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Abstract

This paper tests the presence of spatial interdependencies of Italian regional public spending and its determinants in the period 1996-2010 through spatial panel models. In particular, the analysis controls for the impact of the reform of the constitutional article no. 117, in the perspective of wider administrative decentralization. Results show that administrative decentralization has greatly increased spatial interdependencies of public spending choices that appear to pass mainly through neighbours' determinants. Other findings are the presence of congestion and mobility effects, a shift in demand to the private sector especially for education and a positive correlation between left-wing governments and total and general administration expenditures.

JEL classification: C21, H72.

Key words: regional public spending, spillover effects, administrative decentralization, spatial econometric analysis.

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1. Introduction

The variety of the social and economic contexts of different geographical units in a single country has recently led to several cases of fiscal decentralization. The experiences of countries which have implemented such fiscal programmes provide interesting insights for empirical evaluation of their economic and political benefits.

The consequences of a fiscal decentralization process have been extensively discussed in the economic literature. This political process increases local government accountability and, as a consequence, may improve the efficiency of the institutions involved (Besley and Case, 1995; Revelli, 2002, 2006). However, this process may induce local authorities to allocate the available resources according to their own preferences and political strategies, resulting in an increase in interregional differences and a drop in efficiency. At the same time, fiscal decentralization may generate spatial spillover effects in local public spending – in the sense that the public spending of a state/region may be affected by that in the neighbouring regions (Case *et al*., 1993; Baicker, 2005; Costa-Font and Moscone, 2008). This influence takes place through different channels. First, state/regional policies may be conditioned by the fiscal pressure of neighbours due to the possibility of taxpayers' "migration" to locations imposing lower taxes. On the contrary, if a state/region has a more efficient welfare system, an incoming flow of individuals may be registered (Brueckner, 2000). Second, citizens can judge their politicians' behaviour by comparing the results of local administrations with those of neighbouring ones (Besley and Case, 1995). In particular, their benchmark is represented by those locations showing a more similar social and economic structure.

The origins of the theoretical literature dealing with spatial interdependencies of public spending lie in the 1960s (Breton, 1965; Williams, 1966; Brainard and Dolbear, 1967; Pauly, 1970; Oates, 1972; Boskin, 1973; Arnott and Grieson, 1981; Gordon, 1983). Empirical applications have also contributed over the years to produce extensive evidence of the presence of spatial spillovers using different public spending categories. Case at al. (1993) for example, considering four categories of the US public spending (health and human services, administration, highways, education) and different measure of neighbourliness, find significant spatial interdependencies in state expenditure during the period 1970-1985. More

recently, in a study of US public expenditures (social services, public safety, highways, miscellaneous administration) Baicker (2005) found evidence consistent with models of welfare and tax-motivated migrations.

A sizeable number of studies have analyzed the effects of fiscal decentralization in different countries, focusing only on health spending. Among them, Di Matteo and Di Matteo (1998) for Canada, Skinner and Wennberg (2000) for the US, Crivelli et al. (2006) for Switzerland, Giannoni and Hittris (2002) for Italy and Costa-Font and Pons-Novell (2007) for Spain. As regards the presence of spatial spillovers, some evidence of spatial interaction in the local organization of healthcare is given by Moscone and Knapp (2005), Costa-Font and Pons-Novell (2007) and Costa-Font and Moscone (2008).

This paper refers to the Italian regional (NUTS2 level) public spending in various sectors during the period 1996-2010, detecting different issues. First of all, following suggestions in the literature, we choose the determinants of public expenditure in different sectors. Second, we test for the presence of spatial interaction among neighbouring regions, looking for evidence of direct and indirect effects. To this extent we use different measures of neighbourliness in order to identify which channel best explains the presence of interregional spillovers. Third, since in 2001 the Italian central government modified constitutional article no. 117, in the context of broader administrative decentralization, redefining the legislative power of regions and their sectoral competence, we are keen to test whether this reform had a significant impact on regional spending spatial interdependencies. For the latter purpose our empirical investigation refers to two different sub-periods, before and after the reform (1996-2001 and 2002-2010, respectively). As far as we know there are no studies which have analyzed these issues for Italian regions.

