annual average, in the

³ According to the Eurostat definition, the crude rate of net migration is equal to the difference between the rate of population increase and that of natural increase (that is, net migration is considered as the part of population change not attributable to births and deaths). It is calculated in this way because immigration or emigration flows are either unknown or the figures are not sufficiently precise. The crude rate of net migration is the ratio of the net migration during the year to the average population in that year. The value is expressed per 1,000 inhabitants.

region of 6.7 people per thousand inhabitants while the Italian annual average was 5.3 (see Table 1.5). This shows that Tuscany is currently one of the Italian regions with the highest rate of immigration.

Tuscany, like many other national regions, records a marked presence of immigrants from Albania and Romania: together, these two nationalities make up 44% of the immigrants resident in the region. The third most represented country among Tuscan immigrants is China (11% of the total) followed at fair distance by Morocco⁴. The considerable number of Chinese immigrants is a characteristic peculiar to Tuscany, which sets it apart from the rest of Italy. Moreover, Chinese immigrants are strongly concentrated in the municipality of Prato. In 2005 there were 8,636 Chinese residents in Prato, accounting for 43.6% of all the immigrants resident in the municipality and 4.7% of the total population. In the fourth quarter of 2006 there were over 10,000 Chinese residents in Prato (more than in Florence or the large metropolises like Rome and Milan) making up 5% of the population⁵.

The concentration of Chinese immigrants in Prato is undoubtedly linked to the presence of the textile and clothing district. Many of them own clothing firms and have found it advantageous to launch their businesses and expand them in this district. There are no official data, but it is estimated that roughly one firm in four in the Prato district is currently owned by Chinese. In the “Production system” section below we shall show how the presence of Chinese entrepreneurs has changed the area’s productive system and what changes may come about in the near future. The fact that many Chinese immigrants own firms that generally employ all their family members implies that the extended families of Chinese origin have a fairly good income level and are thus able to transfer a good share of this to China. In fact, although the Chinese only make up 11% of the total regional immigrants, they account for the highest quota (26%) of remittance transfers from Tuscany to the country of origin.

Box 1 - The Chinese business community in Prato

It is interesting to look at the phenomenon of Chinese entrepreneurship in the Prato area.

Over the past two decades almost all areas of the city of Prato have recorded the presence of Chinese residents, although to very differing degrees. During the 1990s the resident Chinese community progressively increased, mainly on the outskirts of the municipality of Prato. The year that witnessed the largest increase in the number of residents of Chinese origin was 1997. During the 2000s the concentration of Chinese spread from the peripheral areas to the centre of the city.

The changes in the territorial distribution of the Chinese residents (from the outskirts to the centre) are due, on the one hand, to the accommodation of new arrivals and, on the other, to the phenomenon of mobility of the Chinese residents themselves, who frequently move into the municipal territory. If we consider the most recent data available (for the year 2005), we can see that in 2005 alone there was a considerable increase in the Chinese population, of 26% (there were 6,831 residents of Chinese origin in Prato at the end of 2004, and 8,631 in 2005). This growth was recorded throughout the municipal territory, with a higher concentration in the Central district: in 2005 42.52% of all the Chinese residents in Prato lived in the Central district, corresponding to just over 10% of the total inhabitants and roughly half of the foreign residents.

Towards the end of the 1980s firms run by residents of Chinese origin slowly began to appear in the textile and clothing sectors. Over the course of the 1990s there was a considerable increase in the number of Chinese-owned firms, in line with the increase in the Chinese population in Prato, as mentioned above. The 212 Chinese firms registered with the Prato Chamber of Commerce in 1992 had become 2,013 by 2004 (last year for which data were available). Chinese entrepreneurial activities in the province of Prato developed mainly in the textile-clothing sector, which accounts for 77.54% of all local Chinese businesses. The manufacture of articles involves more than 1,400 firms: of these, 1,377

⁴ See Cappellini, E. (2008) *Le rimesse degli immigrati in Toscana*, Lettera Irpet, No. 48.

⁵ Source: Comune di Prato. *Prato multi-etnica. Cinesi a Prato*. <http://www.comune.prato.it/immigra/cinesi/anagrafe>.

manufacture clothing and accessories in fabric and 35 manufacture clothing in leather and leatherette. A further 149 firms are involved in fabric finishing, articles of clothing and the manufacture of knitwear. The rest of the firms (22.45% of the total) belong to the commerce, catering, construction and furniture-making sectors or perform other activities (in 4.3% of cases) and the majority of them developed during the 2000s. The textile and clothing firms managed by resident Chinese recorded a considerable increase in 2004 compared to 2003, of +10.48% in clothing and +13.74% in the textile industries; alongside these is the commercial sector, where the number of firms rose by 59.63%. Both wholesale and retail businesses are expanding, strong growth is recorded in the restaurant industry in the centre of Prato (+36.84%) and the number of Internet points and phone centres, which were non-existent in 2003, is increasing rapidly. On the other hand, growth slowed down in the furniture-making sector and in other manufacturing industries. The most common type of company established by the Chinese in Prato is the sole proprietorship (in 87% of cases); although in recent years there has been a large increase in the number of joint-stock companies, especially in the commercial and textile-clothing sectors.

Lastly, considering the location of the businesses managed by Chinese residents, roughly 85% of the firms are concentrated in the municipality of Prato and 11% in the municipalities of Montemurlo and Carmignano. The remaining 4% is distributed throughout the other municipalities of the province of Prato.

Source: Authors

There is wide consensus among economists and policymakers that a high level of education and training of the population, and thus of the workforce, is one of the main factors for the increase in competitiveness of countries and regions. In this regard, Table 1.6 shows that between 2000 and 2006 Tuscany was able to increase both the level of training and of education of the working-age population (25-64 years) to a greater degree than most other regions of Italy. However, it should be remembered that, although it brought its university system into line with European standards in 2000, Italy continues to record a rate of university education that is far below the European average. The same consideration can obviously be made for Tuscany, which, nevertheless, seems to have decidedly changed gear, accelerating the process of catching up with the rest of Europe.

As stressed in the ROP ERDF Tuscany 2007-2013, the problem of the region is whether this improved capacity for supplying graduates and individuals of working age that take part in training courses will be matched by an equally increasing demand from the regional economic system. If this were not the case, some of the young graduates in Tuscany could move to larger urban centres in Italy and Europe. This would be a loss for the regional system and, moreover, it would contribute to worsening the average quality of workers employed in Tuscany and their productivity, two things which, as we pointed out in section 2.1, diminished over the course of the 2000s.

In this respect, the fact that Tuscany’s manufacturing specialisation is shifting towards the mid- and high-tech sectors of mechanical engineering and a considerable number of firms are adopting more sophisticated productive and commercial strategies (see the following sections) should be interpreted as positive signs also from the point of view of the greater employment opportunities for qualified workers.

Regional specialisation

Over the period 2000-2006 the sectoral composition of the Tuscan economy shifted further towards the service sector. From the employment point of view the weight of tertiary activities has grown faster in Tuscany than in the rest of Italy, including Marche (see Table 1.7); mirroring this that quota of workers in

industry showed a more marked reduction. While in 2000 the weight of industry on regional employment was higher than for Italy as a whole, by 2006 the situation was reversed. In the light of this structural change, it is not rash to say that Tuscany is losing the industrial vocation for which it has been noted since the 1950s. The reduced importance of Tuscan industry is entirely due to the decline in the manufacturing sector: in terms of added value, the percentage weight of manufacturing fell by two points between 2000 and 2004, while in Italy the drop was just 0.4%.

The decline in the manufacturing sector can be attributed mainly to the downsizing of the fashion industry. According to the Bank of Italy⁶ between 2001 and 2006 the number of industrial firms in Tuscany fell by 3,315 (a drop of 5.6% compared to the number of firms at the beginning of the period) and this reduction can be largely attributed to a high degree of mortality among the firms belonging to the textile and footwear sectors; these were mostly small firms specialising in productive processes with low value added and/or products of medium-low quality.

From the point of view of the region's manufacturing specialisation, this process of firms leaving the market has brought about considerable change, which is well documented by Table 1.8. Compared to the total added value of manufacturing, the fashion industry is no longer the leading segment of the region; it has been replaced by the mechanical engineering industry (including metal products, electrical, electronic and mechanical machinery and means of transport). In 2005 extended mechanical engineering accounted for one third of regional manufacturing, while the fashion industry was second with 27.4% of the added value of manufacturing.

Production system

In light of the historical route taken by the Tuscan economy (see section 1.2), we could define the above described change as "highly significant". Furthermore, this shift of a quantitative nature is matched by qualitative modifications that are equally, if not more, important. Firstly, while the fashion industry was founded and is still dependent on the presence of important districts or local systems of small firms, the mechanical engineering industry of Tuscany is not organised into similar territorial clusters (see Section 1.3.2). In other words, Tuscan mechanical engineering firms, although existing throughout the territory, are still relatively isolated businesses. Moreover, even if on average the size is not very large, the mechanical firms are significantly larger than those active in the fashion industry. Lastly, while the firms in the fashion business concentrate their production in specific segments, the supply of products from the mechanical firms in Tuscany is far more varied and diversified (from low-tech goods like products in metal, to means of transport and rather sophisticated machinery) and there is no one segment that excels over the others.

From the picture we have just painted one might get the idea that in Tuscany there is a "dynamic and advanced" mechanical industry and a "backward and static" fashion industry. This conclusion would be totally unfounded because also within the fashion industry and its districts important changes are underway, which are not so much of a structural as of a behavioural nature.

As mentioned previously, the fashion industry has been affected by a process of selection that has led to a large number of firms going out of business. Inasmuch as the firms that stopped trading were the "worst" or, in any case, marginal ones, it is possible that the firms that are left on the market are those that have

⁶ Banca d'Italia (2007) *L'economia della Toscana nell'anno 2006*, Banca d'Italia, Florence.

better organisational, entrepreneurial and innovative capabilities and are, thus, better equipped to face increasing international competition.

Regarding the behaviour of firms, a survey carried out by the Bank of Italy (2006) shows that there are signals of qualitative transformation in the regional productive system. Compared to 2000 half of the firms interviewed had introduced considerable changes in strategy. In the majority of cases (30%) the range of products offered was extended, while a smaller share of firms (10%) invested in its own brand. Repositioning into market segments with more added value was less frequent among small firms. Lastly, a considerable percentage of firms undertook more advanced internationalisation strategies than those based on direct exports (we return to this aspect in Section 3.1).

From the point of view of the modification of production systems it is interesting to examine the effects generated by the increasing presence of Chinese entrepreneurs who, as we have seen, are particularly active in the clothing sector in the Prato district. Most Chinese-owned firms are located in Prato and specialise in the so-called “fast fashion”, a process that drastically reduces production and delivery times and which, historically, was born as a system of manufacturing articles of clothing of low cost and low quality. Over time, however, this also involved products in the middle quality range and currently it could represent an important market segment that is capable of reducing the process of downsizing of the district. The “fast fashion” system did not exist prior to the arrival of the Chinese firms. In other words, the Chinese entrepreneurs, whilst exploiting all the advantages linked to an important district, did not attempt to drive away the local firms, but added a new productive specialisation to the district.

The increasing presence of Chinese entrepreneurs and, especially, labourers, has, however, given rise to difficulties in social integration and cohesion.

Innovation potential

Regardless of the indicator of research and innovation used, Tuscany shows a capacity for innovation that is significantly lower than the average for the Italian regions included in Competitiveness and Employment Objective and decidedly lower than the EU average (see the ROP ERDF Tuscany 2007-2013). Expenditure on R&D in the private sector is less than 0.4% of regional GDP and is about half the expenditure in R&D of the public sector, carried out by universities and public research institutes. As we mentioned above, with regard to the production of graduates, the public research system, based mainly on the universities, is a relative strength of the region. The problem is that the results of public research are unlikely to be transferred to private firms or exploited by them.

Tuscany’s position improves slightly if we consider the requests for patents made to the European Patent Office, but it worsens once again if we look at the overall quota of workers employed in high-tech activities, knowledge-intensive industries and services. Lastly, from the point of view of dynamics, none of the above mentioned indicators improved significantly over the period 2000-2006.

It is obvious that the use of these standard indicators penalises a region like Tuscany that is characterised by a marked presence of small firms that have little desire to carry out formal R&D and, more generally, to structure their innovative activities. Moreover, the same indicators neglect the innovations of an organisational and commercial nature which, especially for the firms that are active in the fashion sector and base their success on exports, may be even more important than the classic innovations in products and processes.

However, even the Tuscan firms' investments in machinery and plants, the traditional route taken to improve the efficiency of the production processes, did not increase over the period studied. Similarly, from the point of view of the absorption of new technologies and knowledge, the cases of technological transfer from the universities and public research centres were very few. Although there were some successful experiences (especially among firms operating in the more dynamic segments of the mechanical engineering, chemical and pharmaceutical industries and, in the software business), a critical aspect of Tuscany's innovative system is, therefore, the insufficient link between, the centres producing encoded knowledge and the subjects and places of applied knowledge.

Relocation strategies and internationalisation

The position of Tuscany in relation to international trade was decidedly weakened in the early years of the new millennium. Between 2000 and 2003 the ratio between net exports of goods and services (the import-export balance) and regional GDP fell by about 2% while in the other Italian regions of the Competitiveness Objective the drop was considerably lower.⁷ Between 2001 and 2005 exports from Tuscany were stationary in nominal terms, while exports from Italy increased by 2.5% annually.⁸ It has been estimated that over the same period Tuscan exports contracted by 2.9% every year, while the overall reduction in Italian exports was 0.6%.⁹

Among the reasons for this contraction we should also consider the dynamics in the outlet markets for Tuscan exports, which are mainly France, Germany and the United States. However, in recent years world trade has been driven by the emerging economies like Russia and China.

