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STRUCTURAL FUNDS AND REGIONAL CONVERGENCE IN ITALY

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Structural Funds and Regional Convergence in Italy

Abstract

The lack of convergence across Italian Regions has been widely cited as an incontrovertible proof of failure of Cohesion policy. This paper aims to provide a twofold contribution to the debate on the effectiveness of Cohesion policies in Italy. Firstly, we provide an up-to-date view of convergence across Italian regions by focussing on the period covered by regional development policies carried out by European Community. The analysis reveals that poorer regions in Italy have indeed caught up with the richer regions over the period 1994-2004 and much of this convergence process has occurred towards region-specific steady states. Secondly, we consider Structural Funds as a conditioning variable in the convergence equation by using recently available data on expenditure implemented during the Second and the Third Planning Period. Our panel estimates point to a positive and significant impact of the Structural Funds on regional convergence in Italy over the period 1994-2004. When the Structural Funds are considered individually we find that the expenditure allocated by ERDF has medium term positive and significant returns while support to agriculture has short-term positive effects on growth which wane quickly. Finally, our results cast some doubt both on the (i) distributive efficiency of resources allocated by ESF and (ii) on the effectiveness of the intervention policies in support to education, Human capital and employment.

1. Introduction

The Single European Act ascribes to the Cohesion Policy the aim at achieving "greater economic and social cohesion and reducing disparities within the European Union (EU, 1997)". The need for European Regional development policies rely upon the view that market mechanisms cannot induce economic convergence but rather exacerbate existing inequalities. Accordingly, European regional support has grown in parallel with European integration. As a matter of fact, originally European Union was constituted by very homogeneous member states; the only exception was represented by Southern Italian Regions: in order to help these historically lagging regions to fill the gap with the rest of EU, a special European support was provided in form of dispensations to the general regulation. As the number of member states increased also territorial disparities among different parts of EU increased and new dispensations were addressed in support to weaker regions. The decision to implement the Single Market further boosts European Regional development policies and a radical reform, implemented in 1989[1], assigns to regional policy the precious competence to cushion the burdens of profound restructuring in the weaker economies following the creation of the Single Market. Since then, Cohesion support has become a precondition for European Integration. So far, two Programming Periods have been implemented (1989-93 and 1994-99) and a third one (2000-2006) is finishing straight. With the Cohesion Policies, which include the Structural Funds and the Cohesion Fund[2], the European Community finances programs in regions that lag behind in income per capita, over-rely on industries in decline, or face high unemployment rates. The funding strategy aims "to support those actions that are most likely to contribute to the reduction of the economic, social and territorial disparities" (European Commission, 2001) and mainly translate into programs intent to enhance infrastructure, restructure industries or modernise education. The financial resources involved are also relevant; after the Common Agricultural Policy (CAP), the Cohesion Policy represents the second largest policy area in the EU budget: for instance,

[1] See European Commission (1991) , (1994)

[2] The **Cohesion Fund** is an additional financing instrument in favour of member states with a per capita income of less than 90% of the Union average; this are Spain, Portugal, Ireland and Greece.

for period 2000-2006 this amounts to more than 40% of the EU budget and 0.35% of EU GDP.

Unfortunately, despite the amount of resources allocated over the three Planning Periods, striking regional economic and social imbalances persist within European Union. If member states are getting closer, most of lagging regions within countries are still characterised by unacceptable levels of social and economic indicators. The performance of Southern Italian regions has often been cited as an emblematic example. Table 1 presents some economic and social indicators for the Italian regions. Firstly we observe that, from 1996 to 2001, Southern regions still exhibit level of per capita income well below the European average (from 59% for Calabria to 90% for Abruzzo). This confirms how the Italian *Mezzogiorno* is also representative of an other worrying signal: the lack of upward mobility of assisted regions. In fact, only Abruzzo in Southern Italy has managed to come out of Objective 1 at the end of 1997 while Molise is being phased out and will lose its support at the end of 2006. Moreover, differently from Northern regions, the ranking (in terms of per capita GDP) among Southern regions keeps unchanged from 1996 to 2001. In 2002, the structure of such economies still presents an higher share of employed in Agriculture (10% on average) than other regions (4% on average). During the same year, while Northern regions exhibit on average an unemployment rate around 5%, values for Southern regions present a higher dispersion, ranking from 6% for Abruzzo to 25% in Calabria. Significant territorial disparities are also evident with regards to other indicators of market labour. On average, long period unemployment rate is around 36% in Northern regions compared with 63% in the South, female unemployment rate are well above 20% in the Southern regions (and around 14% in the others). A more worrying signal comes from young unemployment rates: on average Northern regions record a rate around 14% while the same indicator in the South is around 44%[3]. Finally, despite such relevant economic and social territorial disparities, it is worthwhile to notice that, in 2002, regions only slightly differ with respect to the level of education: on average the percentage of population with low levels of education is about 59% in the South and 54% in the North.

[3] Among regions, Calabria exhibits the worse performance for most these indicators.

Given the amount of financial resources involved and the persistence of territorial disparities, it is natural to raise the question on whether European Cohesion policies are effective in reducing regional welfare differences. On the whole, the Cohesion Policy has been criticised on very different grounds. For example, Boldrin and Canova (2001) argue that the cohesion support reveals a somehow inconsistent position by the European Community (henceforth EC) on labour mobility. From one hand, the EC claims that, even if European integration, via agglomeration effects, could lead to divergence between per capita regional income, this would not be a problem if labour was free to move from poor to rich regions[4]. From one other hand, by allocating cohesion support to compensate immobile workers living in the poor regions, however, the EC is implicitly accepting that labour should be immobile. Other authors[5] cast some doubts on the alleged redistributive efficiency of Cohesion Policy. In fact, although poor regions receive relatively much support, rich regions also receive cohesion support. The result is that, at a national level, each member state receives at least some financial resources! This would tend to mitigate the redistributive impact of cohesion policy. As Ederveen et others (2003) argue, a significant part of cohesion support is not "territorial" but "thematic" and accordingly, funding is not necessary allocated to the poorest regions. Moreover, not only all regions appear to be successful in drawing down at least some funds but this process is dominated by a sort of inertia: once a region has received funds in the past is more likely to receive funds in the future.

Three different types of research[6] dominate the empirical literature on the effectiveness of Cohesion Policy: (i) case studies of individual or small groups of projects, (ii) simulations of the macro economic impact with large computable general equilibrium models and (iii) econometric analyses. In general, no consistent picture of the impact of cohesion policies emerges from this empirical literature. As Ederveen at others (2003) observe, model simulations tend to yield more positive conclusions than others. In model simulations cohesion policy directly translates into productive public capital, whereas econometric studies implicitly take into account other factors that may hamper the

[4] See also Puga (2002) and Cuadrado-Roura (2001)

5 See De la Fuente and Doménech (2001) among others

[6] For a comprehensive review of case studies, simulation models and econometric estimates, see Ederveen et al. (2003).

effectiveness of cohesion policy. The general conclusion is that, while the findings of model simulations are to be interpreted as the potential impact, the findings of econometric studies represent the actual impact. As compared with the increasing number of empirical studies carried out on the European regions, the empirical literature focussing on the effectiveness of Cohesion Policy on Italian regions is relatively scarce and is mostly represented by studies on Objective 1 regions[7].

