

DEVELOPMENT POLICY, PUBLIC SPENDING AND REGIONAL CONVERGENCE IN ITALY (1996-2007)

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Abstract

The objective of this paper is twofold. Firstly, it offers some empirical evidence on the evolution of regional disparities in Italy in the light of recent development policies. Secondly, the paper focuses on the role of public spending in the convergence process. This analysis is based on a detailed dataset that offers data for different categories of public expenditure flows at the regional level for the years 1996-2007. Regression analysis shows how the impact of public spending on growth differs, dependent upon the regions and the categories of expenditure. When the entire sample is considered, a positive relationship between current expenditure and productivity growth is found. If the sample is split into Northern and Southern regions, the estimates lead to different results. In the first group, composed of the most developed Italian regions, results show a positive and significant correlation between capital public expenditure and growth, while in the less developed Southern regions productivity growth results as only weakly linked to current expenditure.

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1. Introduction

In spite of decades of public policies, the regional disparities in economic development that historically characterized Italy still remain profound. An ample literature shows, in fact, how regional disparities in real per capita GDP and productivity fell primarily during the Sixties, remaining stable in the subsequent period. Only in recent years — in particular during the second half of Nineties — a process of convergence has taken place. Nevertheless, for the

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persistence and magnitude of the North-South gap, Italy stands out among the European countries.

The Italian policies for regional development have a long tradition which started in the Fifties with the “Extraordinary Interventions for the Mezzogiorno” – that, for over forty years, constituted the framework within which the measures for less developed areas were implemented¹. This long phase of intervention ceased in the 1990s when a new phase of regional policy replaced the previous one: this so-called “new regional development policy” was different, both in methods and in instruments (Loddo, 2004; Chiri, 2006).

At a distance of more than ten years from its commencement, the evaluation of the results obtained by the new development policy has brought different, often opposing, interpretations (Rossi, 2005; Viesti, 2009). According to some scholars (Rossi, 2005; Atella, 2005), this policy would have substantially failed in its objective to reduce the gap between the North and the South appearing “staggeringly wasteful” for its inefficient use of public resources. According to others, however, this policy has gained some valuable results, nevertheless some limitations primarily derived from the lack of resources effectively available (Viesti, 2009). In a less sophisticated version, the argument according to which the Southern regions received, and substantially wasted, a huge amount of financial resources, finds a wide consensus in Italian public opinion and among politicians. Very frequently, however, these arguments are not supported by data or any empirical evidence.

The effectiveness of public policy in the reduction of regional disparities is a subject extensively examined in the literature. For instance, several studies have been devoted to investigating the impact of EU regional policies – in particular structural funds — on growth. The findings are sometimes controversial. Some authors find, in fact, that the European structural

¹ The Italian Mezzogiorno comprises eight regions, historically lagging behind: Abruzzi, Molise, Campania, Apulia, Basilicata, Calabria, Sicily and Sardinia. In this paper the terms Mezzogiorno and South are used indifferently.

and cohesion funds have had a positive impact on regional economic growth (Cappelen et al., 2003; Beugelsdijk and Eijffinger, 2005; Checherita, 2009), while others reached the conclusion that EU regional policies principally served redistribution purposes, motivated by political reasons, but with no effect in fostering economic growth (Boldrin and Canova, 2001; Dall’Erba et al., 2007).

Relatively few studies have considered the Italian case. Coppola and Destefanis (2007), for instance, have investigated the effects of EU structural funds in the period 1989-2003 for the main economic sectors, finding a positive but weak fund effect on capital accumulation and total factor productivity. Percoco (1999) studied the impact of EU regional policy in the programming period 1994-1999, showing a high variation in the rate of growth induced by structural funds; this study suggests that the effects were related to the efficiency in the allocation of financial resources from regional administrations. Aiello and Pupo (2009) estimated the impact of structural funds on regional economic growth in the period 1980-2007 and found that the effects was mainly redistributive and that they did not contribute to the factors that influence long term regional economic growth.