The reduction in the overall level of exports was accompanied by a considerable change in their composition. In 1999 and also over the two years 2000-01 the main exporting sector of the region continued to be fashion (see Table 1.9). In subsequent years, especially starting in 2003, the textile, clothing and footwear segments lost their leadership of regional exports in favour of the mechanical engineering sector. In 2007, the last for which international trade data are available, the mechanical engineering sector accounted for almost 40% of regional exports and the fashion industry less than 26%. However, this remarkable feat of the part of Tuscan mechanical engineering may not necessarily be repeated in the near future, given that 2007 was a particularly favourable year for regional exports. In any case, it is a matter of fact that the mechanical sector will continue to be the leading export generator for the region.

This sectoral change in regional exports is matched by other changes within the exporting firms. According to a recent study by the Bank of Italy,¹⁰ between the 1990s and the 2000s there was an increase in the number of Tuscan firms that exported regularly, the exporting firms grew in size and there was also a considerable increase in the ratio of foreign sales to total company turnover. The increased international competition and the change in the exchange rate regime has forced Tuscan firms to be more diligent and structured in their approach to foreign markets and has reduced the opportunistic behaviour typical of occasional exporters. It should also be pointed out that between 2005 and 2007 Tuscan exports of clothing to Russia almost

⁷ ROP ERDF Tuscany 2007-2013.

⁸ Banca d'Italia (2006) Note sull'andamento dell'economia della Toscana nel 2005, Banca d'Italia, Florence.

⁹ Irpet (2006) Economia toscana: consuntivo 2006 e previsione 2007-2008, Irpet, Florence.

¹⁰ Banca d'Italia (2008) L'economia della Toscana nell'anno 2007, Banca d'Italia, Florence.

doubled,¹¹ confirming that the Tuscan firms in the fashion industry are also making a greater effort to find new outlet markets.

Despite the important changes that occurred with regards to exports, internationalisation processes based on the control or ownership of foreign businesses are still not very common among Tuscan firms and are confined to the large companies. A previous survey by the Bank of Italy¹² shows that the most common forms of collaboration between Tuscan and foreign firms were agreements of a predominantly commercial nature. Processes of relocating production abroad were far less frequent; those firms that did adopt this strategy were motivated by the search for new outlet markets and, secondly, by the lower labour costs.

Table 1.10 confirms that in 2006 Tuscany as a region showed little involvement in Foreign Direct Investments (FDI), especially outward. The degree of active internationalisation (share of workforce in outward FDIs) is quite a lot lower than the national average and decidedly lower not only than the more developed Italian regions (like Piedmont and Lombardy) but also than a region like Marche whose industrial specialisation is quite similar to that of Tuscany.

From the point of view of passive internationalisation (share of workforce in inward FDIs), Tuscany's performance, whilst still below the national average, was better than those of the regions of the Nord East and Central Italy. A sizeable quota of inward FDIs is concentrated in the province of Florence and, according to an estimate,¹³ the GDP and employment of that province would have increased at a significantly slower rate had those investments not been made.

1.3.2 Understanding the geography of structural change

Over the period 2000-2006 the structural changes described in the previous sections resulted in distinct economic performances in the different geographical areas of Tuscany. Table 1.11 shows that there are still significant gaps among the provinces of Tuscany in terms of level of per capita GDP. While the province of Florence ranks above average for the region, the provinces of Massa-Carrara (in the north of the region) and Grosseto (in the south) show considerable backwardness, despite the fact that their per capita GDP grew faster than the average for the region between 2000 and 2006. It should be noted that in both of the provinces lagging behind in development the share of the workforce employed in industry is below the regional average. This is particularly true of the province of Grosseto that is a predominantly rural area. The province of Massa-Carrara specialises in the marble industry (it is an important marble district), which is not flourishing as much as it did in past decades and which, alone, does not manage to act as a driver for the economy of the area.

In terms of economic growth, the provinces that show growth in per capita GDP that is noticeably slower than the regional average are, in order, Prato, Florence and Livorno. The province of Prato clearly distances itself from the others from the point of view of its employment and productive structure; in 2005 the share of the total workforce employed in industry was close to 47%, a fact that makes Prato an anomaly, not only in the regional and national panorama but, probably, in the whole European Union context. This anomaly is obviously due to the presence of one of the most important textile and clothing districts still active in Italy and in Europe, which we have discussed in detail in previous sections. The decline of the Tuscan textile and

¹¹ Giovanetti, G. (2008) Opportunità d'esportazione per le imprese toscane, Lettera Irpet, No. 48.

¹² Banca d'Italia (2007) L'economia della Toscana nell'anno 2006, Banca d'Italia, Florence.

¹³ See Casini Benvenuti, S. (2008) Investimenti esteri da e verso Toscana, Lettera Irpet, No. 48.

clothing industry, in terms of both value added and exports, is clearly reflected in the disappointing economic performance of the province of Prato. In fact, it should be stressed that the very modest increase in per capita GDP expressed in PPS disguises a significant drop in provincial GDP in real terms. This is confirmed by the fact that Prato was one of only two Tuscan provinces that witnessed a significant increase in unemployment between 2000 and 2006 (the other was Pistoia).

As regards the poor growth performance of Livorno, the explanations are decidedly different because the problems of this province are linked to the difficulties in re-launching an area which, until not very long ago, boasted a significant presence of large firms that have since been involved in processes of divestment or considerable downsizing.

Lastly, the reduced capacity for growth of the province of Florence is more complex to explain. On the one hand, it is normal for the richest province in the region to grow more slowly than the others. On the other, it should not be forgotten that although it is home to the largest metropolitan area in Tuscany, the province of Florence continues to record 28% of the workforce employed in industry and therefore fewer tertiary workers than one might imagine. As shown in Table 1.12, it is no coincidence that three of the 12 industrial districts recognised by the Regional Government are located in the province of Florence: two specialise in the leather and footwear industry and one in textiles and clothing.

The same Table shows the distribution of the industrial districts in Tuscany by province and by sector of specialisation, while Figure 1.2 shows their geographic location. As we have already mentioned, the majority of the Tuscan industrial districts specialise in the fashion industry. They are located in the central part of the region, in the valleys along the river Arno and not far from the city of Florence. In effect, the most important ones, like Prato and Santa Croce sull'Arno, are an integral part of an enlarged metropolitan area.

Table 1.5 – Crude rate of net migration with respect to foreign countries (per thousand inhabitants)

	2002	2003	2004	2005	Average
Tuscany	4.1	8.9	7.9	6.0	6.7
Italy	3.0	7.1	6.5	4.4	5.3

Source: ROP-ERDF Tuscany 2007-2013

Table 1.6 – Education and training

	Tuscany		Italy		Marche	
	2000	2006	2000	2006	2000	2006
Share of people aged 25-64 participating in education and training	3.9	7.0	3.6	6.1	3.7	6.1
Share of population aged 25-64 with tertiary education	6.9	14.7	7.1	12.8	8.2	15.2

Source: Core team processing of Eurostat data

As far as other district specialisations of the region are concerned, there are two wood and furniture clusters in the province of Siena, the gold-working district of Arezzo, the marble industry in Massa-Carrara and the paper district of Lucca. Although it has become the most important sector of the regional economy, there are no mechanical engineering districts or clusters of important firms. From the geographical point of view the only two provinces that are not home to any kind of industrial district are Livorno and Grosseto.

Table 1.7 – Employment by sector (percentages of total employment)

	Tuscany			Italy			Marche		
	2000	2005	Change	2000	2005	Change	2000	2005	Change
Agriculture	3.8	3.9	0.1	5.3	4.2	-1.1	4.1	3.5	-0.6
Industry	34.0	29.3	-4.7	32.1	30.8	-1.3	40.6	39.6	-1.0
Services	62.3	66.8	4.5	62.6	65.0	2.4	55.3	56.9	1.6

Source: Core team processing of Eurostat data

Table 1.8 – Value added by manufacturing industry in Tuscany (percentages of manufacturing value added)

	2001	2005	Change
Fashion industry (textiles, clothing, leather, footwear)	31.8	27.4	-4.4
Mechanical industry (metal products, machinery, means of transport)	28.9	32.8	3.9
Others	39.3	39.8	0.5

Source: Bank of Italy (various years) Note sull'economia della Toscana, Bank of Italy, Florence

Table 1.9 – Tuscan exports by industry (percentages of total exports)

	1999	2003	2007
Fashion industry (textiles, clothing, leather, footwear)	29.1	28.0	25.8
Mechanical industry (metal products, machinery, means of transport)	26.8	30.2	39.6
Chemical products, pharmaceuticals, artificial and synthetic fibres	24.2	25.0	15.0
Others	19.8	16.8	19.2

Source: Bank of Italy (2008) L'economia della Toscana nell'anno 2007, Bank of Italy, Florence

Table 1.10 - Degree of active and passive internationalisation* (January 1, 2006)

	Active internationalisation		Passive internationalisation	
	Total	Manufacturing	Total	Manufacturing
Piedmont	35.0	50.2	14.2	17.4
Lombardy	23.2	34.6	19.2	18.9
Emilia-Romagna	14.4	21.6	6.3	9.2
Veneto	11.8	14.4	4.8	5.7
Marche	19.7	25.6	1.9	2.1
Tuscany	8.7	12.6	6.6	8.9
Italy	15.3	24.1	10.6	12.9

* Share of employees involved in (inward and outward) FDI of total regional workforce

Source: Casini Benvenuti, S. (2008) Investimenti esteri da e verso Toscana, Lettera Irpet, No. 48

With the notable exception of Prato and partly also of Florence (which we have already discussed), the economic growth of the other provinces is not particularly linked to the presence of one or more clusters of industrial specialisation. In fact, if we take the six provinces that host industrial districts we can see that while the per capita GDP of Siena, Lucca and Pistoia grew less than the average for the regional, that of Pisa, Massa-Carrara and Arezzo increased at more sustained rates.

Table 1.11 – Economic and structural indicators for Tuscan provinces

	GDP per capita 2006* (Tuscany=100)	Change in GDP per capita* 2000-2006	Share of employment in industry (2005)	Type and number of industrial districts**
Massa-Carrara	76.5	9.7	27.5	Marble (1)
Lucca	93.3	6.2	32.0	Paper (1)
Pistoia	90.2	6.6	32.7	Leather and footwear (1)
Firenze	111.3	3.0	28.2	Leather and footwear, textiles, clothing (3)
Prato	99.1	1.2	46.6	Textiles and clothing (1)
Livorno	94.2	4.1	22.3	
Pisa	97.4	9.8	32.4	Leather and footwear (1)
Arezzo	92.4	9.1	38.9	Goldsmith, Leather and footwear, Textiles and clothing (3)
Siena	98.1	6.6	28.0	Wood and furniture (2)
Grosseto	85.7	12.5	19.2	
TUSCANY	100.0	8.3	29.3	

* The per capita GDP is expressed in Purchasing Parity Standards. As a consequence, its rate of change overestimates the variation in GDP in real terms (or at constant prices). **See Table 1.12

Sources: Core team processing of Eurostat data and Irpet (Tuscany Information, downloaded from www.irpet.it)

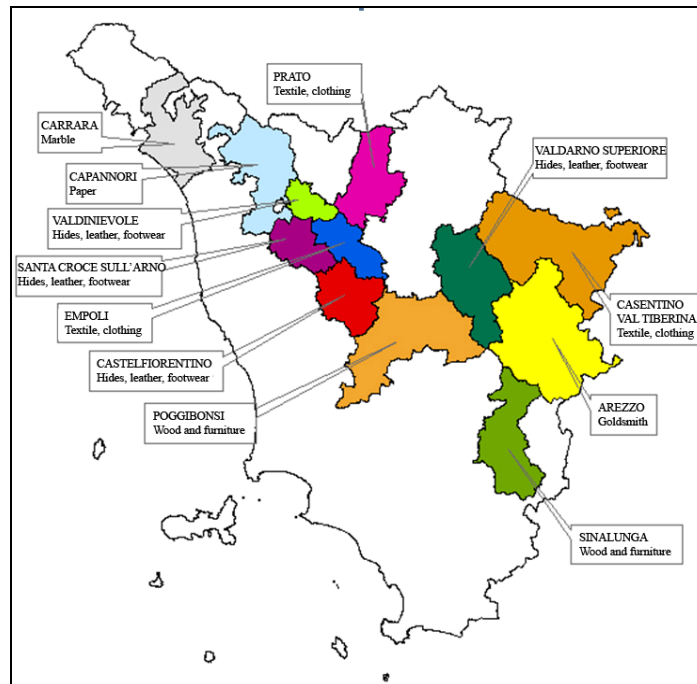
Table 1.12 – Tuscan industrial districts*

Name of the district	Province	Industry
Arezzo	Arezzo	Goldsmiths
Capannori	Lucca	Paper
Carrara	Massa-Carrara	Marble
Poggibonsi	Siena	Wood and furniture
Sinalunga	Siena	Wood and furniture
Casentino Val Tiberina	Arezzo	Textiles and clothing
Empoli	Firenze	Textiles and clothing
Prato	Prato	Textiles and clothing
Castelfiorentino	Firenze	Leather and footwear
Santa Croce sull'Arno	Pisa	Leather and footwear
Valdarno Superiore	Firenze & Arezzo	Leather and footwear
Valdivevole	Pistoia	Leather and footwear

* Council Resolution No. 69/2000.

Source: Irpet (Tuscany Information, downloaded from www.irpet.it).