Although econometric studies have largely focussed on the debate of convergence in the EU, the role of cohesion policies in affecting convergence is still a vexed question[8]: some econometric analyses find that the funds have a negligible or even a negative impact on convergence, while others observe a significant positive impact. Perhaps we should not be surprise to notice that, the most pessimist view coincides with the early studies focussing on the first Planning Period (1989-93)[9]. For instance, Boldrin and Canova (2001) among others, conclude that regional and structural policies serve mostly a redistributive purpose and are unable in fostering economic growth. Indeed, in recent studies the most pessimistic view has slightly given space to a prudent optimism. Garcia Solanes and Maria-Dolores (2001), by assessing the impact of Structural Funds on EU regions during the programming periods 1989-93 and 1994-99 find that, the financial assistance provided by Structural Funds has a clearly positive impact on regional convergence. Moreover, only recent studies can boast of reliable disaggregated data on Regional commitments allocated by intervention strategy. Among the others, Rodriguez-Pose and Fratesi (2004), working on Objective 1 regions point out that, despite the concentration of resources in infrastructure, the returns to commitment on these axes are not significant while investment in education and human capital exhibits a positive effect. Differently, by considering the whole set of European regions, Garcia Solanes and Maria-Dolores (2001) conclude that the biggest impact on growth accrues from expenditure allocated to sustain and renew agriculture sector as well as investment in Infrastructure.

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[7] For instance, Percoco (2005), by using a supply-side model estimated with a panel of regional data over the period 1970-94, finds a high volatility in the level of growth rates induced by Structural Funds expenditure allocated in Objective 1 regions over the period 1994-99.

[8] On this issue see also Cheshire and Magrini (2000) among others

[9] On potential diverging factors occurring during this period, see Cappelen, Castellaci, Fagerberg, Verspagen (2001)

The lack of convergence across Italian regions has often been interpreted as a strong evidence of failure for Cohesion policy. As we have already emphasised, most relevant empirical literature on this issue has focussed on the First Planning Period (1989-93) which has certainly represented the more hesitant phase in the evolution of Cohesion support. Moreover, the chronic delay in the expenditure that so heavily has characterised the performance of Structural Funds in Italy (under the First as much as the Second Planning Period), has ended up postponing the real impact of cohesion support on time. In this prospect, any empirical assessment of Structural Funds may be in a sense "premature". In our work we aim to provide an up-to-date contribution to this "debate in progress" on the effectiveness of Cohesion policies in Italy by using a recently available data set on payments disaggregated by Structural Funds. In particular, once a correspondence between intervention strategy and financier Fund has been established, we wish to apply the analysis carried out on Structural Funds to assess which intervention strategy, if any, has had a positive impact on convergence across Italian regions.

The paper is organized as follows. Section 2 briefly reviews the evolution, the rationale, the strategy and the instruments which characterise the implementation of Cohesion Policies in Italy. In section 3 we briefly review some theoretical foundations of regional convergence and we assess the convergence hypothesis in Italy for period 1980-2004. In section 4 we analyse empirically the impact of EU Structural Funds on convergence in Italy. In section 5 we conclude.

2. Cohesion Policies in Italy: rationale, strategy and instruments

The financial resources allocated by Cohesion Policies in Italy have steadily increased since the reform in 1989. Starting from a total amount equal to 0,3% of Italian GDP for period 1989-93, Italy was the second beneficiary (after Spain) over the period 1994-99 and takes up more than 15% of total EU resources over the period running from 2000-6[10]. Due to lacking available data at regional level for payments allocated over the period 1989-93, in what follows we will focus entirely on the Second and the Third Planning Program. The Cohesion Policies for Italy coincide

[10] See European Commission (1999), (2000)

with Structural Funds[11] which cover a variety of different programmes. They are:

1. The **European Regional Development Fund (ERDF)** primarily finances investment in infrastructure and employment, initiatives of small-scale business; it should generate growth in capital stock, infrastructure, SME firms among others;

2. The **European Social Fund (ESF)** is designed for vocational training and improvements in the education systems, it supports programs that aid the integration of the unemployed or otherwise disadvantaged groups in the labour market; it should generate mobility of labour, rising employment of young people and women, growth in educational attainment and an increase in R&D;

3. The **Guidance Section of the European Agricultural Guidance and Guarantee Fund (EAGGF)** is the oldest fund. Its origins date back to 1962 as a part of the Common Agriculture Policy (CAP). It supports farmers and finances programs for the development of rural areas; it should generate growth in farming employment, productivity and income;

4. The **Financial Instrument for Fisheries Guidance (FIFG)**, established in 1994, is a special fund which aims at restructuring and modernising the fishing industry.

We could roughly assign a correspondent strategy to each financier Fund according to the main item in its expenditure. In this way, for instance, we could identify ERDF with Investment in Infrastructure and Business support, ESF with support to formation of Human Capital, EAGGF and FIFG with general support to agriculture sector and fishing. This classification, far from being exhaustive, will help us to make up for lacking reliable detailed data on payments allocated to the relevant measures. Moreover, we also believe that, this classification could simplify the comparison among regions and Planning Periods.

Structural Funds greatly differ in their financial relevance. The analysis of such differences gives a measure of the importance assigned

[11] Consequently in the case of Italy we can use the term "Cohesion Policy" and "Structural Funds" as synonymous

to each intervention strategy, both across Planning Periods and within Funds. In line with other European countries, ERDF is the most important fund in Italy. As we can see from the last row reported on table 2-3, it covers the 67% of the total amount allocated over the Planning Period 2000-2006 (the 62% over 1994-99). On the opposite side the support to fishing by FIFG takes only 1% of total resources. If ERDF and FIFG keep a constant share across the two Planning Periods, this is not the case for other Funds. The expenditure allocated through ESF was only 12% during the Second Planning Period while it has more than doubled over period 2000-2006. This points out an important change occurred in the strategy pursued in support to human capital and employment between the two periods. A closer analysis highlights how this change has occurred to the disadvantage of the expenditure share allocated by EAGGF which indeed records a significant decrease from 20% to 9% over the total planned.

Structural Funds are meant to target different **Objectives**[12]**.** Each objective corresponds to a different subset of regions. The number of these Objectives has been progressively reduced over the three Planning Periods. With reference to the present institutional design, for the Planning Period 2000-2006 we have three Objectives. **Objective 1** helps lagging regions to catch up with the rest of Europe by providing basic infrastructure and encouraging business activity. Regions with a per capita GDP of less than 75% of the Community average qualify for this type of funding; in Italy, all the Southern regions proved to be eligible for Objective 1 over the period 1989-93. Since then, only Abruzzo has managed to come out of Objective 1 at the end of 1997 while Molise is being phased out and will lose its support at the end of 2006. Objective 1 represents the core of Cohesion policy and accordingly takes up most of the financial resources. In Italy, it amounts to about 68% of total structural funding allocated over the period 2000-2006 (61% over the period 1994-99).

Objective 2 helps the economic and social restructuring of regions dependent on industries in decline, agriculture or areas suffering from problems specific to urbanisation. In order to qualify for Objective 2, industrial regions must have an unemployment rate above the Community average, a higher percentage of jobs in the industrial sector than the Community average, and a decline in the industrial employment.

[12] A detailed classification of Italian regions according to Objectives and Structural Funds for periods 1994-99 and 2000-06 can be found in Appendix.