With regard to the policy implemented in the period 1996-2007 (the “new development policy”), studies have evaluated the results obtained from some instruments of intervention, such as the Territorial pacts (Accetturo e De Blasio, 2007), the Programming contracts for industrial development (Giunta e Florio, 2002; Bianchi, 2007) or from incentives to investments (Bronzini e De Blasio, 2006). The results emerging from these studies are not univocal. If, as in the case of Territorial pacts for local development, the overall results appear very modest, for other kinds of intervention, such as the Programming contracts, the evaluations show a different situation, in which there have been some successful results. On the basis of these studies, it appears very hard to take a conclusive stock of the new development policy. In the light of this debate, the analysis concerning the evolution of regional disparities and the regional distribution of public expenditure can offer some useful policy implications.

The objective of this paper is twofold. Firstly it offers some up-to-date empirical evidence on the evolution of regional disparities. Secondly, the paper focuses on the role of public spending in the convergence process. This analysis is based on a detailed dataset that offers data for different categories of public expenditure flows at the regional level for the years 1996-2007.

Our analysis shows how, in the period examined, the regional convergence in productivity was significant, but very weak for per capita GDP. Compared to the great differences in development between North and South, the territorial distribution of public spending has not favoured the less developed regions. Data show, in fact, how public spending for development, measured in per capita terms, and received by the regions of the Mezzogiorno, has been less than that of the Centre-North. Differences in favour of the Mezzogiorno are obtained, instead, if the expenditure is calculated as a share of GDP. Considering the regional distribution of public expenditure for development, no correlation was found between spending flows and regional growth. If the regions of the North are examined separately to the those of the South, differences in the links between public spending and productivity growth can be noted, however. In the first group of regions a significant, positive relationship between expenditure for development and growth can be found; in the Southern regions however, such a link concerns only current spending.

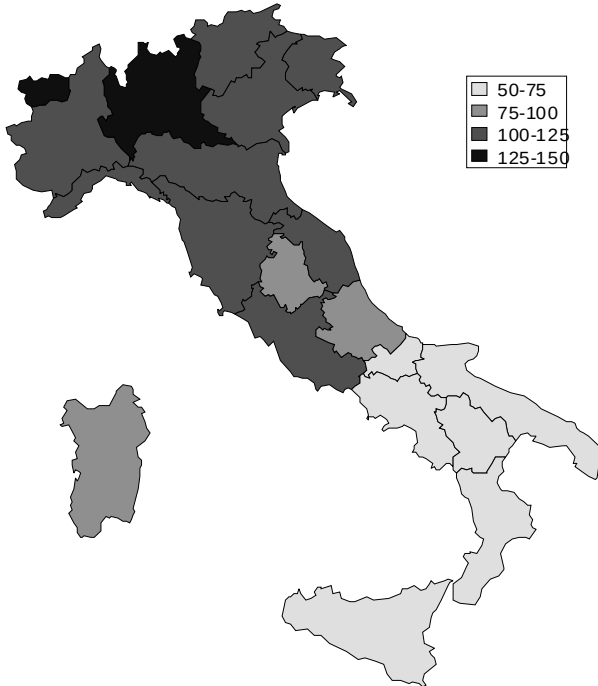
2. The evolution of regional disparities

In spite of decades of development policies, the regional disparities that historically characterised Italy are still considerable. Map 1 illustrates the per capita GDP in the twenty regions: it is possible to see a significant divide between the Centre-North area and the less developed Mezzogiorno.

The process of convergence among the Italian regions has been examined by an ample literature (Paci e Pigliaru, 1996; Terrasi, 1999; Ciriaci, 2001; Vamvakidis, 2003; Magrini, 2007; Daniele, 2008). Even if the methods and the period considered in these studies are diverse, main findings show how a process of absolute β -convergence in per capita GDP took place during the period 1960-

1975, while subsequently regional disparities remained stable or, in certain phases, increased. Only in recent years, notably during the second half of the 1990s, a process of convergence in productivity and, to a lesser extent, in per capita GDP has taken place.