Figure 1.2 – Tuscany Industrial Districts (Council Resolution No. 69/2000)



Source: Irpet (Tuscany Information, downloaded from www.irpet.it)

2. Regional policy 2000-2006: strategy and objectives

2.1 Regional policy mix for structural change and globalisation

Over the period 1994-1999 the Tuscany Region intervened to limit the threats mentioned above through careful regional programming (Regional Development Plans, Regional Economic Development Plans, Sectoral Plans) which was necessarily the framework for the actuation of the Community programmes financed by the ERDF implemented in that period (SPD Objective 2 1994-1996, SPD Objective 2 1997-1999, interventions financed by the ERDF related to SPD Objective 5B 1994-1999). Overall, the interventions activated thanks to the ERDF (whose total cost for the whole period was roughly Euro 1,100 million) were mainly directed at supporting the small and medium-sized firms system with actions both of a traditional and an innovative nature. In addition to this type of intervention, the entrepreneurial system was also supported by the creation of infrastructures to facilitate the accessibility and location of the firms.

To discuss the evaluation questions raised in the previous section i) it is important to verify whether the Region duly took into consideration questions linked to globalisation in the decision-making stages (identifying the socio-economic needs, choosing objectives and strategies, identifying the operational interventions to be carried out).

Our analysis of the programming scenario in the SPD 2000-2006, based on the study of different documents¹⁴ and interviews shows that the regional administration was fully aware of the structural changes affecting the region and adopted suitable strategies.

Already over the period 1994-1999, and increasingly so in subsequent phases, the Region ensured that there was a strong link between regional programming and planning of the Structural Funds. In other words, the Regional Development Plans (and their sectoral and operational documents like the Regional Economic Development Plan, the Territorial Placement Plan, the Sectoral Plans) adopted since 1994, indicate strategic objectives that are coherent with those pursued by the Structural Funds. For example, SPD Objective 2 2000-2006 implements the interventions of the RDP 1998-2000 and the strategies listed in the Economic Development Plan 2001-2004. As far as the intermediate programming phase is concerned, the SPD implements the strategies outlined in the Regional Development Programme 2003-2005.¹⁵

Hence, the qualitative conclusions that arise from the analysis of the strategic options of SPD Objective 2 2000-2006 can be extended to all of the regional programming.

2.2 Overall strategy of the 2000-2006 Objective 2 programme

In relation to the socio-economic aspects at the root of the strategic choices adopted by the SPD, the first version of the SPD (the one that launched the programme in July 2001) pays considerable attention to the questions linked to globalisation. In fact, they are the opening argument of the analysis of the socio-economic context. The regional government recognised that the slowdown in regional growth recorded in

¹⁴ See: SPD Objective 2 years 2000-2006 – Tuscany, July 2001 and SPD Objective 2 years 2000-2006 – Tuscany, May 2004; Programming Complement (from version 08 to version 19); Annual Report 2007.

¹⁵ The RDP 2003-2005 for the Tuscany Region is coherent with the specific directives of the European Union and it incorporates the new priorities of Community policies, the objectives and the contents defined in the conclusions of the European Council at Lisbon and Gothenburg.

the second half of the 1980s is mainly due to the firms' modest capacity to remain competitive on foreign markets when faced with fewer possibilities of taking advantage of the exchange rate. This has been adopted as the main reason for the gap between Tuscany and the more dynamic manufacturing regions. Furthermore, with reference to industry, the analysis of the socio-economic context contained in the SPD highlights the sectors that show the greatest difficulty in reacting positively to globalisation. The SPD mentioned the textiles and clothing sector, which between 1991 and 1996 lost more than 11,000 workers, or 11.7% of the workforce, and 3,200 local businesses, equal to -17.3%). Also mentioned were the segments that recorded positive processes of productive reorganisation (the leather, hides and footwear segment shows a significant increase in the workforce but a reduction in the number of firms), and those that were expanding (in the mechanical sector employment rose by 5% and the number of local businesses by 17.1%).

Table 2.1 - Synoptic view of the Objective 2 programme. SPD JULY 2001 and mid-term revised SPD

	Brief description and objective	Budget (euro, and % of total budget) SPD JULY 2001	Budget (euro, and % of total budget) SPD MAY 2004
Overall programme	The general objective of SPD 2000-2006 was to increase the rate of development of Objective 2 areas through: i) modernising productive systems, ii) supporting the development of employment, both qualitative and quantitative, with particular regard for the principles of equal opportunities and the environmental sustainability of the interventions.	1,127,411,827 (100%)	1,217,573,898 (100%)
Priority axis 1: "Development and strengthening of the SMEs"	The objective of Axis 1 is to support growth and efficiency in innovative terms of the firms and territory in which they operate, through sustainable development at an environmental level and a rebalancing of employment from the point of view of equal opportunities. This would be achieved through i) incentives for the creation of new firms, ii) incentives to increasing the size of the existing firms, iii) incentives to the qualification of existing firms.	486,160,539 (43.12%)	484,497,138 (39.79%)
Priority axis 2: "Improving the territory"	The objective of Axis 2 is to improve and extend the infrastructural endowment of the Tuscan territory, providing help for the tourism sector, enhancing the historic heritage, strengthening the areas where there are productive activities, improving social services through training courses and increasing assistance to the weaker actors.	443,540,313 (39.34%)	498,849,458 (40.97%)
Priority axis 3: "Environment"	Axis 3 has a dual objective: on the one hand to reduce polluting agents deriving from the use of non-renewable energy sources, from the treatment and recycling of urban and industrial waste, from the presence of polluted areas to be rehabilitated; on the other, to rehabilitate damaged areas and improved protected ones, again with a view to increasing employment.	183,810,975 (16.30%)	217,827,303 (17.89%)
Technical assistance	The technical assistance objective is to encourage the monitoring, coordination and evaluation of the SPD, in order to increase its efficiency and effectiveness.	13,900,000 (1.23%)	16,399,999 (1.35%)

Source. Single Programme Document

In the mid-term review (May 2004 version of the SPD) attention to issues linked to internationalisation was confirmed and expanded. In fact, the review of the socio-economic context continues to show that attention is paid to monitoring the dynamics of exports (for example, showing the continuing difficulties in the textile and clothing sector and the positive dynamics of the mechanical sector). It extends the panorama (coherently with the indications in the regional development plan) taking into consideration (to a more marked degree than in 2001) the aspects linked to the diffusion of R&D (for which there was a reduction in private spending between 1995 and 2001 with a consequent contraction in the workforce), to its more striking

implementations (very positive dynamics in the requests for patents) and the use of ICT. For the latter the SPD shows that although there was great interest on the part of the large firms, very little attention was paid to this by the SMEs, which approach the new opportunities offered by innovations in the communication field in the traditional way (purchasing hardware and software packages). The main obstacles to the appropriate use of new technologies seem to be the difficulty in internal reorganisation that these require and the lack of adequately trained staff within the firms.

Having reviewed the diagnosis of the Tuscan socio-economic context that the programmer was presented with in 2000, and the continuing attention paid to the problems linked to structural changes at the mid-term reprogramming stage (2004), we shall now analyse whether the awareness of the characteristics of regional development has been translated into appropriate objectives and strategies.

Table 2.1 offers an outline of the objectives pursued by the SPD and their relative financial importance.

As we can see from the Table above, the context analysis is translated into goals to be achieved. At the general objective level, in order to increase the rate of development of Objective 2 areas, the SPD considers the reconversion of the production systems to be fundamental both for their own growth (quantitative aspects) and for their reorganisation in order to become more competitive (qualitative aspects). This general aim is pursued at Axis level in the following ways: for Axis 1, which is mainly concerned with aid regimes, to pursue support for the development of firms through their regeneration and through the diffusion of innovation. For Axis 2, among other Measures unrelated to globalizations issues, there is the construction of infrastructures destined to promote transport systems (ports and interports) and the construction and equipping of industrial areas and trade fair grounds. Its aim is to improve the infrastructural endowment of the territory in order to encourage the mobility of goods and the improvement of productive settlements. Lastly, Axis 3 aims to containment of environmental risks in the intervention areas, also in order to generate opportunities for development and employment. This is perhaps a less important factor for the SMEs in the short-term, but it becomes crucial in the mid- to long-term.

The SPD explicitly states that the guiding principles of the interventions are the concepts of “systemic approach” and “innovation and qualification on the basis of sustainable development”, which constitute two crucial factors for increasing the regional firms’ international competitiveness. The “systemic” approach with reference to the SMEs translates mainly into raising awareness in favour of clustering, which is one of the best (if not the only) ways to raise competitiveness of this type of firms. In turn, innovation is a crucial factor in maintaining and reinforcing the positions reached on the international markets, given the price competition for mature products.

The mid-term programming revision, which happened in 2004 when the resources for the Performance Reserve had also been allocated (Regulation 1260/99 art. 44), confirmed the original aims and strategies, also in the light of the results of the various intermediate evaluations. In the situation just outlined, however, and in the light of the objectives determined by the Councils of Lisbon and Gothenburg and the orientation adopted by the RDP of the time, the Region developed more specific orientations in relation to the strategies originally indicated and further strengthened the interventions of the SPD in support of the information society and environmental sustainability. As regards clarifying the initial guiding principles, some of them were specifically aimed at sustaining structural change.¹⁶ As regards the reinforcement of interventions

¹⁶ This can be seen in the priority given to interventions that promote “networks of firms, as in the case of the local sub-supplier networks, to encourage the setting up of customer firms within the region or networking of Tuscan firms and firms from other countries for the purposes of internationalisation”, “the integration of a number of productive chains or the connections between different productive and industrial skills as is the case of mechanical engineering and furnishings, textiles and chemicals that have given birth to innovative solutions in some industrial

aimed at the information society, the aims were to intervene in the technological structure of the firms and in their organisational model. On the environmental sustainability front more resources are given to environmental measures (a part of those resulting from the premium) and the procedures are to be streamlined. Along with the qualitative considerations mentioned above, we also highlight other more quantitative aspects of the regional programming. This is useful to evaluate the weight of the actions contemplated by the SPD Objective 2, as not all of them were aimed at influencing internationalisation competitiveness. Firstly, it is possible to draw attention to the financial weight of the SPD compared to the total regional GDP. The allocation across areas derives from the methods decided at a Community or national level, thus the Region had limited discretion. The total expenditure admissible for the SPD 2000-2006 was equivalent to 0.22% of regional GDP.¹⁷ It is also interesting to note that the ROP Objective 3 financed by the ESF accounts for 0.13% of regional GDP. This, thanks to its actions directed at the qualification of human capital, also contributes to raising the competitive profiles of the firms.

Table 2.1 above shows that in the first phase the choices of allocations made by Tuscany favoured interventions directed at SMEs (Axis I), which, as we shall see later, should be interpreted, overall, as potentially capable, although with differing intensities, of interacting positively with the trends of structural change. During the mid-term programming review (when the resources for the Performance Reserve had already been allocated) the weight of the Axis diminished overall in favour of the other two (which, unlike Axis I, also contain some types of interventions that are indirectly linked to questions of globalisation). Rather, in 2004 the Region chose to reinforce those aspects linked to innovation and research especially in the environmental field, which was also pursued by the measures foreseen by Axis III, indirectly linked to globalisation issues.

2.3 Selected fields of intervention and measures

The Table below gives basic information (characteristics, financial importance, etc.) on the measures selected as potentially related to globalisation issues.

districts”, “consolidation between the worlds of research and business”, “the promotion of product innovations that create new markets and therefore new employment”, “the reinforcement of research and development activities by stimulating cooperation between large national scientific research centres and advanced firms and guaranteeing a greater spin-off of research applied to the SME system”, “the strengthening of the innovative influence that goes from formal innovation (stylish and industrial design, and artistic and traditional artisan redesign) that is so intimately connected to so much of the regional production that it can easily be tied to aims of sustainable development (from the curability of the products from recycled materials to the reduction of packaging)”, “the greater commitment to innovative forms of financing and promotional activities than to traditional ones that are largely guaranteed by the market and whose use should be reinforced through procedures that are simpler, more timely and more easily accessible for small firms.” See the 2004 version of the SPD for the Tuscany Region, page 51.

¹⁷ The incidence of the SPD and the ROP Objective 3 (whose budget was taken from the final Evaluation Report) was calculated on the average GDP at constant prices of the Tuscany Region for the years 2001-2006.

Table 2.2 - Measures relevant to structural change and globalisation: main features

Measures	Description (including date of implementation)	Total public resources (Source PC18 June 2004)	% tot. budget (year 2004)	Total public resources (Source RAE 31.12.07)	Payments certified by the European Commission at 31.12.07 (Source: RAE 31.12.07)	% expenditure at 31.12.07	N° of projects / beneficiaries (Source: RAE 31.12.07)	Type of interventions	Structural change dimension	Relevance to structural change and globalisation
1.1	"Aid to the productive and environmental investments of industrial firms and cooperatives". This measure grants contributions to the capital account and the interest account, through repayable aid, fiscal bonuses and tax credits to industrial, artisan and cooperative firms for the realisation of material and immaterial investments.	180,353,700.00	14.81	164,848,560.00	146,269,869.00	88.73	A total of 1,676 projects financed by Measure 1.1 were already realised or underway; a total of 1,518 firms were involved (some of them participated in more than one project). 1,370 interventions were completed, or 82% of all the projects financed.	Business support	Regional specialisation.	*
1.2	"Aid to the investments of small artisan firms and manufacturing and labour cooperatives". This measure grants interest-free repayable loans for the realisation of material investments.	88,525,957.00	7.27	90,125,957.00	92,447,592.00	102.58	The number of projects financed by this measure was 575, and the number of firms involved 534 (some of them participated in more than one project).	Business support	Regional specialisation	*
1.3	"Financial engineering". This measure offers guarantee funds, participatory loans, funds specialising in actions to support the birth and development of hi-tech firms.	17,994,996.00	1.48	28,337,703.00	31,619,103.00	111.58	317 firms were beneficiaries of the guarantee fund; 74 new SMEs received concessions for their creation. Seven participatory loans were also made, to five micro-firms and two small firms.	Innovation and technology / Business support	Innovation potential	**
1.4	"Aid to immaterial investments". The measure grants financial aid for expenditure on consultancy, external services and, for the firms operating in the tourism sector, financial aid for the purchase of qualified tourism services.	38,216,635.00	3.14	33,584,682.00	29,783,887.00	88.68	A total of 1,293 projects were financed and realised by the measure.	Business support.	Internationalisation.	***
1.5	"Aid to the investments of firms in the tourism and commerce sectors". This measure provides financial aid to firms operating in the tourism sector for the qualification, extension, restructuring and, in cases of particular need, also the realisation of infrastructures that are complementary to tourism. ¹⁸	108,550,922.00	8.92	88,411,792.00	68,650,453.00	77.65	A total of 1,706 projects were financed and realised by 1,622 SMEs (some of them participated in more than one project).	Business support to tourism enterprises	Regional specialisation	*

¹⁸ Action 1.5.2, "Qualification of commercial enterprises" was excluded from Measure 1.5 since it is not of interest for this study; on the other hand, because of the lack of a disaggregated figure, the resources were inserted in their totality.