Moreover, regions must not be eligible for Objective 1 support. As we can see from Appendix, all Italian regions not included in Objective 1 were actually eligible for Objective 2. Its expenditure share has increased from 8% during the Second Planning Period to 14% over the period 2000-2006. **Objective 3** aims to modernise education and increase employment. This type of funding is Community wide. Any region may qualify, provided that it does not receive Objective 1 funding. As confirmed in Appendix, all not-Objective 1 Italian regions provided to be eligible for Objective 3. Funding involved are equal to 14 % of total available for the actual Planning Period (6% over the period 1994-99). The remainder of the Structural Funds (around 4%) goes to the **Community Initiatives (CI**). These are programmes aimed to promote interregional co-operation in solving common problems. In particular: (i) INTERREG III supports cross border initiatives; (ii) URBAN II supports innovative strategies for the re-development of urban areas; (iii) LEADER + attempts to bring together parties in rural area in order to achieve sustainable development; (iv) EQUAL tries to remove inequality and discrimination on the labour market.

The above description confirms that in Italy each region receives at least some financial support. This is a well documented fact across all European countries and it has often been used to cast some doubts on the redistributive efficiency of Cohesion policy. According to some authors, Objective 2 and Objective 3 support would be questionable because distribute funds to relatively rich regions. This would mitigate redistribution because "only if funds are distributed from rich to poor the cohesion policy have the potential to help lagging regions to catch up"(see Ederveen e others, 2003). In order to assess to what extent the total of cohesion support is indeed redistributive in Italy, figure 1 displays the relationship between the log of regional per capita GDP and the total amount of regional per capita support for period 1994-2004[13]. The pattern detected confirms that cohesion policy exhibits some degree of redistributive efficiency: most of poor regions get more than rich regions in Italy.

In what follows we will briefly analyse and compare how Structural Funds are allocated among different Objectives over the years 1994-2004. In general, as we can see from tables 2, Objective 1 binds most resources by each Fund over the period 1994-99. In more detail,

[13] A similar pattern is detected when splitting the total period according to the two Planning Periods

about 70% of expenditure allocated by ERDF was assigned to Objective 1 regions. This attains 81% for the period 2000-2006 (table 3). This territorial imbalance in financial resources allocated by ERDF would confirm that most part of the strategy pursued by Cohesion policy in Italy aim at reducing the gap in terms of Infrastructure between North and South[14]. A similar territorial unbalance is also evident with regards planned expenditure in support to Agriculture and Fishing over the whole period 1994-2004. On the contrary, Objective 1 keeps around 66% of planned expenditure in support to education and employment allocated by ESF for the period 1994-1999 but only 40% of total resources during the current Community Support Framework. Under the Planned Period 2000-2006, ESF is mainly addressed to finance initiatives in Objective 3 but among Southern regions only Abruzzo has been eligible for Objective 3.

Finally, as we have already disclosed in previous sections, the implementation of Cohesion policy in Italy has been greatly characterised (and limited) by a chronic delay in the expenditure. Among the others, the main responsibility has been assigned to the inefficient Bureaucracy prevailing in the South. Here, we are not interested in emphasising a well known handicap of Southern administrations but rather to indirectly assess the effects of such inefficiency. Tables 4 and 5 present a sketch of planned and implemented expenditure carried out over the two more recent Planning Periods. As regards CSF 1994-99, consistent payments start only after 1997. In 2001, on average, payments cover 90% of planned expenditure but Structural Funds greatly differ in their implementation performance. The more significant signal comes from Objective 1 where payments allocated by ERDF and ESF amount to 40% of their total expenditure. On the contrary, support to agriculture has managed to implement 71% of its total expenditure. The implementation profile by CSF 2000-2006 is certainty more encouraging: in 2004 payments amount to 40% of the total expenditure.

3. Convergence across Italian regions: an up-to-date view

The prime goal of cohesion policy is regional convergence of per capita GDP. The lack of convergence across Italian regions has often been interpreted as a proof of the failure of Cohesion policy in Italy. As we

[14] And secondly to provide Business support

have already emphasised, most of the relevant empirical literature on this issue has focussed on the First Planning Period (1989-93) which represents the weaker intervention program in the evolution of Cohesion support. Moreover, the chronic delay in the expenditure that so heavily has characterised the performance of Structural Funds in Italy, has ended up postponing on time the real impact of cohesion support.

In this section we will briefly review some theoretical issues on convergence. In particular, before starting to analyse the process of convergence in Italy we will address the following questions: (i) why should regions converge and (ii) how Cohesion policy should foster convergence? We will then apply two popular measures broadly used to detect convergence.

Why should regions converge? The Economic theory provides (at least) three good reasons to converge (and as many to diverge!). The Neoclassical growth model (Solow, 1956) predicts that, as long as economies share the same structural parameters, regions will tend to the same level of per capita income. In fact, due to the law of diminishing returns to capital, an economy with an initial lower level of capital per worker should be characterised by an higher marginal productivity of capital, higher rates of return, and therefore will grow faster. According to the technology gap literature (Fagerberg, 1997), poor regions can exploit the knowledge accumulated in richer regions to converge, provided that are relatively successful in adopting new technologies: the basic idea is that followers can imitate the inventions of the technological leader, "without having to reinvent the wheel" (Ederveen et others, 2003). Finally, the new Economic geography (Krugman, 1991) shows that agglomeration forces can lead to different type of equilibria. If most regions are able to exploit their local comparative advantages, than we should observe a balanced regional development. If, however, the gains from agglomeration are very strong, substantial geographical concentration will prevail. It is interesting to notice that, if labour mobility is very high, then some regions will result scarcely populated, but per capita incomes would still converge. On the contrary, when mobility of labour is low, the theory predicts polarisation into advanced and depressed regions and divergence of per capita income. Tu sum up, if the neo-classical theory and the technological gap literature predict that income disparities between economies will disappear, the new economic geography literature typically predict both convergence and divergence among regions.

How Cohesion Policy should foster convergence? The Neoclassical model predicts that, since cohesion support translates into a positive impact of public investment on production[15], regional steady state level of per capita income will increase and also the rate of regional economic growth will rise. The technology gap perspective suggests that, provided that cohesion support be able to promote factors enhancing indigenous technological progress (for instance, high level of R&D) then regional productivity in poor regions will faster converge to the levels of more advanced regions[16]. Differently from these approaches, the New Economic Geography theory does not provide a univocal prediction in favour of Cohesion policy[17]but it rather puts on alert on the trade off between equity and efficiency implied by Cohesion policy. The general idea can be summarised as follows: Cohesion policies finance infrastructures which have an impact on transaction costs and therefore on the location decision of firms. Consequently, the long term effect of such regional policies may be unexpected. In particular, policies that finance infrastructure to reduce transaction costs on goods between regions lead to more agglomeration but higher growth at the national level, while policies that reduce agglomeration (such as transfers, financing of transport infrastructure inside the poor regions) may then also reduce efficiency and growth.