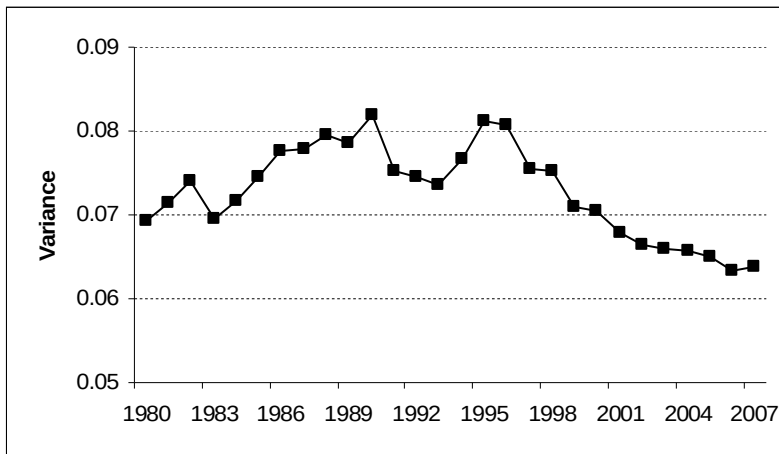
Map 1. GDP per capita, 2008 (Italy = 100)



In this section we offer a picture of the evolution of regional disparities in GDP per capita and per worker for the period 1980-2007, for which we have time-series homogenous data, in order to offer a framework for the subsequent analysis.

The process of σ -convergence is illustrated in Graph 1 that presents the dynamics over time of the dispersion (variance) of regional per capita GDP. Dispersion increased during the period 1980-95, in which a phase of σ -divergence occurred, with a slight reduction in the subsequent years. Overall, the degree of dispersion remains roughly the same.

Graph 1. Variance of per capita GDP among Italian regions, 1980-2007



Source: Calculations on Istat, Regional Economic Accounts

To examine the proximate forces at the basis of this dynamic, it is possible to decompose the variance of per capita GDP according to the following identity:

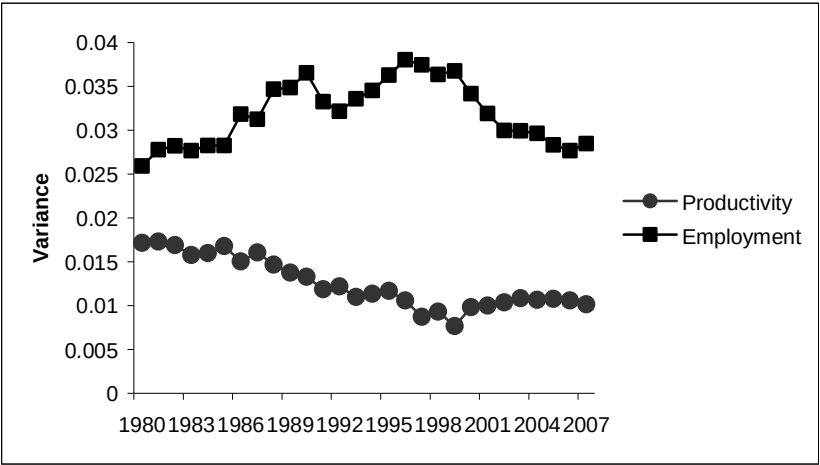
$$\text{var} \ln(Y / P) = \text{var} \ln(Y / E) + \text{var} \ln(E / P) + 2 \text{cov}[\ln(Y / E), \ln(E / P)] \quad (1)$$

in which Y is the *GDP*, P population and E the employment. Graph 2 shows the variance of productivity and employment rate. Taking into account the profound imbalances in employment existing among Italian regions (Guisan and Aguayo, 2002), it is easy to note how the phase of σ -divergence in GDP per capita is mainly explained by the increase in the dispersion of employment rates. The variance of productivity exhibits a decreasing trend between 1980 to 1999, remaining roughly stable in the subsequent period.

Broadly similar conclusions can be reached by comparing Graph. 3, which shows the partial correlation between rate of growth and initial levels of per capita GDP, to Graph. 4 referring to labour productivity. While in the first case, the correlation is very low, in the second one a significant relationship can be observed.

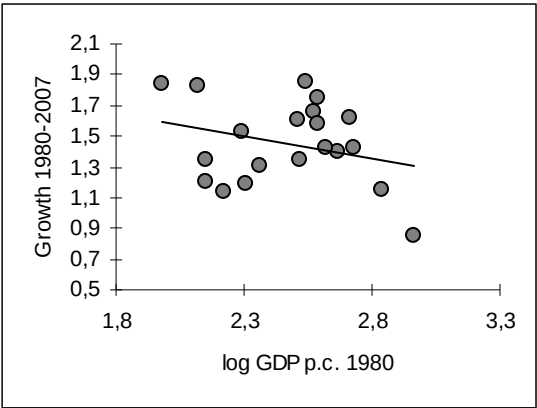
In synthesis, this description, consistent with the results of previous literature, suggests that the Italian regions converged mainly in terms of productivity, while the convergence in per capita GDP was a weaker process.