Case Study – Tuscany (IT)

Measures	Description (including date of implementation)	Total public resources (Source PC18 June 2004)	% tot. budget (year 2004)	Total public resources (Source RAE 31.12.07)	Payments certified by the European Commission at 31.12.07 (Source: RAE 31.12.07)	% expenditure at 31.12.07	N° of projects / beneficiaries (Source: RAE 31.12.07)	Type of interventions	Structural change dimension	Relevance to structural change and globalisation
1.6	"Aid for the creation of new firms". This measure provides contributions to the capital account for the creation of firms by women and young people. ¹⁹	13,701,150.00	1.13	12,863,225.00	8,129,522.00	63.20	A total of 405 projects were financed, of which 272 are finished.	Business support	Quality of human capital	**
1.7	"Transfer of innovation to the SMEs". This measure grants financing for expenditure on planning and feasibility studies for the creation of networks for technological transfer, as well as financing expenditure on consultancy, services and durable goods destined for the development of these activities.	15,049,498.00	1.24	24,121,428.00	17,299,560.00	71.72	201 projects were financed, 91% of which are complete.	Innovation and technology	Innovation potential	***
1.8	"Aid to industrial research and pre-competitiveness". The SPD grants direct aid to firms for the realisation of industrial research and pre-competitiveness projects.	21,479,282.00	1.76	21,479,282.00	21,879,889.00	101.87	536 interventions were financed, involving 126 Research Centres and Universities; in addition, 290 firms introduced product and/or process innovations.	Innovation and technology	Innovation potential	***
2.1	"Infrastructures for tourism and commerce". This measure makes capital account contributions for the realisation of infrastructures destined for the tourism sector in harmony with the sustainable development of the territory. ²⁰	90,355,628.00	7.42	104,106,441.00	86,330,200.00	82.92	2.1 257 projects were financed by this measure, 213 of which are now complete.	Infrastructure investments	Regional specialisation.	*
2.3	"Transport infrastructures". This measure grants contributions for expenditure related to the realisation of infrastructural works for ports, interports and internal navigation.	114,604,617.00	9.41	107,509,376.00	100,439,944.00	93.42	19 interventions were financed; 11 projects are finished, one is in its concluding stages and four are being implemented. Lastly, two projects have yet to be launched (at 31.12.07).	Infrastructure investments	Regional specialisation	**
2.4	"Infrastructures for productive segments". The measure makes capital account contributions for: the realisation or completion of urbanisation works, ii) the rehabilitation of degraded areas to	96,291,826.00	7.91	93,300,735.00	91,180,118.00	97.73	This measure financed 212 projects; 117 of them had been completed before 31.12.07.	Infrastructure investments	Regional specialisation	**

¹⁹ In this measure it is opportune not to consider Action 1.6.1, "Aid to service SMEs in support of the family", since it does not fall within the scope of this study; on the other hand, because of the lack of disaggregated data, the resources were inserted in their totality.

²⁰ The action related to commerce was excluded from this measure since it does not fall within the scope of this study; on the other hand, because of the lack of disaggregated data, the resources were inserted in their totality.

Measure s	Description (including date of implementation)	Total public resources (Source PC18 June 2004)	% tot. budget (year 2004)	Total public resources (Source RAE 31.12.07)	Payments certified by the European Commission at 31.12.07 (Source: RAE 31.12. 07)	% expenditure at 31.12.07	N° of projects / beneficiaries (Source: RAE 31.12.07)	Type of interventions	Structural change dimension	Relevance to structural change and globalisation
	foster the creation of service structures for firms, iii) the improvement of the structures of regional interest for the promotion of international exhibitions and trade fairs.									
2.7	"Strategic territorial marketing". This measure concentrates on a marketing programme for the area aimed at promoting both national and foreign direct investments in the Tuscany Region and includes an initiative for the promotion of tourism in Objective 2 areas and those qualifying for Transitional Eligibility.	11,284,389.00	0.93	11,284,389.00	9,753,432.00	86.43	93 projects were financed, of which 90 were completed before 31.12.07.	Attraction of foreign direct investments / support to the tourism sector	Internationalization	***
2.8	"Actions to support the information society". Through this measure the SPD finances software for telemetric services, the building of databases for the territory and the environment, training services, and purchases of tools suitable for evaluating the seismic risk in productive areas. The measure is destined for the public and private sector.	25,076,419.00	2.06	24,576,421.00	21,192,083.00	86.23	In this case 108 projects were financed, 75 of which had been completed before 31.12.07.	Innovation and technology	Innovation potential	***
3.2	"Optimisation of the energy system and development of renewable resources. Private sector". This measure consists of economic aid for investments in the reduction or elimination of pollution, environmental protection and the development of renewable energy sources.	21,452,785.00	1.76	20,612,334.00	13,762,378.00	66.77	66 projects were financed and started; 35 of them are complete and involved the realisation of 34 plants (two projects were for the same plant).	Business support to reduce pollution.	Innovation potential	**
3.10	"Aid to firms for investments of an environmental nature". This last measure offers incentives to firms to adopt technologies with a low environmental impact.	13,666,034.00	1.12	11,325,434.00	11,255,035.00	99.38	This measure financed 27 projects, all completed prior to 31.12.07. They involved 20 SMEs and seven large firms.	Business support to reduce pollution.	Innovation potential	**

Source: Single Programming Document

Legend: *marginally relevant, **relevant, ***extremely relevant

The Table shows:

- the ways in which the SPD interpreted its orientation in favour of containment/exploitation of the consequences of globalisation;
- the overall volume of resources destined for issues linked to structural change and, in this regard, the financial weight attributed to the different ways of intervening.

As far as the first aspect is concerned, the regional administration launched a series of actions to safeguard the existing regional productive specialisations. There is a noticeable concentration of actions attributable to the objective of promoting Tuscan productive specialisation among the five dimensions identified by the methodological approach used in the present ex-post evaluation. The types of interventions directed at maintaining and reinforcing the Tuscan specialisations include aid to SMEs and artisan firms (Measures 1.1 and 1.2), to consolidate the material and immaterial structure of the firms active in manufacturing , support for commercial and tourism firms (Measure 1.5), which acts in a similar way to the one for manufacturing sector (see above section 2.2). Another way in which the Region tried to strengthen the productive specialisation was to reinforce the infrastructural endowment of the SME context. With this in mind, the SPD launched measures aimed at supporting the tourism and commerce infrastructures (Measure 2.1). Moreover, it planned interventions to improve the transport of goods (Measure 2.3), an important element in enhancing the competitiveness of the existing firms (time and cost savings), and carried out projects to enhance and rehabilitate areas for productive purposes (service centres for firms, industrial zones, international exhibitions and trade fairs).

Alongside the support for the development of the existing productive model, and coherently with the strategies put in place, the SPD considered equally important the promotion of actions aimed at the diffusion of innovation, which as we have mentioned previously, is a particularly strongly felt need in the Tuscan regional context. The SPD activated six types of measures intended to achieve this goal. In this area the interventions promoted were: i) Measure 1.3 activating forms of financial engineering (funds) aiming to promote the development of high tech firms, ii) Measures 1.8 and 1.7 that sustain, respectively, the implementation of industrial research and pre-competitiveness projects and the transfer of technology by the aggregation of different structures, iii) Measure 2.8 in support of public and private enterprises aiming to increase the use of the tools of the information society, iv) Measures 3.2 and 3.10 that grant financial incentives to SMEs to push them to adopt forms of energy saving and adopt low-impact technologies (which constituted innovative interventions especially over the period 2000-2006).

The propensity to intervene directly to promote the internationalisation of the firms was, however, far less marked than for the other two approaches. Direct support for internationalisation occurred through two lines of intervention: with Measure 1.4 the Region intended to support the acquisition of services aimed at improving the presence of SMEs and in the foreign market. Through Measure 2.7, on the other hand, the Administration promoted interventions to attract extra-regional investments implementing international marketing actions.

Lastly, the Region appears to grant only marginal interest to investment in human capital. Only one measure was activated, Measure 1.6 that supports the birth of new firms run by young people and women. However, this lesser interest is only apparent. In fact, as regards the qualification of human capital (which is one of the main aims pursued by the ROP Objective 3 financed by the ESF) it should be noted that this target was also hit by the interventions destined to promote innovation that inevitably include various forms of learning.

Lastly, as regards supporting network systems (which should be classified in the sphere of the “production system” approach) it should be pointed out that, although it was explicitly declared at the strategic structure level, this was not confirmed by the types of intervention activated. However, the importance of such an observation lessens if we consider that: - Measures 1.7 and 2.8 could have been reclassified as part of this approach, given that they contemplate support for the realisation of innovative interventions through the promotion of forms of aggregation. For the purposes of the analysis, we preferred to consider their innovative vocation. In fact, various forms of integration between and among firms and other types of structures were encouraged, both by contemplating the participation of consortia of firms in the calls for applications (e.g. Measure 1.1) and by implementing approaches to Integrated Local Development Planning (PISL).

Moving on to examine the second aspect surveyed in this section, that is the amount of the resources destined to exploit structural change (or to minimize the costs), the Tuscany Region has adopted choices of destination of financial resources that respect the attention paid to the problems of globalisation in the socio-economic context analysis. In fact, as we can see from the Table above, roughly 70% of the resources were destined (in different ways) to increase the positive effects of globalisation and to limit possible negative repercussions.

When evaluating this allocation, compared to the different ways adopted by the Region to support the positive effects of globalisation, we find that, unlike the results from the typological analysis (which showed that equal favour had been given to interventions to encourage regional specialisation and to support the diffusion of innovation), the main mode of intervention (almost 56% of the overall budget) was to promote the reinforcement and qualification of the existing regional specialisations. Around 9% of the funds was dedicated to the diffusion of innovation among the SMEs. This result should be interpreted bearing in mind that the “2000-2006 perspective” was different from that for the current 2007-2013 programming period, which is almost totally dedicated to R&D, innovation and strengthening the potential for competitive development in the different areas of the region. In contrast, in 2000-2006 experiences in terms of supporting R&D and innovation were still only sporadic. Furthermore, in addition to the experimental character of this type of action there is also the consideration of the constraint introduced in the 2000-2006 period, which is the de-commitment rule (foreseen by Regulation 1260 art. 31 par.2). The consideration of these two factors (obligation of expenditure within two-yearly deadlines and uncertainty about the timing and outcome of the innovative interventions) led the Tuscany Region (and almost all the other Italian Objective 2 Regions) not to take excessive risks by attributing large chunks of the available budget to innovative actions.

Having verified the consistency of the programming and operational dimensions we went on to review:

- what effects on employment and the economy the interventions financed by the SPD resources had on the final beneficiaries (the firms);
- what results were achieved as regards increasing the competitiveness of firms on foreign markets;
- what results the firms achieved in relation to the five dimensions that, according to the approach used, were of importance for promoting structural change.

To answer these questions we proceeded to select the most interesting measures in that regard.

A first choice made was not to consider the types of intervention that, although they received the largest quota of resources, were intended to support the existing regional productive model through generic

interventions (aid for fixed and intangible investments). Even with an in-depth analysis it would have been difficult to isolate the effects of the SPD on the problems linked to internationalisation from those related to the general competitive profile of the firm.

Vice versa, we thought it interesting to survey the impacts produced:

- by types of intervention aiming directly to internationalisation (Measures 1.4 and 2.7), since it was felt that the direct link between the types of intervention activated and the potential improvement in positioning of the firms on foreign markets constitutes a guarantee to try and verify the effects of the SPD. For Measure 1.4 attention was directed at Action 1.4.1B that supports the promotion of exports of quality products, while the rest of the actions foreseen by this measure were ignored because they were not specifically oriented towards internationalisation. Thus, when in the rest of the text we refer to Action 1.4 we shall in fact be referring to Action 1.4.1B;
- by actions aiming to support innovation, which is the main approach (after those oriented towards supporting existing regional specialisations) pursued by the Tuscany Region. Furthermore, as the regional weakness in the field of innovation and R&D was one of the criticalities that slowed down Tuscan exports, it was felt that the evaluation of the goals achieved in this area would play a crucial role in determining the intensity of the contribution from the SPD to solving that problem. Out all the measures that were implemented to achieve this goal, those that represented the core of the innovative process were selected. We are referring to interventions aimed at supporting the realisation of industrial research and pre-competitive projects (Measure 1.8) and the implementation of operations aimed at promoting the transfer of technology carried out specifically by Action 1.7.1 as part of Measure 1.7.21 Again in this case, for ease of reading, when we refer to Measure 1.7 in the rest of the text, it will implicitly mean Action 1.7.1.

In conclusion, the following measures have been selected for the analysis: Measure 1.4 “Activities to support the promotion of exports of quality products”, addressing in particular Working Hypothesis 5 “Internationalisation and relocations”, and Measures 1.7 “Aid for industrial research and pre-competitiveness” and 1.8 “Networks for the transfer of technology”, both addressing Working Hypothesis 4 “Innovation potential”.