Using the terminology introduced by Barro and Sala-i-Martin (1991)[18], two concepts stand out in the empirical literature: beta convergence and sigma convergence. There is **beta convergence** in a cross section of economies if there is a negative relation between the growth rate of per capita GDP and the initial level of income. Recall that in neo-classical model, the further an economy is below its steady state level, the faster it will grow. Similar economies will, therefore, eventually converge to the same level of income (Absolute or unconditional convergence). On the contrary, if the parameters of the economy differ across regions only conditional convergence should be observed: the inverse relationship between the initial level of per capita income and the

[15] See Aschauer (1989)

[16] For empirical evidence consistent with this thesis, see Cappelen, Castellaci, Fagerberg and Verspagen (2001)

[17] On this issue see Martin (1998), (1999)

[18] See also Barro and Sala-i-Martin (1992), Sala-i-Martin (1996)

rate of growth would hold empirically once it is accounted for difference in the steady states[19].

An other popular measure for convergence is called **sigma convergence.** This refers to the dispersion of per capita income across groups of economies and is measured by the standard deviation of log per capita GDP[20]. If the cross sectional dispersion falls over time, we can conclude that there is sigma convergence for the economies in the sample. Hence, it does not matter whether a single economy converges towards to a steady state, but rather how the entire cross-section of economies behaves. Comparing both concepts, beta convergence studies the mobility of income within a distribution, whereas sigma convergence studies how the distribution itself evolves[21].

Several studies have assessed the convergence hypothesis across Italian regions. Their empirical results approximately cover the period 1950-1990. Evidence of the persistent dualism between the North and the South of the country has been found in Mauro and Podrecca (1994) over the period 1963-89. Paci and Saba (1998) point out that the process of global convergence occurs only in the first half of the 1970s, following the period of highest policy intervention in favour of Southern regions. Cellini and Scorcu (1995) observe that only conditional beta convergence would have occurred in the 1970s across southern regions, but not across centre or northern regions[22]. Finally, According to Paci and Pigliaru (1997), this convergence process was mainly driven by a structural change in the form of sectoral shifts of the labour force from agriculture to industry, which would have taken place in the 1970s in the southern regions, rather than diminishing returns to capital[23].

Below empirical evidence is presented about beta and sigma convergence across Italian regions over the period 1980-2004. Figure 2 shows the standard deviation of log per capita GDP within all Italian regions and within Northern and Southern regions. We observe that the dispersion has increased firstly until to 1992 and secondly until to 1996 (from 0.26 to 0.28). In the same years we observe a reduction in

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[19] In both cases, the neo-classical model predicts a negative coefficient for the beta coefficient which also measures the annual speed of convergence.

[20] or by the coefficient of variation of per capita GDP

[21] We can observe beta convergence without sigma convergence while beta convergence is a necessary condition for sigma convergence.

[22] See also Di Liberto (1994) among others

[23] For a recent interpretation of these results, see also Ciriaci (2001) and Morana (2004) among others

dispersion within Northern regions (from 0.15 to 0.11). It is worthwhile to recall that the first Planning Period of Cohesion Policies starts in 1989: not only we do not observe any reduction in dispersion from this period onwards but disparities within Southern regions, to which European support was mainly addressed, seem to increase. We can roughly anticipate that, even if the First Planning Period had been effective, not all the regions involved have been equally able to efficiently employ the financial resources. Since 1997 the dispersion declines (from 0.28 to 0.25). This trend is confirmed for both geographical sub-groups which exhibit similar values. Hence, the evolution in the dispersion of per capita income suggests that there has been a tendency towards reducing disparities across the Italian regions over the period 1996-2004. Moreover, this tendency seems to be mainly due to a reduction within geographical groups than between them. Again it should be emphasised that this period roughly coincides with the implementation of Second and Third Planning Period of Cohesion Policy.

To explore beta convergence**,** figure 3 shows the relationship between the log level of per regional capita GDP in 1980 and its growth rate between 1980 and 2004. We can observe a certain pattern of catching up. To illustrate, Calabria is the fastest growing region and featured among the lowest levels of per capita GDP in 1980. Valle d'Aosta is among the richest regions in 1980[24] and shows the slower growth rate. Further information comes from the resulting cross section regression. Results (as reported in table 5) show that the coefficient of initial level of per capita GDP turns out to be negative but not significant when the overall period is considered. To control for geographical differences across groups of regions we include a dummy variable, *South*, which takes value 1 for the eight Southern regions and tests the well known dualistic feature of the Italian development. The results show that dummy *South* is significant and negative for the entire period 1980-2004. Moreover, following the inclusion of dummy *South*, the coefficient of initial level of per capita GDP turns out to be negative and significant (at 1% level)[25], signalling that, together with a process of global convergence, the Southern regions have also converged toward a locally steady state over the period 1980-2004. We then split the whole period according to the Second and Third Planning Period. Results are

[24] Several empirical studies do not include Valle d'Aosta in the analysis due to its scarce population density

[25] The resulting speed of convergence is 1,5% per year

consistent with those obtained for sigma convergence. No tendency of convergence characterises the period 1980-94. Neither after the inclusion of dummy *South* the coefficient of the initial per capita GDP becomes significant. On the contrary, the beta coefficient[26] turns out to be negative and significant (at 1% level) for the period 1994-2004; in this latter case, the corresponding speed of convergence increases from 1% per year to 2,4% per year when we control for differences in Steady states among geographical groups.

By introducing the dummy *South* in the cross section analysis of convergence, we are implicitly assuming that Southern regions converge to a common Steady state (but different from Northern regions). Instead, a panel estimation procedure with fixed effect would allow us to control for all regional differences in the Steady states. In order to check how the above result is robust to a panel estimation procedure, we have also performed a beta convergence analysis for panel data. The results (as reported in table 6 for period 1994-2004) are perfectly consistent with cross sectional results; besides, now the annual rate of convergence is not only negative and significant but also considerably higher (12%) than in the case where fixed effects were ruled out. Summing up, the above analysis has detected a catching up process across Italian regions over the period 1994-2004: the initially poorer regions tend to grow faster than richer regions. The crucial question is: what is the contribution of cohesion policy to this process of convergence? The next chapter addresses this question.

4. The impact of Structural Funds on regional Convergence

The previous analysis has shown that regional convergence in Italy has occurred after the implementation of the second reform of the Structural Funds in 1994[27]. But, can the observed convergence across Italian regions be attributed to the effectiveness of the expenditure by Structural Funds? Before starting with the econometric analysis, some comments follow about the Planning Periods and data considered. Since we are primarily interested in assessing the effective role of the expenditure in Structural Funds and provided that data on payments carried out during the period 1989-93 are not currently available, in this version we prefer

[26] The rate of convergence is 1% per year.
[27] See European Commission (2004)

to narrow the analysis to expenditure associated with the Second and Third Planning Period and consequently we will focus on years 1994-2004; if on one hand this approach to the effectiveness of the Structural Funds can be seen as biased or incomplete, on the other hand, some aspects related with the performance of the First Planning Period can help to legitimise this choice. The First Planning Period has been largely considered as a failure on the ground that regions were unable, firstly, to submit relevant projects and secondly, to spend the amount received. The inefficiency of Public Administration and the chronic delay in the expenditure are well documented facts of the Italian performance in the access of Structural Funds. According to official documents very little of the planned expenditure under the Community Support Framework 1989-93 has been really spent during the period 1989-93. As we have said, this (negative) experience has (at least) played an important role to spur the more recent reform of Structural Funds (1994). Therefore, by considering only the more recent Planning Periods and the expenditure associated with them, we are also implicitly testing the effectiveness of such reform.