Graph 2. Variance of GDP per worker and of employment rates 1980-2007

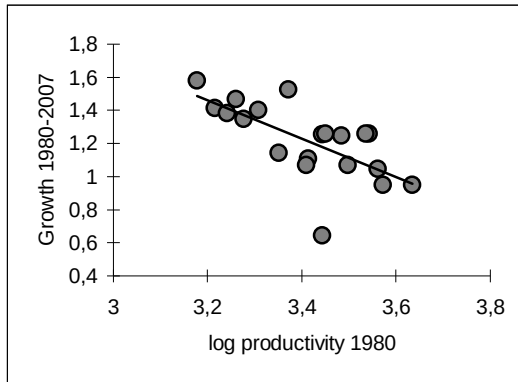


Source: Calculations on Istat, *Regional Economic Accounts*.

Graph 3. Convergence in per capita GDP 1980-2007



Graph 4. Convergence in labour productivity 1980-2007



3. Public spending and regional economic growth

To analyse the relationship between regional economic growth and public spending, we estimated a standard equation of conditional convergence:

$$\left(\ln y_{i,T} - \ln y_{i,t} \right) \frac{1}{T} = \alpha_i + \beta_1 y_{i,t} + \beta_2 PS_{i,t} + \beta_3 \mathbf{X}_{i,t-1} + \varepsilon_{i,t} \quad (2)$$

with: $\varepsilon_{i,t} = \lambda_i + u_{i,t}$

In eq. 2, the dependent variable is the rate of growth of per worker GDP, $y_{i,t}$ the log of the same variable in the region i at time t , $PS_{i,t}$ is the share of public spending on GDP, and $\mathbf{X}_{i,t-1}$ a set of variables that captures the “fundamentals” of the economy, that is those characteristics that have a permanent effect on its growth rate.

Data consists of a balanced panel, and a fixed effect (FE) model is used for estimations. There are several advantages in using a panel data model. Studies show in fact, how the cross-section approach leads to a downward bias of the convergence coefficient. The reason is that the steady state of an economy is affected by a number of factors that cross-section analysis tends to neglect, suffering an omitted-variable bias. These regional-specific

unobservable factors can be modelled through panel data techniques (Tondl, 2001; Durlauf et al., 2005).

Public spending. Data on public expenditure refer to the period 1996-2007 — for which homogeneous time-series are available — and are derived from Regional Public Accounts (**RPA**), a detailed database, published by the Italian Ministry for the Economy, measuring public financial flows at the regional level. The RPA database can be used to analyse two different reference universes: “general government” and the “public sector”. This last includes general government plus enterprises subject to the direct or indirect control of public entities. For each macro-category of expenditure, a series of individual spending chapters are available: for instance, the expenditure for development contains different capital expenditure categories. For the high degree of disaggregation, RPA constitute a complete dataset for measuring public spending and evaluating public policies at the regional level (De Luca et al., 2005).

Control variables. Since the variables potentially correlated with regional economic growth are numerous, we selected control variables making references to some studies that employ the Bayesian approach to check the robustness of the explanatory variables used in the cross-section studies on economic growth (Doppelhofer et al, 2000; Fernández et al., 2001). In a paper on the Spanish case, León-González and Montolio (2004), found that the initial level of per capita GDP, and some types of private and public investment, are strongly related to growth. Other variables, such as human capital proxies and the sectoral composition of production — measured by the relative shares of agriculture and industrial production — are also among the determinants of growth, although less important as factors. On the basis of these studies, the estimated model included the subsequent control variables: the share of gross fixed investment on regional GDP (*Investment*); a proxy of human capital, given by the average number of years of schooling for each region (*School*); the shares of agricultural (*Agriculture*) and

industrial (*Industry*) employment in total regional employment². Data on regional GDP, investment and sectoral employment are derived from the Regional accounts database published by Istat (2005; 2007), while the years of schooling are calculated on the basis of estimation contained in Ciccone (2004).