In order to survey the effects on the firms of the incentives promoted by these measures we took the following steps.

- a. Identification of the universe of beneficiaries in order to extract the sample to be interviewed. Here we refer to the group of projects that had been completed by 31.12.07. Hence, the evaluation cannot cover the interventions that have yet to be concluded.²² The elements just described led to the definition of the beneficiaries and of the subjects chosen listed in the Table below. As regards the representativeness of the sample, it was felt that in the absence of information for some of the stratification variables, a global

²¹ The measure also includes interventions destined for Commerce that were not considered worthy of further study.

²² At the Tuscan level, the sample may not be able to catch the effects of the interventions launched at the end of the period and that have characteristics that are significantly different from the average. Just think of the economic dimension of the particularly significant interventions or their possible concentration in particular sectors or areas.

coverage of the universe of 12% and a representativeness at a measure level that was never lower than 8% would be adequate²³.

Table 2.3 - Characteristics of the universe of beneficiaries and of the sample

Type of Measure	Size of the universe (total beneficiaries)	Number of subjects included in the sample	Representativeness of the sample
1.4 “Activities to support the promotion of exports of quality products”	310	41	13.2%
1.7 “Networks for the transfer of technology”	126	11	8.7%
1.8 “Aid for industrial research and pre-competitiveness”	394	48	12.2%
Total	830	100	12.0%

Source: Authors

- b. Identify the subjects to be included in the control sample. It was decided that those subjects that are most similar to the ones who benefitted from the SPD resources are the firms that participated in a call for bids, but for lack of financial resources, they did not obtain the incentives. The case for that choice is that, given the type of actions under examination, the crucial criterion for determining the similarity among subjects is their desire to realise the interventions, rather than the size of the firm or the business sector. In operational terms, the difficulties were the availability of information about the subjects of non-beneficiary status (that is, the control group) for whom data in electronic format are, obviously, far more limited than those for the beneficiaries. Data for the units to be included in the control group were only available to us for Measure 1.4. Given our deadlines and information constraints, it was possible to complete 19 interviews with non-beneficiary, but eligible to assistance, firms.
- c. Drafting the questionnaires. These include:
- the general characteristics of the firm (location, sector, etc.);
 - the general characteristics of the intervention financed;
 - the type of relation the firm has with its foreign markets;
 - the transversal impacts (employment, turnover, competitiveness on foreign markets);
 - the effects produced by the incentive in relation to the five types of dimensions that influence structural change.

²³ As one can see from the table above, the beneficiaries of Measure 2.7 were not included in the sample. We found that the promotion carried out to encourage the realisation of extra-regional investments in Tuscany had not yet produced any results that could be assessed in this ex-post evaluation. In fact the activities carried out by Toscana Promozione (the subject responsible for implementing the measure) consisted of in-depth interviews with some owners of local operational units in Tuscany that belong to large firms that are located outside the region (of which a good part were foreign). The survey was intended to discover the points of view of the subjects involved about the factors crucial to attracting extra-regional investments. The information gathered was the basis for the creation of a localising package. This includes publicising the trade-mark of economic promotion (prepared especially for this measure) and supplying detailed information about the productive area of reference (creation of a data bank) for potential investors in Tuscany. Along with the type of activity just described, Measure 2.7, again via Toscana Promozione, entrusted the activity of territorial enhancement to some provinces, which carried out marketing operations for the local area aiming to raise the profile of specific productions from provincial area.

The questionnaires to the control group have the same characteristics as those for the beneficiaries, but were preceded by questions designed to see whether, in the absence of the incentive, the intervention would still have been realised and if so, with what characteristics.

- d. The survey was carried out telephonically by three expert interviewers, who conducted the interviews between the middle of February and 10 March 2009.

3. Effects of the selected ERDF measures on the process of structural change and adaptation to globalisation

In this section we illustrate the results of the analysis of the effects attained by the interventions financed by the three measures considered worth studying in depth. Of course, to focus on these three measures - while dropping others - introduces an unavoidable bias in the outcome of the assessment exercise. However, the choice of these measures appears to be appropriate to scope of the study for two main reasons. Firstly, to focus on a limited number of measures allows to conduct a more selective in-depth analysis of the effects attained, while larger samples may have the risk to dispel the results into a too broad framework. Secondly, as already mentioned, the measures selected are very specific in terms of type of support provided and, therefore, more likely to allow an assessment of the net contribution of the SPD interventions on the beneficiaries.

3.1. Assessment of the structural and socio-economic effects

3.1.1 Performance of selected measures

The tables below compare the forecasts originally made for the different types of target for the Measures and included in the PC (Programme Complement at 31.12.2007) with the actual achievements at 31.12.2007, i.e. the latest date for which monitoring data are available²⁴.

Table 3.1 – Results produced by intervention 1.4 at 31.12.07

Realisation indicators	Unit of measurement	Initial forecasts contained in the PC	Targets achieved at 31.12.07
Interventions financed according to type, of which:	No	485	341
- activities to support the promotion of exports of quality products	No	33	65
- participation in exhibitions and fairs, workshops and missions	No	55	96
- consultancy for internationalisation	No	67	167
- consultancy for the creation of quality marks	No	330	13
Result indicators	No		
Number of consultancy firms involved	No	300	154
Number of quality marks created	No	10	4
Share of firms that claim to have improved their positioning on foreign markets	%	20.0	31.5

Source: Annual Executive Report of 31.12.07 for SPD 2000-2006 Objective 2 Tuscany Region

²⁴ The monitoring system in Tuscany is currently being re-organised. Discussions continue as to how this should be done, bearing in mind the different sources of financing of the regional plans and programmes. With regard to the evaluation activities, it may be decided that the evaluation activities foreseen will be mainly carried out by the NURV (Nucleo Regionale Valutazione), with the contribution of IRPET (Regional Institute for the Economic Programming of Tuscany).

As for Measure 1.4 “Activities to support the promotion of exports of quality products”, 70% of the planned interventions had been completed, in line with the time frame (at 31.12.07 there was still more than a year to complete the operations). Analysing the types of intervention realised, we note the greater success of the projects destined for internationalisation compared to those oriented at the diffusion of quality marks. In fact, in the first case (support for the promotion of exports of quality products, consultancy for internationalisation, etc.) the initial objectives were greatly exceeded, while the demand for consultancy for the creation of quality marks was significantly lower than expected. As for the results, 31% of the firms stated they have improved their positioning on foreign markets (compared to the 20% originally hypothesized). This positive result, which was revealed by the monitoring data, was further improved, as we shall see below, by 31.12.08 as is shown by the data from our direct survey.

Another element of interest to understand the performance of Measure 1.4, is the capacity shown by the interventions to activate further investments (leverage effect). This aspect was discovered during the direct survey that aimed to verify whether the acquisition of a qualified service would have brought larger investments, or whether the firm, in addition to contributing their own resources to co financing the service, which would constitute an obligatory disbursement, would also have made further investments. On the basis of the data learned it is possible to underline one positive result given that for 34% of the subjects interviewed, the acquisition of the service provided an impulse for the realisation of broader projects.

Table 3.2 – The results produced by intervention 1.7 at 31.12.07

Realisation indicators	Unit of measurement	Initial forecasts contained in the PC	Targets achieved at 31.12.07
Existing firms:	No	120	365
- owned by women	No	15	31
Subjects involved, of which:	No	100	193
- Service Centres	No	30	8
- Research institutes/bodies	No	20	34
- Financial organisations	No	5	0
- Local authorities	No	10	79
- Trade associations	No	20	72
Networks realised	No	15	79
-Research projects realised	No	15	58
- Financed interventions that foresee an increase in the levels of health/safety in the workplace compared to existing regulations	No	5	4
Financed interventions that foresee an improvement in environmental performances	No	5	24
Result indicators	No		
Firms that have introduced process and/or product innovations	No	80	230
Number of firms participating in the initiatives realised	No	60	1,424
Number of structures created for the sales of know-how and expertise	No	3	18
Number of joint ventures and partnerships realised	No	5	33
Percentage of the firms’ workforce involved in research activities and/or technology transfer	%	20.0	18.0

Source: Annual Executive Report of 31.12.07 for SPD 2000-2006 Objective 2 Tuscany Region

At 31.12.2007 Measure 1.7 “Networks for the transfer of technology” had already exceeded the targets foreseen²⁵. It is interesting to note that the networks created were far greater than those planned and that the research centres, the local authorities and the trade associations showed far higher rates of support than expected, unlike the other categories of admissible subjects (service centres, financial organisations). One of the results worthy of note was the far higher number of firms than the original target (probably quantified with an excessively pessimistic eye) that introduced process and product innovations. Coherent with the findings for Measure 1.4, the results of the direct survey, which we provide later, lead to even more positive results than those from the monitoring data (thanks also to the longer period of time covered).

Table 3.3 – Results produced by intervention 1.8 at 31.12.07

Realisation indicators	Unit of measurement	Initial forecasts contained in the PC	Targets achieved at 31.12.07
Interventions financed, of which:	No	200	536
- micro-firms	No	50	n.a.
- small firms	No	120	n.a.
- medium-sized firms	No	20	n.a.
- owned by women	No	20	n.a.
Number of Universities and research centres involved in the implementation of the projects	No	20	126
Result indicators			
Investments launched	M euro	30	64.8
Projects related to new communication and information technologies	No	30	40
Firms that introduced process and/or product innovations	No	200	290
Firms that obtained environmental certification	No	20	3

Source: Annual Executive Report of 31.12.07 for SPD 2000-2006 Objective 2 Tuscany Region

Lastly, in relation to Measure 1.8 “Aid for industrial research and pre-competitiveness”, the results also exceeded the estimated targets. 536 interventions were financed compared to the 200 planned and the results show a noticeable success in terms of the number of firms that introduced process and/or product innovations. As with the preceding measures, the data for the direct survey referred to 31.12.08 (one year after the monitoring data) and showed even higher success rates (all the firms had introduced forms of innovation). Furthermore, in 29% of cases the research projects carried out thanks to the support given by the measure belonged to, or launched, broader research activities in which the firms invested further resources.

3.1.2 Contribution of selected measures to structural change and globalisation

Having verified that the measures under study showed good implementation records (at least judging by the realisation indicators and result given above), especially as regards strengthening the innovative capacity

²⁵ It should be noted here that the resulting good performance of the Measure is affected by the fact that most expected targets were probably fixed in a conservative way.

of the firms and their ability to penetrate foreign markets, below we illustrate the general impacts recorded by the subjects interviewed in the field work²⁶.

Table 3.4 – Location distribution of the firms interviewed and of regional firms

Province	Distribution of the firms interviewed	Percentage distribution of regional firms
Arezzo	2	8.71
Florence	22	28.36
Grosseto	7	5.53
Livorno	8	8.01
Lucca	7	11.00
Massa-Carrara	17	5.14
Pisa	17	10.22
Prato	9	8.14
Pistoia	4	7.92
Siena	7	6.97
Total Ob. 2	67	-
Total ST	33	-
Total Ob. 2 + ST	100	100.00

Source: our processing of data from the direct survey; ISTAT, Local business units year 2006

Moving on to analyse the sectors to which the beneficiaries of the three Measures belong (see below Table 3.5), it should be noted that, firstly, there is a fairly large number of business activities²⁷. Of these, the ones with the highest concentration, coherent with the regional productive specialisation, are the manufacture of machinery and equipment (11 firms) and the textile industries (nine firms). Moreover, a fair number of beneficiaries belong to the software, IT consulting and related activities segment (eight firms) or are involved in scientific research and development (six firms).

Lastly, another four aspects are taken into consideration that are important for the analysis carried out: they are the size of the firm in terms of workforce and turnover, their degree of openness to foreign markets and the propensity to conduct R&D.

²⁶ As can be seen in Table 2.19 below, the firms interviewed (that is the beneficiaries of Measures 1.4, 1.7 and 1.8) are located mainly in the province of Florence (22%), followed by the provinces of Massa-Carrara and Pisa (17%). In fact, while for Measure 1.4 the location distribution is almost identical to that at a global level, for Measure 1.7 the province most involved was Pisa (coherent with the strong concentration of research structures located in this area). In addition to boasting a sizeable number of firms from the provinces of Florence, Massa-Carrara and Pisa, Measure 1.8 stimulated considerable interest among the firms located in the province of Livorno.

Compared to the location distribution of the beneficiaries, that of the control group for Measure 1.4, shows distribution at a provincial level that overweights Grosseto and Pistoia at the expense of Massa-Carrara and Pisa. The comparison of location distribution of the firms interviewed and the local units as surveyed by ISTAT in 2005 in the same sectors, shows a picture of overall homogeneity, while the sample overweights the provinces of Massa-Carrara and Pisa mainly at the expense of provinces of Florence, Lucca and Arezzo.

²⁷ Overall the three measures covered 33 sectors. 12 of these are included in the table under the heading "Other" since they included just one firm.

Table 3.5 – Sectors of activity of the firms interviewed

Sectors	Absolute Value
Textile industries	9
Manufacture of paper and paper products	2
Manufacture of chemical products	4
Manufacture of articles in rubber and plastics	4
Manufacture of other products from the processing of non-metallic minerals	3
Manufacture of products in metal, excluding machinery and equipment	3
Manufacture of instruments for irradiation, electro medical and electrotherapeutic devices	3
Manufacture of optical instruments and photographic equipment	3
Manufacture of electrical appliances and non-electrical appliances for home domestic use	5
Manufacture of machinery and equipment n.e.c.	11
Manufacture of auto-vehicles	2
Manufacture of furniture	2
Other manufacturing industries	4
Repair, maintenance and installation of machinery and equipment	4
Collection, treatment and supply of water	4
Wholesale commerce, excluding auto vehicles and motorcycles	2
Production of software, IT consulting and related activities	8
Architectural and engineering studios; testing and technical analysis activities	2
Scientific research and development	6
Other professional, scientific and technical activities	2
Organisations and associations	5
Other	12
Total	100

Source: our processing of data from the direct survey

As regards the average number of workers in the firms interviewed, at 31.12.08 it was almost 35, which is relatively large²⁸. Furthermore, if we look at the distribution of firms by number of workers (see Table 3.6 below) we find that there is a concentration in the 10-19 group, although the other groups do not lag far behind. Comparing this result with what emerges from the analysis of the regional data (for which 94% of firms have fewer than 9 workers) one can immediately see that the measures involved firms that were significantly larger than those typical of the Tuscan productive context.