In what follows we will use data[28] on annual payments relative to Public Contribution[29] and distinguished according to the pertaining Fund, as provided by the Italian Authority for monitoring (IGRUE). It is worthwhile to recall that such data do not include expenditure from National Operative Programs (NOPs) but only data immediately attributable to regions. Moreover, while data on annual payments are easily available for Planning Period 2000-2006, only data covering period 1999-2001 are available by year, by fund and by region for Planning Period 1994-99. We have thus obtained the payments for missing years by crossing information published in the various Annual Reports[30]. Finally, as we have already highlighted in the descriptive analysis, we are here mainly interested in assessing the impact of the amount of financial resources accruing by Structural Funds, no matter under which Community Support Framework they are implemented. Thus, the aim is not to provide a judgement about which Planning Period has been more efficient in its realisation but rather an assessment of the strategy realised by each Fund. Accordingly to this approach, in our analysis, payments

[28] The same data have been used in the descriptive analysis

[29] Only Private Contribution is excluded

[30] Information are taken from DPS (2004), DPS (2005) and Fadda, Montemurro (2004)

per fund at the regional level, in years for which the implementation of the two CSF overlap are given by the sum of the corresponding payments.

Since the Cohesion Policy has been mainly criticised on the ground that a considerable amount of financial resources have been inefficiently devoted to regional support, we first consider the impact of the total expenditure in Structural Funds on convergence. We regress the regional growth during the period 1994-2004 on the initial per capita GDP and on the amount of Total Regional Funds. In order to control for size differences between regions, the total expenditure by Structural Funds is measured as share of average regional GDP. In general, a positive and significant coefficient for Structural Funds will be interpreted as evidence of positive effect on economic growth; if the inclusion of variables representing Cohesion support significantly alters the coefficient of the initial level of per capita GDP, than, we will also conclude that Structural Funds play a role in enhancing regional convergence. We also introduce the employment rate in agriculture to control for the productive structure of the regional economy. As we discuss in section 1, Southern regions are still characterised by a larger primary sector than Northern ones. Table 8 shows results from Panel data estimates with fixed effects in order to control for Region-specific Steady states. The impact of the total Structural Funds appears to be highly positive and significant (at the 1% level). The initial level of per capita GDP is negative and significant at the 1% level and it also implies an higher annual rate of convergence (about 16%). The introduction of the employment rate in agriculture (which exhibits the expected negative sign) does not substantially alter these results[31]. We should bear in mind that, since the period of our analysis is relatively short, our estimate may capture only a part of the economic impact of the structural programmes. In fact, most programmes and related measures are of long term nature and produce their full effect on the economy only after a larger number of years. In order to check for long period impact, we follow the experiment performed by Rodriguez-Pose and Fratesi (2004) and estimate the impact of the expenditure lagged up to three periods with respect to regional growth. As a result we observe that, in our estimates the impact of total Structural Funds disappears after two years following the initial investment. As we have strongly emphasised in previous sections, the four Structural Funds differ both regards the

[31] In general it yields to an higher speed of convergence per year

intervention context and the strategy pursued. In what follows we will consider the impact of the total expenditure disaggregated by Structural Funds. The panel estimates are reported in table 9. While the initial level of per capita GDP always keeps a strongly negative and significant coefficient, the picture emerging from the regional support is mixed. The European Regional Development Funds (ERDF) shows a positive and significant (at the 5% level) impact on the regional growth. According to our raw identification between Funds and intervention strategy, this could be interpreted as an encouraging result of a positive performance of expenditure in Infrastructure. On the same way but in the opposite direction, we could conclude that expenditure aimed to enhance human capital and employment by European Social Fund (ESF) has been quite ineffective in enhancing regional convergence: it exhibits a negative and never significant coefficient. Given the negligible amount of the initiatives devoted to modernise Fishing sector, we are not surprise to observe that the coefficient of Financial Instrument for Fisheries Guidance (FIFG) is never significant. On the contrary, the results obtained for the European Agriculture Guidance and Guarantee Fund (EAGGF) deserve a closer analysis. In our estimates the support to Agriculture shows a positive and significant impact on regional growth (but only when we control for the employment rate in agriculture). In most of the empirical studies on the European Structural Funds the positive impact detected for EAGGF has been generally interpreted as a confirmation that Cohesion Policy has been working as a pure redistributive policy rather than an instrument able to trigger regional growth. Our results are in line with this view. When we test for long period effects, apart from the initial level of per capita GDP which keeps a negative and significant coefficient, only the coefficient of ERDF is still positive and significant (at the 5% level) after three years. On the contrary, the positive impact of EAGGF seems to be already vanished after two years: a negative and not significant coefficient represents a further confirmation that European policies in favour of Agriculture sector translate into an (immediate and short term) income support rather than a (long term) sustainable development policy.

5. Conclusions

Despite the multiplication of financial resources devoted to regional development policies and following the reform of the Structural Funds

in 1989, there is no clear evidence of greater economic and social cohesion and convergence across regions in the EU. In particular, the lack of convergence across Italian regions has been widely quoted as an incontrovertible proof of failure by Cohesion policy. In this work we try to contribute to the actual debate on the effectiveness of Cohesion policy on two grounds. Firstly, we have updated the empirical literature on convergence across Italian regions by focussing on the period covered by regional development policies carried out by European Community. The analysis reveals that, poorer regions in Italy have indeed caught up with the richer regions over period 1994-2004 and much of this convergence process has occurred towards region-specific steady states. In order to assess whether Cohesion Policy has had an impact on regional convergence in Italy, we have considered Structural Funds as a conditioning variable in the convergence equation by running a regression model in which regional growth during the period 1994-2004 is regressed on the initial level of per capita GDP and on the amount of payments implemented by Structural Funds. Our panel estimates point to a positive and significant impact of the Structural Funds on regional convergence in Italy over the period 1994-2004. If the Structural Funds are considered individually we find that the expenditure allocated by ERDF has medium term positive and significant returns. According to our raw identification between Funds and intervention context, this result may be interpreted as a success of Investment in Infrastructure (and to a less extent, Small Business Support) in filling the gap between Northern and Southern regions. Support to agriculture has short-term positive effects on growth which wane quickly. This result is somehow consistent with part of the empirical literature reporting only a redistributive role for EU Regional policies. On the contrary there is no evidence in favour of a positive impact on regional convergence by Funds mainly devoted to support to Human Capital and employment (by ESF). On the whole our findings are in line with most recent empirical studies and agree upon a (slightly) more optimistic view of the impact of Cohesion Policy: even if Structural Funds are likely to produce their full effects on the economy only after a larger number of years, we can already detect a significant effect in narrowing the gap in per capita GDP between Italian regions. Nevertheless, our work confirms the high risk for Regional development policy to wear out in a mere redistributive policy to support income, rather than fully exploit the potential as intervention policy able to trigger long term growth. Finally, our results cast some doubt both on the (i) distributive efficiency of resources

allocated by ESF and (ii) on the effectiveness of the intervention policies in support to education, Human capital and employment.