Results. Data show the existence of notable regional differences in the distribution of public spending. The regions of the Centre-North, where 64% of the Italian population lives, received over 71% of total expenditure, while the South just 28,5% (Table 1). The disaggregation of expenditure in macro-categories confirms that the Centre-North area received the largest part of spending flows (Table 2), both current and for development. Significant differences can be observed even when the expenditure is calculated in per capita terms. An inhabitant of the Mezzogiorno area received, on average, 9,103 euro of current and 1,666 euro of capital expenditure, while an inhabitant of the Centre-North area, 13,078 and 2,022 euro respectively (Table 3). In per capita terms, the distribution of public spending has, clearly, privileged the more developed part of Italy.

Table. 1. Centre-North and Mezzogiorno: main indicators and public spending (Italy = 100)

	Population	GDP	GDP per capita	Total public expenditure
Centre-North	64,1	75,9	117,1	71,5
Mezzogiorno	35,9	24,1	67,8	28,5

Source: Calculations on Istat and RPA Database.

Table. 2. Territorial distribution of public expenditure, 1996-2007 (%)

Categories of expenditure	Centre-North	South
Current	72,0	28,0
Capital	68,5	31,5
Investment	71,2	28,8
For development	66,2	33,8

Calculated on cumulated values in current prices. Data are referred to the “enlarged public sector”. Source: Calculations on RPA Database.

² For a critical analysis on the use of rates and ratios – like the Investment/GDP ratio — in econometric models aimed to explain the rate of growth according to the neoclassical approach see, for instance, Guisan (2008).

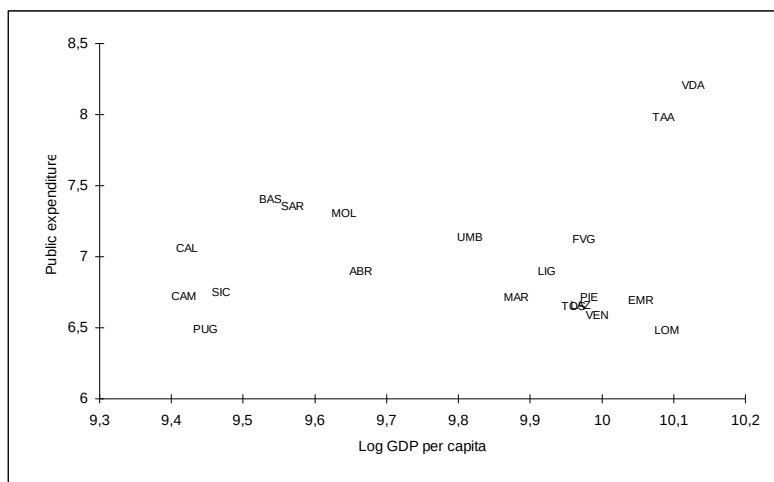
Table. 3. Public expenditure, average 1996-2007

	As a % of GDP		Per capita	
	Centre-North	South	Centre-North	South
Current	41.0	50.0	13,078	9,103
Capital	4,5	7.5	2,022	1,666
Investment	2.1	3.2	958	693
For development	3.4	6.5	1,227	1,121

In Euros at current prices. Data are referred to the “enlarged public sector”. Source: Calculations on RPA Database.

Graph 5 illustrates the relationship between public expenditure for development and the per capita GDP in the twenty Italian regions.

Graph 5. Public expenditure for development and per capita GDP



Averages 1980-2007. Source: Calculations on Istat and RPA Database.

It is easy to see that there is no correlation between the two variables: in the considered decade three Northern Italian regions with “Special statute” *status* (Valle d’Aosta, Trentino Alto Adige and Friuli Venezia Giulia) received the highest share of spending flows; other regions, such as Sicily, Campania, Apulia and Calabria (the least developed) the lowest share. The regional distribution of public

expenditure offers important elements when considering the implementation of regional policy. In a nation where profound regional development disparities exist, the distribution of financial resources aimed at territorial re-balancing clearly should privilege those areas lagging behind. In Italy this does not seem to be the case, despite the fact that the programming documents and Development plans established that 45% of the total public spending should have been spent for/in the Mezzogiorno area (Viesti, 2009).