Also if we consider the economic dimension, we find that the measures favoured firms that were better structured in terms of turnover: in fact, the beneficiary firms recorded an average turnover of Euro 10 million, which is significantly higher than the regional average (roughly Euro 427,000).²⁹ Further confirmation of this emerges from the analysis in Table 3.7, which shows that about 63% of the firms record a turnover of more than Euro 2 million.

²⁸ Total employment in the interviewed firms at 31.12.2008 was 3,172 employees, accounting for 0.65% of employment in the industrial sector in Tuscany.

²⁹ ISTAT, profit and loss statements of firms year 2005.

Table 3.6 – Size of the interviewed firms at 31.12.08 in terms of workforce

Number of workers	Number of firms
1-9 workers	24
10-19 workers	28
20-49 workers	21
More than 50 workers	18
Total	91

Source: our processing of data from the direct survey

Valid cases 91 out of 100

Table 3.7 – Size of the interviewed firms at 31.12.08 in terms of turnover

Turnover (Euro)	Number of firms
0-50,000	0
50,000-100,000	0
100,000-250,000	3
250,000-500,000	9
500,000-1,000,000	7
1,000,000-2,000,000	12
2,000,000-5,000,000	21
5,000,000-10,000,000	15
10,000,000-20,000,000	8
over 20,000,000	12
Total	87

Source: our processing of data from the direct survey

Valid cases 87

Moreover, it is particularly interesting to note, given the subject of this evaluation, that 72% of the firms interviewed exported and this result is not exclusively due to Measure 1.4 for which the diffusion of international relationships was easily predictable. Also among the beneficiaries of Measure 1.8 there is a large quota of exporting firms (67%), while in the case of Measure 1.7, 18% of firms sold their products on international markets. These results just mentioned appear to be positive especially considering that at the regional level just 20% of firms are active in foreign markets.³⁰This could be also a consequence of the relatively larger size of the interviewed firms.

Lastly, it should be pointed out that 77% of the beneficiary firms systematically carried out R&D activities: this result shows that the measures involved a target of privileged firms,³¹ while considering the firms with more than 10 workers, only 28% of firms carry out R&D activities.

In summary, the location distribution of the beneficiaries and their productive specialisations are in line with the averages at a regional level. This result is coherent with the regional strategy, which is oriented towards sustaining and reinforcing the existing productive model. Vice versa, the SPD seems to have discriminated positively in favour of the more dynamic firms. Beneficiaries are larger in terms of workforce and turnover, with a high degree of openness to foreign markets and a greater propensity to carry out research and

³⁰ The quota was calculated considering as the numerator the Tuscan firms that have dealings abroad on the basis of the data provided by the Chamber of Commerce (SDOE website). The denominator was quantified with information from the Movimprese website.

³¹ ISTAT, "Imprese con più di 10 addetti che effettuano R&S in Italia", years 2004-2006.

development. This fact points to sustainability over time of the effects achieved thanks to the SPD. The direct survey enriches the analysis already carried out highlighting that the Region focussed on firms that already had a good potential.

Table 3.8 – Number of firms interviewed that systematically carry out R&D activities

	Absolute value
Yes	77
No	22
Total	99

Source: our processing of data from the direct survey

Valid cases 99

Having set the main characteristics of the interviewed firms, now we shall illustrate the impacts that the beneficiaries recorded between the situation prior to the intervention and at 31.12.08 in order to try to single out the effects produced by the project co-financed under the SPD framework. .

Table 3.9 below was built by looking at the overall number of workers involved by the beneficiary firms in the phase preceding the realisation of the project financed by the SPD and the workers present in those firms at 31.12.08. Growth in employment in absolute terms was 457 workers. To understand the importance of this growth we calculated the average annual rate of compound growth (by the weight of employment in the single firms compared to the total number of workers “prior to the intervention”). In addition, to overcome the inconvenience of an incomplete counterfactual sample, we calculated a similar rate based on ISTAT regional data on Tuscan industries which remained in business throughout the period considered, which in this case acts as a control sample.

Table 3.9 – Employment effects

Workers prior to the intervention	Workers at 31.12.08	Average annual rate of compound growth	Average annual rate of compound growth of Tuscan industries between 2002 and 2008
2,715	3,172	2.90%	2.09%

Source: our processing of data from the direct survey and regional data from ISTAT

Valid cases 91

Table 3.9 clearly shows that the net effects of the SPD in terms of contribution to employment growth are positive. However, the result was only modest (the difference between the situation with the intervention and the one without is, in fact, only 0.81%) and therefore the impulse provided by the SPD probably just reinforced the existing dynamics.

If, instead, we look at the increase in turnover (see Table 3.10) we find that the SPD seems to have provided a definite impulse to the economic performances of the firms. The beneficiaries, in fact, show an average annual increase in turnover that is 3.47% higher than the average for regional firms operating in the same sector over the same period³² in which the interventions financed by the SPD were realised.

³² The latest data available from the ISTAT website refer to 2007; the website does not yet offer any data for 2008.

Table 3.10 – Effects in terms of the economic performances of the firms

	Average annual compound rate of growth of the beneficiaries from before the intervention to 31.12.08	Average annual compound rate of growth between 2002 and 2007 in the industrial sector in Tuscany
Turnover	5.61%	2.14%

Source: our processing of data from the direct survey and regional data from ISTAT

Valid cases 87

In short, as is only to be expected given the nature of the measures subject to investigation, the SPD interventions were correlated to a significant impulse to the sales growth of the beneficiary firms without penalising employment. This result is comforting since, as shown in Chapter 2, the problems of growth in the region are partly attributable to the reduced levels of labour productivity, which, judging by the results of the direct survey, probably increased in the beneficiary firms. Considering that a reasonable proxy for the labour productivity measure is the turnover/workers ratio, since the net effect of the SPD was greater on turnover than on employment, it is likely that among the beneficiary firms labour productivity increased. Continuing the analysis of Measure 1.4, the impacts recorded were compared to two sub-groups of the counterfactual sample, or with the set of subjects that, even without the public incentive, nevertheless carried out the project for which they had applied for the resources of the SPD (made up of eleven firms) and with the group that, because of the lack of public resources, abandoned the idea (eight firms).

Table 3.11 – Employment effects of Measure 1.4 on the beneficiary and counterfactual firms

Total workers prior to the intervention in firms benefitting from Measure 1.4	Workers at 31.12.08 in firms benefitting from Measure 1.4	Average annual rate of compound growth of Measure 1.4 firms	Average annual rate of compound growth of Measure 1.4 counterfactual firms that realised interventions	Average annual rate of compound growth of Measure 1.4 counterfactual firms that did not realise interventions
1,230	1,503	4.00%	3.18%	2.43%

Source: our processing of data from the direct survey

Valid cases: beneficiaries = 37; counterfactual firms that realised interventions = 11; counterfactual firms that did not realise interventions = 8

The Table above shows that if we compare the annual employment dynamics between the firms benefitting from the intervention and those that make up the control sample that had, nevertheless, realised a project in preparation for internationalisation, one notes that the beneficiaries show a larger increase in workers, but with a modest differential (0.82%). If, on the other hand, we take into consideration increased employment in firms that did not pursue the interventions because they lacked the financial resources, the differential is more significant (1.57%).

In Table 3.12 below we analyse the dynamics of the three groups in terms of turnover.

Table 3.12 – Effects in terms of the economic performances of Measure 1.4 beneficiary and counterfactual firms

	Average annual compound rate of growth of the beneficiaries of Measure 1.4 from before the intervention to 31.12.08	Average annual compound rate of growth of Measure 1.4 counterfactual firms from before the intervention to 31.12.08	Average annual compound rate of growth of Measure 1.4 counterfactual firms that did not carry out the intervention because of lack of contributions from before 2006 (the year the public contribution was requested) to 31.12.08
Turnover	4.11%	2.91%	2.21%

Source: our processing of data from the direct survey

Valid cases: beneficiaries = 34; non-beneficiaries that realised interventions = 8; non-beneficiaries that didn't realise interventions = 6.

As one can see, in economic terms the beneficiary firms record faster annual growth rates than either the firms that had realised the intervention or those that hadn't.

In fact, the main effects of the measures surveyed as regards the economic performances and employment were confirmed. All the surveyed firms show (irrespective of whether they benefitted from incentives and from the implementation of the interventions) positive employment dynamics on which further impulses act as reinforcement. Instead, the growth in turnover benefitted from the possibility of using SPD resources. The significant net effects produced stem, firstly, from the fact that, as we pointed out above, in 34% of cases the interventions realised thanks to the public resources were part of a much wider project (which very probably the firms that did not benefit from the intervention were not able to realise) and thus positive synergetic effects came into play. Secondly, the smaller increase in turnover of firms that realised interventions without the support of public resources can be explained by the fact that, not being able to enjoy the incentives foreseen by the measures, the interventions realised were more modest. In fact, from the interpretation of some more qualitative elements that emerged from the survey, in a significant quota of cases the project realised required lower investments than originally requested of the SPD. In any case, the project realised was less complex than initially anticipated. In summary, the investigation carried out with the counterfactual sample, in spite of the small number of firms, suggests that a net effect achieved by the measures surveyed was to increase the competitiveness of the beneficiaries.

Box 2 - A beneficiary firm in Massa-Carrara: "Italian marbles worldwide"

The beneficiary, operating in the stone sector, obtained SPD financing to participate in fairs abroad (for example in London) and to carry out market research in the USA with the aim of exporting its products to this country. The project was destined to promote the firms' exports, to enhance its commercial positioning abroad, and to increase its penetration of European and extra-European markets (in particular the American market). The total cost of the intervention was Euro 150,000 and the private contribution was 70%. As a result of the intervention the firm improved its positioning on foreign markets, from being "competitive" to being "highly competitive": inasmuch as, thanks to the project co-financed by the SPD, the firm was able to access the US market more consistently and to considerably increase its sales of products in the USA.

Prior to the financed intervention the firm had six employees; at 31.12.08 it had nine employees. Two of the three new employees were hired due to the success achieved through the project financed by the SPD: in fact thanks to the market research carried out in the United States, the firm succeeded in increasing demand for its products on the US market, leading to the hiring of two more workers. According to the owner of the firm, without the incentive he may have been forced to lay some workers off. Prior to the intervention the firm's annual turnover was around Euro 2,200,000, while at 31.12.08 the turnover was Euro 3,000,000. Thus, the firm recorded an increase in both employment and turnover, due to a large extent to the project co-financed by SPD resources.

Looking at the export turnover, we find that also in this case there was an improvement facilitated by the SPD intervention: prior to the intervention exports accounted for 50% of total turnover, whereas after the intervention they accounted for 70%.

The incentives enabled the firm to improve the professional standing of its employees: thanks to the fairs that they attended they increased their knowledge of the stone sector; and thanks to the market research carried out with the aid of qualified third parties, the employees learned a lot more about the USA as an outlet market. Following the conclusion of the project the firm decided to continue to invest in marketing its products as a result of the previous incentive, with a further Euro 150,000.

Reference Action: 1.4.1 B "Activities to support the promotion of exports of quality production"

Year in which the project was carried out: 2005

The last type of information to which attention was paid was the firms' perception of the effects of the interventions realised as regards increased competitiveness on foreign markets.

Table 3.13 – Firms' perception of their own competitive level on their main foreign outlet market

	Prior to the aid	At 31.12.08
	Absolute value	Absolute value
Highly competitive	2	21
Competitive	38	38
Slightly competitive	23	10
Not competitive	12	6
Not involved in foreign trade	25	25
Total	100	100

Source: our processing of the results of telephone surveys

The results confirm again that the three types of intervention realised by the measures surveyed had a perceived positive influence on the competitiveness of the firms on international markets. As one can see from the previous Table, during the period examined the number of firms that felt they were highly competitive increased dramatically (from 2 to 21). In parallel, there were significantly fewer firms that felt they were only slightly or non competitive. Overall, 40% of the firms maintain that over the period considered there was an improvement in their position on international markets, while the others report stability. In particular, considering that results for Measure 1.4 roughly 49% of the beneficiaries felt that they had improved their position on foreign markets, whereas among the counterfactual firms (that had realised the intervention anyway) only 18% perceived an improvement. This positive fact shows that both the interventions aimed directly at promoting internationalisation (as is the case of Measure 1.4) and those actions destined to promote research and development (sustained by Measures 1.7 and 1.8) produce, at least perceived, positive effects.

Box 3 - A beneficiary firm in Sesto Fiorentino: "Design and realisation of an innovative line of instruments for the diagnostics of the control unit for automobiles"

The firm is active in the "manufacture of electrical and electronic equipment for automobiles and their motors" and it obtained SPD financing for the creation of training software in order to develop control units for automobiles that were capable of detecting errors. The project aimed to create a new product and the financing allowed for it to be developed in a focussed manner; the total cost of the intervention was Euro 103,000 (the total amount of SPD funding was Euro 36,050 and the private investment Euro 66,950).

Although the intervention reinforced existing dynamics within the firm as regards the foreign markets (the firm improved its positioning abroad from "not very competitive" to "competitive"), and increased its sales following the launch of the new product on markets where it was already present, it did not enable the firm to access new markets where it was not already present.