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Fig. 1. Distributive Efficiency of Structural Funds across Italian Regions, 1994-2004

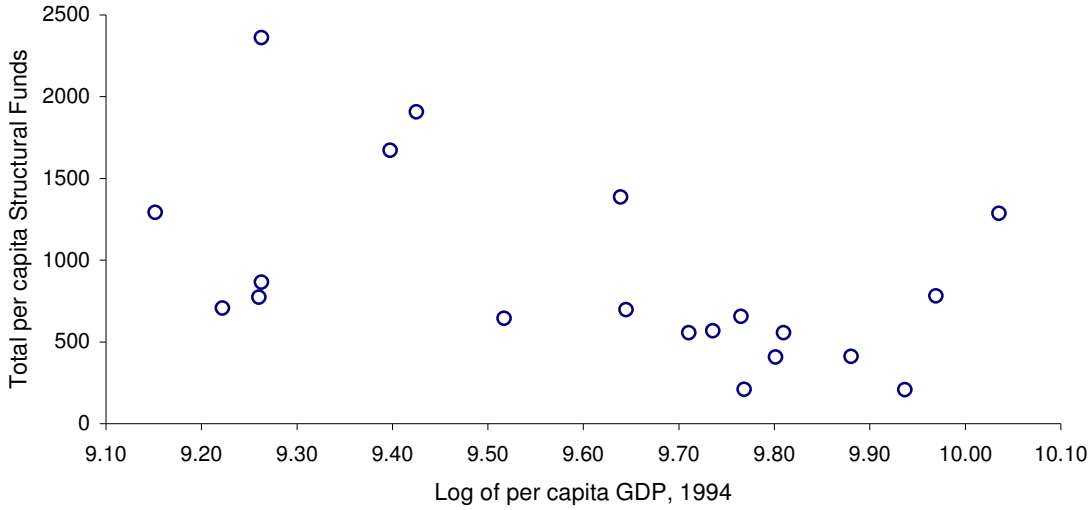


Fig. 2. Sigma Convergence within Italian Regions, 1980-2004

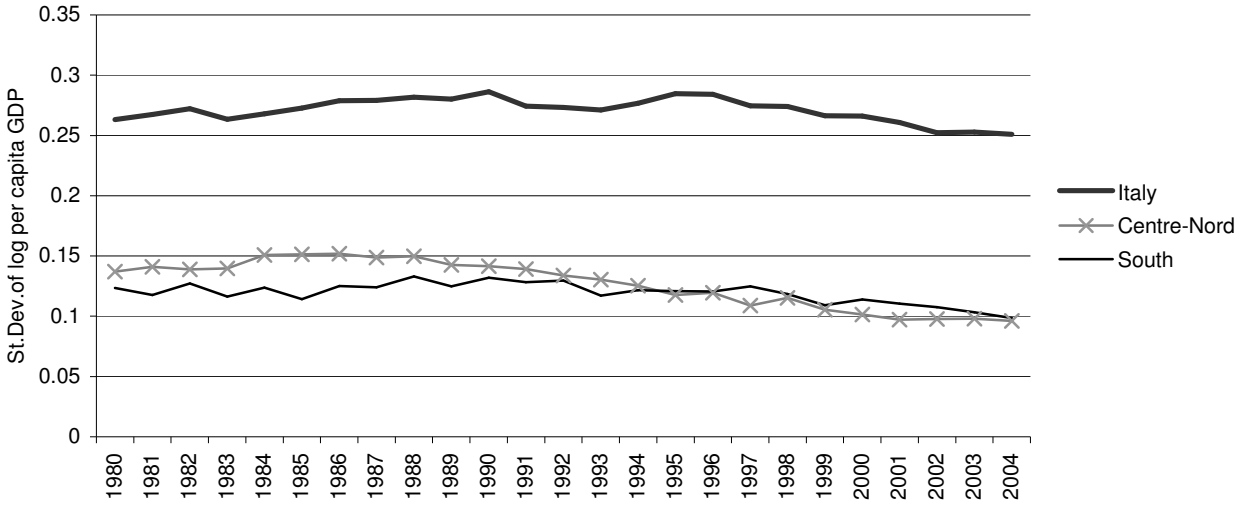
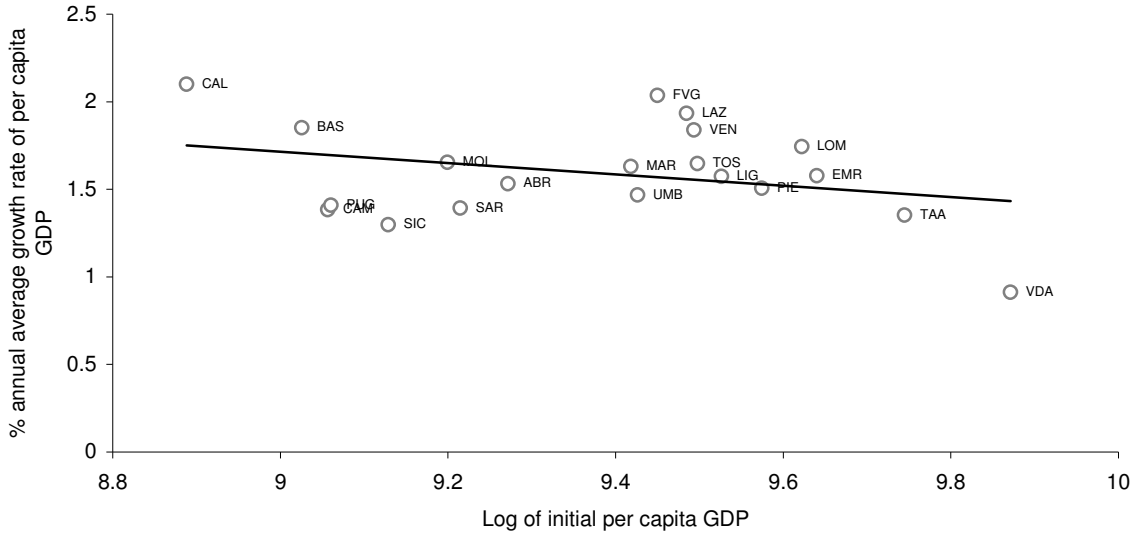