Table 4 reports the results of FE estimations, in which the dependent variable is the rate of growth of labour productivity and different categories of expenditure are considered. The results suggest the existence of conditional convergence. Both the capital and development expenditure categories seem not to have influenced regional growth, while the current expenditure exhibits a positive and significant correlation. Regions with a large agricultural employment share have grown faster: this result is consistent with the hypothesis of conditional convergence, given that in the less developed regions the share of the agricultural sector is, on average, larger.

Different results are obtained when the sample is split into two groups. Table 5 reports the results for the twelve Centre-North regions. It is possible to observe a positive and significant correlation between the three categories of expenditure and growth, even when the control variables are included. The estimations for the Southern regions, presented in Table 6, show quite a different situation: in fact, while in the basic specifications it is possible to find a significant relationship between public spending and growth (with development and capital expenditure with negative coefficients), the correlations results as weak when controls are inserted. In all estimations, Hausman's test confirms that FE model is consistent with the nature of data.

The results obtained can be explained in the light of previous literature on the effects of regional policy in Italy. Firstly, *coeteris paribus*, the impact of financial resources on productivity growth depends not only on their quantity, but also on the efficiency of their allocation. In general, this concerns different resources, both those aimed at physical capital accumulation and those devoted to human capital formation.

Table. 4. Public spending and productivity growth: all sample

	(1)	(2)	(3)	(4)	(5)	(6)
Const	3.38** (8.0)	3.01** (8.7)	3.37** (7.9)	3.98** (8.5)	3.61** (11.8)	3.98** (8.6)
Log y	-0.31** (-8.1)	-0.29** (-8.7)	-0.31** (-8.0)	-0.38** (-8.9)	-0.35** (-12.24)	-0.38** (-9.0)
Develop ment exp.	0.13 (0.9)			0.15 (0.8)		
Current exp.		0.12** (4.6)			0.09** (2.5)	
Capital exp.			0.14 (1.0)			0.17 (1.0)
Investment				-0.23** (-2.2)	-0.12** (-1.9)	-0.23** (-2.3)
Agriculture				0.09** (2.6)	0.08** (2.9)	0.09** (2.6)
Industry				-0.08 (-1.0)	-0.10 (-1.3)	-0.08 (-1.1)
School				0.09** (6.1)	0.06** (4.6)	0.09** (6.3)
<i>Hausman</i>	54.9 [0.0]	68.7 [0.0]	55.3 [0.0]	81.3 [0.0]	87.6 [0.0]	82.2 [0.0]
<i>N</i>	100	100	100	100	100	100
<i>Adj. R²</i>	0.30	0.37	0.30	0.39	0.41	0.39
<i>lnL</i>	330	335	330	340	341	340

Note: Two-years annual growth. Fixed effect estimates. T-statistics in parentheses. * indicates significance at the 10 percent level; ** indicates significance at the 5 percent level. For Hausman's tests p-values are reported in squared parentheses; a low p-value counts against the null hypothesis that the random effects model is consistent, in favour of the fixed effects model.

In the case of Italy, some studies proved that the intervention policies for the development of the Mezzogiorno area had indirect effects – such as the reinforcement of rent-seeking behaviour - that notably limited the policies' effectiveness (Del Monte e Giannola, 1997). Differences between North and South were also found for human capital allocation among sectors, with a large prevalence of less productive activities (such as those in the public sector) in the Mezzogiorno (Di Liberto, 2001).

Table. 5. Public spending and productivity growth 1996-2006: Centre-North regions