The great demand for the firm's new product created thanks to the project financed by the SPD nevertheless enabled the firm to increase the workforce by hiring eight new workers (taking employment from 23 to 31) and to bring its turnover up to Euro 5,773,000 at 31.12.08, from a level of Euro 3,538,000 in 2006.

Looking at exports, although they decreased in percentage terms after the intervention (from 60% in 2006 to 50% in 2008); in absolute value they increased from Euro 2,122,800 (in 2006) to Euro 2,886,500 (in 2008).

According to the interviewee, the financing accounted for 7% of company turnover and 1% of foreign sales.

The crucial role played by this project involves the R&D of the Florentine firm: this allowed for product innovation and for an increase both in the expenditure on R&D, which rose by 4%, and in the number of employees involved in R&D, which rose from five to seven.

The added value per worker increased by 10% thanks to the exchange of information with professionals from outside the firm. In addition, the aid to pre-competitiveness research obtained by the firm facilitated changes in internal organisation.

Action: 1.8.1 B "Aid to industrial research and pre-competitiveness"

Sub-Action: "Aid to pre-competitive research"

Years in which the project was carried out: 2006-2008

Although the selected measures specifically address two out of the five working hypotheses depicted in the conceptual model³³, and in particular the "Internationalisation and relocations" and "Innovation potential" hypotheses, in the section below we highlight the results recorded by the subjects interviewed regarding all the five dimensions identified as crucial for structural change. This has been possible thanks to the structure of the survey questionnaire which allowed to inquire explicitly into the five hypotheses.

Table 3.14 – Specific effects in relation to the five dimensions

"Did the incentives offered by the SPD help to qualify the workforce in your firm?"

	Measure 1.4		Measure 1.7		Measure 1.8		Total	
	Absolute value	Percentage	Absolute value	Percentage	Absolute value	Percentage	Absolute value	Percentage
Yes	21	51.22	8	72.73	35	72.92	64	64.00
No	20	48.78	3	27.27	13	27.08	36	36.00
Total	41	100.00	11	100.00	48	100.00	100	100.00

Source: our processing of the results of telephone surveys

With regard to Working Hypothesis 1 "Socio-economic change and human capital", as emerges quite clearly from the Table above, the interventions supported by the SPD brought about positive effects in terms of increasing the qualification of the workers in 64% of cases. This effect was even more decisive for measures that stimulated research and the transfer of technology. Thus, this fact shows that while the strategy of the SPD in favour of the qualification of human capital was of limited importance (given that this objective was mainly pursued by the ROP Objective 3 financed by the ESF) the measures analysed were capable of achieving significant effects in this area. Furthermore, only a modest share (5%) of the sample stated that when approaching international markets they encountered problems in terms of the qualification of the workers, while this problem was felt much more strongly by the counterfactual firms (27%). The result is similar in relation to the aspects linked to mobility that were considered problematic only by about 3% of the beneficiaries compared to again 27% of the counterfactual firms. With regard to aspects linked to the possible presence of rigidity in the labour market, we found that these did not constitute a problem for either the beneficiaries or the counterfactual firms.

³³ See the First Intermediate Report,

Moving on to the analysis of the “Regional specialisation” dimension, we analysed the type of effects witnessed by the beneficiaries as a result of the phenomenon of globalisation. The purpose of this was to verify the accuracy of the interpretative Working Hypothesis 2 according to which the difficulties encountered by the Region in international trade are attributable to the considerable presence of mature sectors and the weak propensity to innovate of the SMEs. Subsequently we proceeded to ask whether the SPD was capable of limiting the criticalities found.

Table 3.15 – What are the major negative effects deriving from international competition? (The question allowed for more than one reply)

	Measure 1.4	Measure 1.7	Measure 1.8	Total
	Percentage of total subjects that answered this question	Percentage of total subjects that answered this question	Percentage of total subjects that answered this question	Percentage of total subjects that answered this question
Competition related to the price of products	78.05	50.00	63.16	69.88
Competition related to the characteristics of products	26.83	50.00	28.95	28.92
Other	9.76	25.00	13.16	13.25

Source: our processing of the results of telephone surveys

Valid cases 83

The Table above confirms that the Tuscan productive specialisation, mainly characterised by traditional production, was strongly affected by international competition. The problem most felt by the beneficiary firms was the difficulty in facing price competition (mainly by competitors from the emerging countries). 78% of the firms interviewed declared that they suffered from international competition regarding the price of products, whereas the quota of firms that encountered difficulties deriving from the poor qualification of their products was much smaller (27%). As regards the role played by the interventions (see Table 3.16 below), in 75% of cases it was recognised that the SPD had been capable of dealing with the existing problems, validating therefore the Working Hypothesis concerned. As regards the intensity of the contribution made, only in 25% of cases was it considered significant.

Table 3.16 – Has the SPD contributed to limiting the criticalities encountered by the firms on the international markets?

	Measure 1.4		Measure 1.7		Measure 1.8		Total	
	Absolute value	Percentage	Absolute value	Percentage	Absolute value	Percentage	Absolute value	Percentage
Very much	8	20.51	0	0.00	9	25.71	17	21.79
Quite a lot	1	2.56	0	0.00	2	5.72	3	3.85
Little	22	56.42	1	25.00	15	42.86	38	48.72
Not at all	8	20.51	3	75.00	9	25.71	20	25.64
Total	39	100.00	4	100.00	35	100.00	78	100.00

Source: our processing of the results of telephone surveys

Valid cases 78

Concerning the effects of the SPD as regards the “Production system” dimension, the survey aimed to understand whether, following the international competition, the firms reacted by kick-starting profitable relationships and whether they responded by implementing opportune organisational modifications (Working Hypothesis n. 3). The survey confirms the scarce diffusion or perception at a regional level of the network approach: in fact, just 18% of those interviewed stated that their productive system was part of an aggregation system (filières, districts and clusters). At the same time the responses gathered provide evidence that belonging to a network plays an important role for international competitiveness. In fact, 43% of firms that are a part of a system feel that that factor played a very important role in their dealings with international markets. This can be seen as a first validation of the hypothesis tested.

Still on the subject of testing the “Production system” hypothesis but looking at the organisational modifications adopted by the firms, one negative element should be pointed out. In 82% of cases no organisational modifications were introduced in preparation for facilitating international activities. In this sense the beneficiary firms of Measure 1.8, 23% of whom adopted modifications, show greater capacity for adapting to the organisational needs necessary to tackle international markets. Against the poor reactivity of the firms to change their organisational logic according to the needs imposed by the internationalisation processes, it should be stressed that in cases where this happened, the contribution of the SPD was considered to be useful by all the firms and in the majority of cases the interviewees felt that this facilitated the changes underway. These effects were partly unexpected given that, as we mentioned previously, no particular strategic emphasis was evident in the SPD in this sense except, the aggregation aspect preferred by Measure 1.7.

Looking at the aspects linked to the interpretation of the organisational modifications, such as those resulting from the regional innovative potential (Working Hypothesis n.4), it should be noted that the beneficiary firms interviewed show respectable results in that sense: in 81% of cases the firms had introduced forms of innovation in the last three years. This result may have been foreseeable for the beneficiaries of Measures 1.7 and 1.8 (aiming to promote the transfer of technology and the implementation of R&D projects, respectively) but it certainly wasn't a foregone conclusion in the case of Measure 1.4 where 58% of firms show a high propensity to innovate.

Table 3.17 – Has your firm introduced innovations in the last three years?

	Measure 1.4		Measure 1.7		Measure 1.8		Total	
	Absolute value	Percentage	Absolute value	Percentage	Absolute value	Percentage	Absolute value	Percentage
Yes	24	58.54	8	88.89	48	100.00	80	81.63
No	17	41.46	1	11.11	0	0.00	18	18.37
Total	41	100.00	9	100.00	48	100.00	98	100.00

Source: our processing of the results of telephone surveys

Valid cases 98

As far as the types of innovation introduced are concerned, and looking at the overall results for the beneficiaries of the three measures (see Table 3.18 below), we can see that the most common innovations introduced (58%) were those related to processes or organisation. Considering the different measures it should be pointed out that for interventions falling under Measures 1.4 and 1.8 there was a penchant for innovations in products, while for Measure 1.7 the main type of innovations were organisational.

If we look at the counterfactual results for Measure 1.4, in the 19 cases taken the non-beneficiaries introduced innovations (mainly in the products) in 42% of cases, compared to 58% of the beneficiaries.

Table 3.18 – Types of innovation introduced by the firms interviewed (the question allowed for more than one reply)

	Measure 1.4	Measure 1.7	Measure 1.8	Total
	Percentage			
Process	29.27	33.33	41.67	35.71
Product	46.34	22.22	75.00	58.16
Organisations	39.02	66.67	16.67	30.61

Source: our processing of the results of telephone surveys

Valid cases 98

Furthermore, the survey carried out confirms the importance of R&D for improving dealings on foreign markets: in fact, as can be seen in the Table that follows, 42% of firms feel that R&D plays a crucial role in promoting internationalisation and 32% of them felt that carrying out research activities was important to increase their competitive position abroad. Again, this can be interpreted as a preliminary validation of Working Hypothesis 4.

Table 3.19 – What role has R&D played in your dealings with the foreign markets?

	Measure 1.4	Measure 1.7	Measure 1.8	Total absolute value	Total Percentage
Crucial	12	2	27	41	41.84
Important	17	2	13	32	32.65
Marginal	12	1	6	19	19.39
None	0	4	2	6	6.12
Total	41	9	48	98	100.00

Source: our processing of the results of telephone surveys

Valid cases 98

Going on to analyse the contribution made by the SPD to the development of R&D activities, the firms seem to have appreciated the support received: looking at the Table below we can see that in 67% of cases the firms felt that the role of the SPD was important.

Table 3.20 – What was the role of the SPD in incentivising R&D and innovation?

	Measure 1.4	Measure 1.7	Measure 1.8	Total	Total percentage
Crucial	2	4	26	32	32,65
Important	18	3	13	34	34,69
Marginal	15	2	6	23	23,47
None	6	0	3	9	9,18
Total	41	9	48	98	100,00

Source: our processing of the results of telephone surveys

Valid cases 98

Lastly, the survey confirms the scant use of forms of financial engineering (risk capital, participatory loans, etc.) on the part of the SMEs: the Table below shows that of the 100 firms interviewed only four had made use of such arrangements.

Table 3.21 – Has your firm made us of any form of financial engineering?

	Measure 1.4		Measure 1.7		Measure 1.8		Total	
	Absolute value	Percentage	Absolute value	Percentage	Absolute value	Percentage	Absolute value	Percentage
Yes	2	4.88	0	0.00	2	4.17	4	4.00
No	39	95.12	11	100.00	46	95.83	96	96.00
Total	41	100.00	11	100.00	48	100.00	100	100.00

Source: our processing of the results of telephone surveys

Finally, in relation to the hypothesis 5 “Internalisation and relocation”, among the firms interviewed only four firms have made or are making plans to relocate, while 84 have never considered this possibility (Table 3.22).

Table 3.22 – Has your firm ever considered the possibility of relocating its facilities abroad?

	Measure 1.4		Measure 1.7		Measure 1.8		Total	
Yes, relocation has already occurred or is underway	2	4.88	1	9.09	1	2.08	4	4.00
Yes, and we’ll be doing so in the near future (possibility of relocating facilities abroad in the short-term)	1	2.44	0	0.00	2	4.17	3	3.00
The firm doesn’t feel that now is the most appropriate time to relocate its facilities	6	14.63	0	0.00	3	6.25	9	9.00
The firm has never considered the possibility	32	78.05	10	90.91	42	87.50	84	84.00
Other	0	0.00	0	0.00	0	0.00	0	0.00
Total	41	100.00	11	100.00	48	100.00	100	100.00

Source: our processing of the results of telephone surveys

3.2 Assessment of the effects on institutional capacity and policy learning

In this section we examine further qualitative effects of institutional capacity and policy learning within the regional public administration.

These effects can be classified into two categories. The first is the specific result in terms of Community added value, which is that effect directly linked to the precise characteristics of the measures being studied. The second includes the transversal contributions, which, although provided directly by the measures studied, do not depend on their peculiarities but are the result of the general approaches involved in the management of the SPD as a whole.

Among the specific effects, we firstly draw attention to those related to the capacity of the selected measures (and particularly Measure 1.7) to make a positive contribution to the realisation of collaborative experiences, meaning cooperation between firms and research centres. In this sense, looking at the Update to the Intermediate Evaluation Report it is possible to say that the SPD experience succeeded in facilitating the creation of stable and lasting contacts between firms and the world of research, including the universities. In

some cases the collaboration between the different actors involved in the implementation of the financed projects continued also after the projects were concluded. However, it should be pointed out that, from the analysis carried out at that time and with reference to Measure 1.7, there was nothing to suggest that these relations would evolve into stipulating conventions and stable agreements. Still on the subject of the capacity expressed by the measures in terms of incentive to advance a networking approach, it should be stressed that the experience gained through Measure 1.7 in relation to interventions carried out in an aggregative form was a crucial driver in favour of the *modus operandi* that was widely applied in the ROP ERDF 2007-2013. In this sphere, in fact, the approach identified for the realisation of the interventions destined to advance research and innovation shows a clear priority in favour of the implementation of research projects and those destined to introduce innovations, carried out through forms of partnership. Considering the six types of activities contemplated by Axis I “Research, development, technological transfer, innovation and entrepreneurship”, it should be stressed that for two of these the admissibility of the incentives foreseen is limited to the beneficiaries in an aggregate form (consortia, temporary associations). Furthermore, among the selection criteria identified for choosing which projects deserved assistance, in both cases criteria aiming to enhance the quality of the groupings were included (presence of SMEs and research centres, diversification in the size of the participating firms, etc.). With regard to the other four activities included in Axis I, the great attention paid to networks of firms should be highlighted. Although partnership was not the only form envisaged to be able to access the benefits expected from the ROP, considerable importance was attributed to the clustering through the inclusion of specific selection criteria aimed at favouring projects presented by groups of actors (firms and research institutes).