Fig.3. Beta Convergence across Italian Regions, 1980-2004



Tab.1. Economic and Social Indicators for Italian Regions

	%GDP ann.Gr.	Per capita GDP (EU15=100)		% Employed by Sector			Unemployment Rate (%)				Level of Education (*)		
				Agr.	Industry	Service	Total	Long Period	Female	Young	Low	Medium	High
	95-01	**1996**	**2001**	**2002**			**2002**				**2002**		
PIE	1.3	117	115	3.4	38.1	58.5	5.1	47.5	7.3	15.5	57.6	33.0	9.4
VDA	0.6	131	124	3.4	38.1	58.5	3.6	19.3	5.5	10.6	58.6	33.8	7.6
LOM	1.9	132	131	1.9	40.1	58.0	3.8	36.5	5.6	11.4	53.7	35.7	10.6
TAA	2.4	128	133	7.8	27.3	64.9	2.6	11.7	3.8	5.0	52.4	38.5	9.1
VEN	1.9	124	116	4.0	40.2	55.8	3.4	28.6	5.2	7.6	57.4	33.9	8.7
FVG	1.4	126	112	3.1	33.5	63.4	3.7	25.8	5.6	9.4	51.3	39.0	9.7
LIG	2.1	119	108	3.7	22.7	73.6	6.3	57.4	8.6	23.0	53.4	35.5	11.1
EMR	1.9	133	126	5.4	35.6	59.0	3.3	25.5	4.6	9.0	51.9	36.6	11.5
TOS	2.2	111	111	3.9	33.0	63.1	4.8	38.8	7.3	16.2	56.5	33.3	10.2
UMB	2.0	98	98	4.6	33.0	62.4	5.7	44.9	8.9	16.5	48.1	40.4	11.5
MAR	2.2	106	101	4.0	40.7	55.3	4.4	33.8	6.4	10.5	55.1	34.1	10.8
LAZ	1.8	114	111	3.3	19.9	76.8	8.6	68.7	11.9	32.0	48.3	38.9	12.8
ABR	1.6	90	84	5.8	31.6	62.6	6.2	54.1	10.0	20.1	52.2	36.9	10.9
MOL	2.2	79	78	10.0	29.1	60.9	12.6	61.0	18.7	34.3	54.4	35.2	10.4
CAM	2.3	66	65	6.4	24.4	69.2	21.1	73.7	30.6	59.5	59.8	31.0	9.2
PUG	1.9	71	65	10.3	26.9	62.8	14.0	65.8	20.6	37.8	62.1	28.8	9.1
BAS	2.1	69	70	10.4	33.2	56.4	15.3	60.3	23.8	43.4	58.6	33.3	8.1
CAL	2.2	59	62	12.4	19.9	67.7	24.6	62.2	35.6	58.2	58.2	32.2	9.6
SIC	2.1	66	65	9.3	20.4	70.3	20.1	69.3	28.4	51.2	61.7	29.2	9.1
SAR	2.2	75	76	8.7	23.5	67.8	18.5	58.5	26.4	48.3	62.8	29.0	8.2

Source: Eurostat:; (*) Level of Education for people of age between 25-64 year (% over the Total)

Tab.2. Allocation of Structural Funds, 1994-99

	ERDF		ESF		EAGGF		FIFG	
	Planned	*Actual*	*Planned*	*Actual*	*Planned*	*Actual*	*Planned*	*Actual*
Ob.1	70%	54%	66%	51%	49%	44%	62%	0%
Ob.2	11%	17%	11%	13%				
Ob.3	9%	15%						
Ob.4			16%	26%				
Ob.5A					26%	32%	33%	0%
Ob.5B	9%	12%	5%	8%	21%	22%		
LEADER II	0%	2%	2%	1%	4%	3%		
RECHAR II	0%	0%						
FIFG not Ob.1							5%	100%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%
100%	67%	62%	12%	11%	19%	27%	2%	0%

Source: Monit IGRUE

Tab.3. Allocation of Structural Funds, 2000-06

	ERDF		ESF		EAGGF		FIFG	
	Planned	*Actual*	*Planned*	*Actual*	*Planned*	*Actual*	*Planned*	*Actual*
Ob.1	81%	81%	39%	33%	92%	92%	71%	66%
Ob.2	19%	18%						
Ob.3			56%	65%				
Innovative Actions	0%	0%						
EQUAL			5%	2%				
LEADER +					8%	8%		
URBAN	1%	1%						
FIFG not Ob.1							29%	34%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%
100%	62%	60%	27%	30%	9%	8%	1%	1%

Source: Monit IGRUE

Tab.4. Planned and Implemented Financial Plan, 1994-99

Objective	Structural Funds	Total Cost	% SF on TC	Payments per Year (% over the Total)								Cumulated Payments
				1994	1995	1996	1997	1998	1999	2000	2001	
Ob. 1		31851		2%	6%	11%	16%	14%	11%	12%	31%	103%
	ERDF	23007	72%	1%	2%	4%	6%	6%	4%	5%	12%	40%
	ESF	3785	12%	1%	3%	5%	7%	6%	5%	5%	6%	38%
	EAGGF	4449	14%	1%	5%	8%	12%	11%	9%	9%	15%	71%
	FIFG	611	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ob. 2		4352		0%	1%	9%	10%	20%	13%	18%	17%	89%
	ERDF	3693	85%	0%	0%	3%	3%	19%	12%	17%	21%	76%
	ESF	659	15%	0%	0%	3%	4%	17%	11%	15%	7%	57%
Ob. 3	ERDF	3047	100%	3%	7%	10%	16%	15%	15%	13%	5%	83%
Ob. 4	ESF	921	100%	0%	3%	9%	13%	14%	15%	15%	13%	81%
Ob. 5A		2704		3%	3%	5%	8%	17%	18%	16%	14%	85%
	EAGGF	2382	88%	3%	4%	6%	9%	19%	21%	18%	16%	96%
	FIFG	322	12%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ob. 5B		5174		0%	1%	3%	9%	14%	24%	17%	14%	83%
	ERDF	3003	58%	0%	1%	3%	7%	11%	19%	14%	11%	66%
	ESF	286	6%	0%	1%	3%	9%	13%	22%	16%	13%	78%
	EAGGF	1885	36%	0%	1%	4%	10%	15%	24%	18%	14%	85%
LEADER II		874		0%	0%	0%	2%	4%	8%	11%	31%	57%
	ERDF	438	50%	0%	0%	0%	2%	4%	9%	12%	33%	62%
	ESF	89	10%	0%	0%	0%	2%	3%	7%	9%	23%	45%
	EAGGF	347	40%	0%	0%	0%	2%	3%	8%	10%	30%	53%
FIFG	FIFG	50	100%	0%	0%	0%	1%	0%	6%	8%	15%	31%
Tot 94-99		52451		1%	4%	9%	13%	14%	14%	14%	24%	94%

Source: MONIT IGRUE, Rapporto Annuale DPS, 2003, 2004
Values are in thousands of Euro. Data include National Operative Programs

Tab.5. Planned and Implemented Financial Plan, 2000-2006

Objective	Structural Funds	Total Cost	% Public Cost	% SF on P.C.	Payments per Year						Cumulated Payments
					1999	2000	2001	2002	2003	2004	
Ob.1		41445	99%			2%	5%	9%	11%	9%	37%
	ERDF	29538	99%	72%	1%	3%	6%	9%	10%	9%	37%
	ESF	6130	99%	15%	0%	1%	3%	6%	14%	13%	37%
	EAGGF	5057	99%	12%	0%	1%	2%	12%	11%	8%	34%
	FIFG	720	75%	1%	0%	0%	5%	10%	7%	17%	39%
Ob.2	ERDF	8319	81%	100%	0%	0%	1%	3%	14%	18%	36%
Ob.3	ESF	8774	99%	100%	0%	0%	4%	11%	16%	17%	50%
Others:		2228	81%		0%	0%	0%	4%	12%	8%	23%
I.A.	ERDF	115	83%	100%	0%	0%	0%	0%	9%	40%	49%
EQUAL	ESF	789	100%	100%	0%	0%	0%	0%	13%	4%	17%
LEADER	EAGGF	682	67%	100%	0%	0%	0%	0%	8%	26%	34%
URBAN	ERDF	264	93%	100%	0%	0%	2%	6%	14%	12%	34%
FIFG	FIFG	378	59%	100%	0%	0%	0%	22%	12%	14%	48%
Tot 00-6		60766	96%		0%	2%	4%	9%	12%	8%	34%

Source: MONIT IGRUE; Rapporto Annuale DPS, 2003, 2004
Values are in thousands of Euro. Data include National Operative Programs

Tab.6. Absolute Beta Convergence: a Cross Section Analysis

Dependent variable: Annual Average Growth rate of per capita GDP (constant 1995)
Estimation method: OLS
Period: 1980-2004
t-statistics in parenthesis