	(1)	(2)	(3)	(4)	(5)	(6)
Const	2.83** (8.79)	2.30** (5.30)	2.80** (8.90)	2.96** (6.32)	3.14** (9.70)	2.96** (6.45)
Log y	-0.26** (-8.70)	-0.22** (-5.41)	-0.26** (-8.80)	-0.27** (-5.87)	-0.30** (-9.74)	-0.27** (-5.97)
Develop ment exp.	0.37** (3.18)			0.38** (2.22)		
Current exp.		0.10** (2.39)			0.10** (2.27)	
Capital exp.			0.38** (3.18)			0.3924** (2.16)
Invest ment				-0.28* (-1.83)	-0.27* (-1.98)	-0.2764* (-1.81)
Agricul ture				-0.1374 (-0.88)	-0.0644 (-0.55)	-0.1332 (-0.85)
Industry				-0.0786 (-0.74)	-0.0617 (-0.60)	-0.0842 (-0.78)
School				0.0437** (2.58)	0.0853** (5.94)	0.0446** (2.67)
<i>Hausman</i>	36.3 [0.00]	19.1 [0.00]	36.2 [0.00]	37.6 [0.00]	27.3 [0.00]	37.2 [0.00]
<i>n</i>	60	60	60	60	60	60
<i>Adj. R²</i>	0.31	0.20	0.31	0.30	0.22	0.30
<i>lnL</i>	210	206	210	213	209	212

Note. See Note of table 4.

Secondly, great waste and inefficiency are documented in the use of financial resources and in public investments (Rossi, 2005). Finally, as shown by a study of Marrocu and Paci (2005), different impacts of the productive inputs exist between the North and the South. These authors estimated a production function for Italy for the period 1996-2003, showing that the stock of public capital exhibits

different degrees of elasticity for the two macro-areas. More specifically, the economic infrastructures, which account for the largest proportion of the public stock, were much more productive in the South compared to the rest of the Country. In contrast, all the other types of public intervention showed a negative impact in the South and a low impact in the Centre-North. The cited analysis leads to the conclusion that in the Mezzogiorno the regional and local administrations are much less efficient in delivering public funds than in the rest of Italy.

Table. 6. Public spending and productivity growth 1996-2006: Southern regions

	(1)	(2)	(3)	(4)	(5)	(6)
const	4.14** (6.77)	3.75** (15.49)	4.16** (6.75)	4.73** (6.75)	4.05** (20.21)	4.70** (6.95)
Log y	-0.39** (-6.80)	-0.36** (-16.05)	-0.39** (-6.76)	-0.45** (-8.88)	-0.39** (-22.34)	-0.44** (-9.04)
Develop ment exp.	-0.31** (-3.00)			-0.20 (-0.64)		
Current exp.		0.14** (5.24)			0.09 (1.68)	
Capital exp.			-0.28** (-3.61)			-0.14 (-0.49)
Investment				-0.11 (-0.84)	-0.11* (-1.94)	-0.13 (-1.07)
Agriculture				0.08** (3.62)	0.07** (2.99)	0.09** (3.53)
Industry				-0.24 (-1.20)	-0.1544 (-1.37)	-0.22 (-1.20)
School				0.09** (4.22)	0.05** (2.05)	0.09** (4.57)
<i>Hausman</i>	22.5 [0.0]	38.5 [0.0]	21.6 [0.0]	40.0 [0.0]	43.9 [0.0]	36.2 [0.0]
<i>n</i>	40	40	40	40	40	40
<i>Adj. R²</i>	0.45	0.51	0.44	0.48	0.49	0.47
<i>lnL</i>	129	132	129	133	134	133

Note: See Note of table 4.

4. Conclusive remarks

This paper has examined the evolution of regional disparities in Italy and the relationship between public spending and productivity growth. The results obtained can be summarised as follows. During the period 1980-2007, regions converged significantly in productivity levels, but much less so in per capita GDP. Despite the profound regional disparities existing among the Italian regions, the territorial distribution of public spending has not privileged the less developed areas. In per capita terms, in fact, the Centre-North received a higher public expenditure than the South. Differences in advantages for the less developed regions can be found if the expenditure is considered as a share of GDP.

The regression analysis shows how the impact of public spending on growth differs, dependent upon the regions and the categories of expenditure. When the entire sample is considered, a positive relationship between current expenditure and productivity growth is found. If the sample is split into Northern and Southern regions, the estimates lead to different results. In the first group, composed of the most developed Italian regions, results show a positive and significant correlation between capital public expenditure and growth, while in the less developed Southern regions productivity growth results as only weakly linked to current expenditure. Despite the fact that the analysis refers to a relatively short period of time, it is coherent with the findings of previous studies and tends to suggest the existence of differences, not only in the amount of financial resources devoted to the North and the South of Italy, but also with regard to the effects on economic growth.

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