Again in the area of specific effects, the qualitative survey carried out showed that the measures selected contributed to increasing the knowledge of Community policies. In this sense, as regards the initiatives promoted by the implementation of the Communication Plan, events were held to promote the results obtained by the selected measures (part of the exhibition entitled “A European Tuscany: dynamism and innovation en route to 2013”). This has been done through spaces dedicated to creative and innovative firms that, thanks to the contributions from the SPD, carried out industrial research and created prototypes in various sectors: microelectronics, optoelectronics, domotics, sensors, nanotechnologies, biomedical and environmental technologies, and information and communication technologies. Moreover, it is worth remembering the case history (a research project into new technologies for purifying waste industrial water and for studying atmospheric pollution) related to Action 1.7.2, promoted during 2005, through the ‘accounts’ of informed observers and diffused via the radio and the press

Lastly, moving on to examine the effects produced by the measures being surveyed in relation to the global approach pursued by the SPD (that is, results that were achieved thanks to the contribution of all the measures included in the Programme), some further effects should be highlighted concerning the SPD as a whole. These are aspects regarding the diffusion of Community procedures in the field of regional programming and, in particular, the use of monitoring and evaluation processes. With regard to the adoption of a monitoring system, the methods used for Community programming had an influence on the operational features linked to the ordinary policy. In the current programming period a monitoring system for all regional policies is being organised that will allow for the supervision, not only of the procedural and financial aspects (already monitored since the end of the 1990s), but also of the results and the physical realisations obtained thanks to the interventions financed by regional, national and Community resources is being organised. In fact, in this area, after the experience of the SPD 2000-2006, the Regional Administration

reinforced the orientation expressed by Regional Law no. 49/99 (art. 10) indicating that all the instruments of a multi-year duration and of a sectoral and inter-sectoral character aimed at implementing the intervention strategies identified by the Regional Development Programme (RDP), and specified by the Documents of Economic and Financial Programming (DEFP), should be subjected to annual monitoring and evaluation of the state of advancement (see art. 10 bis). This means all regional programmes lasting several years are affected. On the other hand, with regard to the evaluation process, it came to light that the regional regulation of 2006 introduced the concept that the results of the policies of regional plans and programmes should be subject to evaluation. In other words, the plans and programmes must give the objectives, the actions, the resources, the expected results and the relative efficiency and effectiveness indicators - and the evaluation of these - must be of an integrated type. In particular, it must take into account the environmental, territorial, social and economic aspects and the effects on human health and on the differences in gender. Thus, for the 2007-13 programming period, since the adoption of a single regional policy and a single evaluation plan are foreseen (a rule coming from the National Strategic Reference Framework), a document was prepared that described the methods of carrying out the *in itinere* and *ex-post* evaluations of all the regional plans and programmes. Finally, as regards the subjects delegated with the task of conducting the evaluation, the Tuscany Region entrusted these activities to the NURV (Nucleus of Regional Evaluation) possibly assisted by the IRPET (Tuscany Regional Institute for Economic Programming).

4. Conclusions: key findings and main message

In 1985 the Tuscany Region interrupted its positive growth trend. Exports, which had been the most important and dynamic component of regional demand, declined in importance. The difficulties on foreign markets led to considerable structural changes in the regional economic system. We are referring to, first, the loss in weight of the industrial sector, which over the period 2000-2005 recorded a sharper decline than the national average; second, the shift in importance of the productive sectors typical of the Tuscan model: the fashion industry (textiles, clothing, leather hides and footwear). In contrast, the mechanical engineering sector made an increasingly more significant contribution and in 2003 became the regional leader. Among the various aspects that contributed to the structural changes just described, there are the low labour productivity (particularly worrying over the period 2000-2006) and the scarce propensity of the regional SMEs to innovation and R&D. The factors belonging to the five approaches considered crucial in explaining the structural changes that influenced the above-mentioned are related to the low qualification of part of the human capital involved in declining sectors that include high proportions of foreign workers, the regional specialisation originally featuring a predominance of traditional production carried out by firms that were small and poorly structured and their consequent weak propensity to adopt innovations and carry out R&D activities.

In this context Region programming intervened in the period 1994-1999 and in 2000-2006, via both the policies financed by ordinary resources (which were included in the Regional Development Plans and related Sectoral Plans), and those derived from the Structural Funds. In particular, the current evaluation of the SPD 2000-2006 showed that the socio-economic context analysis carried out in 2001 paid considerable attention to structural change. The evaluation also verified that the choice of strategic options and aims of the SPD were coherent with the problems of the productive context, with particular reference to those linked to questions of internationalisation. The guiding principles adopted for the implementation of the SPD were those of “systemic approach” and of “spreading innovation in order to promote sustainable development”. The analysis of coherence between the programming and operational choices led to the conclusion that the operational aspects closely followed the strategic choices. In fact, the types of operations put into place were directed at reinforcing and consolidating the Tuscan productive model through the provision of support to material and immaterial investments of the SMEs and through the strengthening of the endowment of regional economic infrastructures; promoting the spread of innovation (also environmental), the transfer of technology and R&D; supporting the internationalisation of SMEs through support for the purchase of qualified services and the implementation of international marketing interventions. As regards the importance that the region paid to the solution of the threats linked to structural change, this was far more important inasmuch as 70% of the total budget for the SPD Objective 2 was destined for the set of measures directly linked to deal with globalisation. Instead, as regards the emphasis given to the different methods of intervention, the region showed a preference for those supporting the Tuscan productive model, to which it destined roughly 56% of the resources. Along with this priority, another aim that was favoured was the diffusion of innovation to which it allocated 9% of the budget. Lastly, as far as the objective of internationalisation is concerned (for which the range of admissible interventions was smaller than the other types of operations) the resources assigned were around 4%.

Key findings

The study of the measures the national expert considered to be most interesting to verify the contribution of the SPD to structural changes (Measure 1.4 “Activities to support the promotion of exports of quality products”, Measure 1.7 “Networks for the transfer of technology” and Measure 1.8 “Aid for industrial research and pre-competitiveness”) highlighted the following:

1. *Considering the overall effects achieved by the three measures it is possible to state that the impacts produced are in line with the problems that emerged during the context analysis, since they contribute to limiting the weakness of the modest levels of labour productivity.*

In fact, against the effects produced in terms of reinforcing existing positive employment dynamics among Tuscan firms, one can see a more significant impact in terms of increased company turnover (the beneficiaries recorded average annual growth rates of 5.61%, while that for the control sample was roughly 2.14%). The lines of intervention surveyed showed they were capable of increasing labour productivity (of which the turnover/workers ratio is a reasonable proxy) of the beneficiary firms without penalising employment dynamics.

2. *Respectable results were evident as regards the effects perceived by the firms in terms of increasing their competitiveness on foreign markets.*

In fact, 40% of the firms surveyed felt that they had improved their competitive position abroad over the period considered by the evaluation. Looking more closely at that result for Measure 1.4 we see that roughly 49% of the beneficiaries claim to have improved their position on foreign markets, while among the counterfactual firms only 18% perceived any improvement.

3. *Important targets were reached in terms of qualification of human capital (as an indirect effect of the lines of intervention implemented) and the adoption of innovations on the part of the beneficiary SMEs.*

In this regard 64% of the interviewees declared that the incentives offered by the SPD enabled them to qualify their workers (and this figure rises to 72% for actions oriented towards promoting the transfer of technology and R&D). Considering the strengthening of their innovative capacity, it appeared that 81% of the firms interviewed had introduced innovations mainly oriented to their products.

4. *It is highly probable that the results illustrated above will be sustainable.*

The beneficiary firms show greater solidity (they are larger than the regional average in terms of workforce and turnover) and dynamism (among the beneficiaries the propensity to export and innovate is higher than the regional average). Thus they seem capable of ensuring that the effects already achieved will continue over time.

Main message

The assessment of the effects attained by the interventions financed under the selected ERDF measures was instrumental not only to highlight the contribution of the SPD to structural change in the region, but also to test the working hypotheses depicted in the conceptual model. Even if in a preliminary way, the analysis of the effects achieved along the five dimensions considered as relevant for structural change allowed to validate the above mentioned hypotheses, and in particular hypotheses 2, 3 and 4, regarding, respectively, “Regional specialisation”, “Production system” and “Innovation potential”.

- As discussed in the First Intermediate Report, Regional specialisation is based on the endogenous geographical advantage of a region and could be beneficial for regional development, especially in sectors where supply-side and demand-side linkages are important. Industrial agglomeration economies are usually a comparative advantage. However, some Objective 2 regions, such as Tuscany, may be heavily specialised in low-tech industries, which are more vulnerable to international competition. Specialisation in these industries can, therefore, turn from an advantage into a threat for regional development. The survey conducted for the Tuscany case study has tested, and verified, this hypothesis, confirming that the Tuscan productive specialisation was strongly affected by international competition since it is mainly characterised by traditional production. In particular, the main problem felt by the beneficiary was the difficulty in facing price competition by competitors from the low-cost countries. A large majority of firms declared to be suffering from international competition regarding the price rather than the characteristics of products. It was also recognized by 75% of the universe that the interventions co-financed under SPD had somehow contributed in limiting the criticalities encountered by the firms on the international market.
- “Production system” hypothesis argue that the regional production system is embedded in the regional firm structure and the lack of strong local supply-chain linkages and of intra-industry collaborative modes between large firms and SMEs may hinder the speed of new technology adoption and the spread of flexible modes of production. Thus, in some Objective 2 areas structural change may not be expected to take the form of a radical reshuffling of the industrial pattern, but may occur within the existing industry specialisation appearing as a change of production systems accompanied by technological upgrading. Within this context, the survey also aimed to understand whether the firms reacted by starting profitable relationships and by implementing opportune organisational modifications in order to face the increased international competition. The responses gathered provided evidence that belonging to a network is felt to play an important role for international competitiveness and the firms that are a part of a system consider clusters as an advantage in their dealings with international markets.
- According to hypothesis 4 “Innovation potential”, the ability of the regional firms to develop and innovate is an essential driver for structural change and adaptation to globalisation. Barriers to innovation may be determined by a lack of absorptive capacity by local firms, which may also suffer from missing innovation drivers on the demand side. The opinions gathered through the survey were in line with the core message of the hypothesis. In particular, they stressed the importance of R&D for improving dealings on foreign markets. The majority of firms, in fact, declared that carrying out research

activities is fundamental for promoting internationalisation and increasing competitiveness on foreign markets.

In conclusion, the Tuscany case allows to validate the “Regional specialisation”, “Productive system” and “Innovation potential” hypotheses.

5. Annexes

5.1 Bibliographical references

- Banca d'Italia, L'economia della Toscana nell'anno 2006, Banca d'Italia Firenze 2007
- Banca d'Italia, Note sull'andamento dell'economia della Toscana nel 2005, Banca d'Italia Firenze 2006
- Becattini, G. (1978) The Development of Light Industry in Tuscany: An Interpretation, Economic Notes, No. 2/3, pp. 107-123
- Becattini, G. (2000) Il bruco e la farfalla: Prato nel mondo che cambia, 1945-1993, Le Monnier, Florence
- Camera di commercio, sezione SDOE
- Cavalieri, A. (1999) (ed.) Toscana e toscane. Percorsi locali e identità regionale nello sviluppo economico, Franco Angeli, Milan
- Eurostat
- Infocamere, sezione Movimprese
- Istat: Censimento dell'industria e dei servizi, anno 2001; Classificazione delle attività economiche ATECO 2007; Conti economici delle imprese, anno 2005; ASIA-Unità locali di imprese, 2006; Imprese con più di 10 addetti che effettuano R&S in Italia, anni 2004-2006
- Regione Toscana, Complemento di programmazione (dalla versione 08 dell'Aprile 2004 alla versione 19 dell'Ottobre 2008)
- Regione Toscana, Doc. U.P. Ob.2 anni 2000-2006, Luglio 2001
- Regione Toscana, Doc.U.P. Ob. 2 anni 2000-2006, Luglio 2008
- Regione Toscana, Doc.U.P. Ob. 2 anni 2000-2006, Maggio 2004
- Regione Toscana, Programma Operativo Regionale "Competitività Regionale e Occupazione" FESR Toscana 2007-2013, Luglio 2007
- Regione Toscana, Programma Regionale di Sviluppo 2003-2005
- Regione Toscana, Rapporto Annuale di Esecuzione 2004
- Regione Toscana, Rapporto Annuale di Esecuzione 2005
- Regione Toscana, Rapporto Annuale di Esecuzione 2006
- Regione Toscana, Rapporto Annuale di Esecuzione 2007
- Regione Toscana, Rapporto di Valutazione Finale del Programma Operativo Regione Toscana Ob. 3 2000-2006
- Unioncamere: Metodologie per l'individuazione dei settori high tech, Ottobre 200
- Varaldo, R., N. Bellini e A. Bonaccorsi (1997), Tendenze e vie di cambiamento dell'industria toscana, Franco Angeli, Milan

5.2 List of persons interviewed

- Albino Caporale, General Manager, General directorate for economic development
- Daniela Doveri, functionary for programming and economic control, management of Community programmes for regional development
- Angelita Luciani, functionary for programming and evaluation of public policies, Integrated and inter-sectorial programmes sector
- Elisabetta Malenotti, functionary for programming and economic control, Regional innovation and transfer of technology programmes
- Donatella Cicali, juridical-administrative functionary, Handicrafts and support policies for firms sector
- Monica Colom, Marketing manager, Economic cooperation and calls for tender of Toscana Promozione