	(1)	(2)
Constant	0.05	0.16
	(2.07)	(4.50)
Log level of per capita GDP in 1980	-0.003	-0.015
	(-1.36)	(-4.05) 1%
Dummy *South*		-0.007
		(-3.66) 1%
Adjusted R-squared	0.042	0.43
F-statistics	1.84	8.25
Prob (F-statistic)	(0.19)	(0.00)

Period: 1980-1994

	(1)	(2)
Constant	0.01	0.10
	(0.23)	(1.82)
Log level of per capita GDP in 1980	0.002	-0.009
	(0.79)	(-1.51)
Dummy *South*		-0.01
		(-2.22) 5%
Adjusted R-squared	0.02	0.16
F-statistics	0.61	2.83
Prob (F-statistic)	(0.44)	(0.08)

Period: 1994-2004

	(1)	(2)
Constant	0.11	0.25
	(4.46)	(5.35)
Log level of per capita GDP in 1994	-0.01	-0.024
	(-3.85) 1%	(-5.06) 1%
Dummy *South*		-0.01
		(-3.30) 1%
Adjusted R-squared	0.42	0.62
F-statistics	14.82	16.92
Prob (F-statistic)	(0.00)	(0.00)

Tab.7. Absolute Beta Convergence: a Panel Data Analysis

Dependent variable: An. Average Growth rate of per capita GDP (constant prices 1995)
Estimation methods: LSDV (2), GLS (3)
Period: 1994-2004, annual panel
Observations: 200
Groups: 20
t-statistics in parenthesis

	(1) Between Effects	(2) Fixed Effects	(3) Random effects
Constant	0.11	1.18	0.15
	(3.92)	(5.72)	(3.48)
Log level of initial per capita GDP	-0.009 (-3.37) 1%	-0.12 (-5.65) 1%	-0.14 (-3.14) 1%
R-squared:			
Within	0.1511	0.1511	0.1511
Between	0.3868	0.3868	0.3868
Overall	0.0474	0.0474	0.0474
F-statistics	11.36	31.87	
Prob (F-statistic)	(0.00)	(0.00)	
Wald chi squared			9.84
Prob (Wald chi)			(0.00)
F-statistics		1.74	
Prob (F-statistic)		(0.033)	
Hausman test			25.96
			(0.00)

Tab. 8. The impact of Total Structural Funds on Regional convergence: Italy, 1994-2004

Dependent variable: Annual Average Growth rate of per capita GDP (constant prices 1995)
Estimation methods: LSDV
Period: 1994-2004, annual panel
Observations: 200
Groups: 20
t-statistics in parenthesis

	(1)	(2)	(3) One Lag	(4) Two Lags	(5) Three Lags
Constant	1.59	2.44	2.39	2.31	2.21
	(7.67)	(6.59)	(6.12)	(5.93)	(5.61)
Log level of initial per capita GDP	-0.16	-0.25	-0.24	-0.24	-0.22
	(-7.62) 1%	(-6.68) 1%	(-6.19) 1%	(-6.02) 1%	(-5.66) 1%
Total Structural Funds over average GDP	1.11	1.07	0.64	0.64	0.32
	(5.28) 1%	(5.17) 1%	(3.08) 1%	(2.64) 5%	(1.17)
Employment rate in Agriculture		-0.52	-0.44	-0.28	-0.40
		(-2.77) 5%	(-2.16) 5%	(-1.24)	(-1.57)
R-squared:					
Within	0.2662	0.2966	0.2318	0.2212	0.1968
Between	0.3827	0.3990	0.3997	0.3985	0.3972
Overall	0.0511	0.0522	0.0455	0.0431	0.0439
F-statistics	32.29	24.88	17.81	16.76	14.46
Prob (F-statistic)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Tab. 9. The impact of Individual Structural Funds on Regional convergence: Italy, 1994-2004

Dependent variable: Annual Average Growth rate of per capita GDP (constant prices 1995)
Estimation methods: LSDV
Period: 1994-2004, annual panel; Observations: 200; Groups: 20; *t-statistics* in parenthesis

	(1)	(2)	(3) One Lag	(4) Two Lags	(5) Three Lags
Constant	1.48	2.30	2.31	2.37	2.46
	(5.39)	(5.93)	(5.79)	(6.01)	(6.13)
Log level of initial per capita GDP	-0.15	-0.23	-0.23	-0.24	-0.25
	(-5.34) 1%	(-5.96) 1%	(-5.82) 1%	(-6.09) 1%	(-6.19) 1%
ERDF over average GDP	1.19	0.94	0.16	1.46	2.20
	(2.75) 5%	(2.17) 5%	(0.36)	(2.42) 5%	(2.87) 5%
ESF over average GDP	-0.27	-0.76	-0.83	-0.44	-1.49
	(-0.24)	(-0.69)	(-0.64)	(-0.24)	(-0.61)
EAGGF over average GDP	1.17	1.59	1.90	-0.30	-1.82
	(1.47)	(2.01) 5%	(2.24) 5%	(-0.26)	(-1.31)
FIFG over average GDP	18.1	9.64	38.9	-26.2	-51.8
	(0.82)	(0.44)	(0.57)	(-1.60)	(-1.67)
Employment rate in Agriculture		-0.57	-0.5	-0.30	-0.4
		(-2.93) 5%	(-2.35) 5%	(-1.28)	(-1.56)
R-squared:					
Within	0.2745	0.3086	0.2457	0.2355	0.2278
Between	0.3823	0.3979	0.4005	0.3957	0.3866
Overall	0.0547	0.0580	0.0497	0.0438	0.0430
F-statistics	13.24	12.95	9.44	8.93	8.55
Prob (F-statistic)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Appendix

Code	Geo	1994-1999								2000-2006				
		Ob.1	Ob.2	Ob.3	Ob.4	Ob.5A	Ob.5B	Leader	Rechar	Ob.1	Ob.2	Ob.3	Leader	A.I.
PIE	N		x	x	x	x	x	x			x	x	x	x
VDA	N		x	x	x	x	x	x			x	x	x	x
LOM	N		x	x	x	x	x	x			x	x	x	x
TAA (*)	N			(*)	(*)	(*)	(*)	(*)			(*)	(*)	(*)	(*)
VEN	N		x	x	x	x	x	x			x	x	x	x
FVG	N		x	x	x	x	x	x			x	x	x	x
LIG	N		x	x	x	x	x	x			x	x	x	
EMR	N		x	x	x	x	x	x			x	x	x	x
TOS	N		x	x	x	x	x	x	x		x	x	x	x
UMB	N		x	x	x	x	x	x			x	x	x	x
MAR	N		x	x	x	x	x	x			x	x	x	x
LAZ	N		x	x	x	x	x	x			x	x	x	x
ABR	S	x		x	x	x		x			x	x	x	x
MOL	S	x						x		x			x	x
CAM	S	x						x		x			x	x
PUG	S	x						x		x			x	x
BAS	S	x						x		x			x	x
CAL	S	x						x		x			x	x
SIC	S	x						x		x			x	x
SAR	S	x						x	x	x			x	x
ERDF		+	+	+			+	+	+	+	+			+
ESF		+	+		+		+	+		+		+		
EAGGF		+				+	+	+		+			+	
FIFG		+				+				+				

(*) Original data are for Bolzano and Trento

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