The results of our investigation show that administrative decentralization has strongly increased spatial interdependencies of public spending choices. The matrices that best reveal the presence of regional public spending spillovers are those based on geographical distance. As regards the determinants of regional public spending the main findings are the presence of congestion and mobility effects, particularly strong after the constitutional reform, a shift in the demand to the private sector in particular for education, the mobility of individuals

towards richer regions for health services and, finally, a positive correlation between left-wing governments and total and general administration expenditures.

The paper is structured as follows: section two presents a brief overview of the administrative decentralization process in Italy; section three describes the empirical model and dataset; section four presents the econometric methodology and the measures of neighbourliness; econometric results are discussed in section five; section six concludes.

2. Italian context

The Italian Constitution recognizes administrative decentralization as one of the fundamental principles of administrative organization (Art.5, Art. 97; par. 2; arts. 114-133, Title V, Part II) designed to create effective participation of the community in the operation and care of the public interest.

Implementation of the administrative decentralization began in the 1970s with the transfer to the ordinary statute regions of administrative functions (Law no. 281/1970; the Presidential Decree of November 1st, 1972, D.P.R. no. 616/1977, Law no. 382/1975) and continued in the 1990s with the new system of local autonomy and the direct election of Mayors and the Presidents of provinces (Law no. 142/1990; Legislative Decree no. 267/2000.

In 1997, the Bassanini Law (Law no. 59/1997) transferred to the regions and local authorities responsibilities and administrative tasks referring to four specific areas: economic development and production; land, environment and infrastructure; services to individuals and the community, regional and local administrative police and the system of authorization.

But only in 2001 did the constitutional reform of Title V, Part II of the Constitution redefine the relations between State and Regions arguing that "*the legislative power is exercised by the State and Regions in accordance with the Constitution and with the constraints deriving from the EU and international obligations"* and specifies that the regions have general legislative power in all matters not expressly reserved to the State. The actual text of the Constitution lists the areas in which the State has exclusive legislative power and those in which regions may legislate whilst respecting the fundamental principles of State Law (concurrent power). The State has exclusive legislative power in justice, electoral legislation, foreign policy, immigration, defence, monetary policy, protection of the environment and cultural heritage,

and social security. Concurrent areas are the following: international relationships with European Union regions, international trade, labour health and safety, health, education, R&D, transport, energy, supplementary social security, public finance and the tax system, enhancing cultural heritage, local credit. All matters not explicitly reserved exclusively to the State are of regional legislative competence.

Prior to the reform the Italian Constitution defined specifically the areas of regional legislative power while the current text lists the areas in which the State has exclusive legislative power and those of concurrent power. This modification to the Constitution has contributed to assigning considerably enlarged powers to the regions.

3. Model and dataset

In order to detect the effects of the determinants of Italian regional public spending in this section we construct a model on the basis of the main empirical contributions in the literature (Case et al., 1993; Baicker, 2005; Costa-Font and Moscone, 2008).

$$PS_{it}^{c} = \beta X_{it} + \mu_i + \lambda_t + \varepsilon_{it} \qquad (1)$$

where PS_{it}^{c} indicates the amount of public spending in category c of region i ($i=1,...,20$) at time t ($t=1,...,T$), $\mathbf{X}_{it}$ is a (1,K) row vector of observations on the explanatory variables, $\boldsymbol{\beta}$ is a (K,1) vector of fixed but unknown parameters, μ_i is a spatial specific effect controlling for time-invariant variables and λ_t is a time-specific effect accounting for spatial-invariant variables.

Of the regional public spending categories (30 sectors) classified by the Economic Development Ministry in the Territorial Public Accounts System we consider the following: total public spending, general administration, health, education and transport[1]. For the purpose of our study, the relevant sectors are those in which the legislative power of the regions is concurrent with state powers.

As suggested by the empirical literature we consider the following explanatory variables at a regional level: population density (popdens), population over 65 years old (pop>65), population under 15 years old (pop<15), per capita income (gdppc), central administration

[1] This category is given by the sum of "road transport" and "other transport".

total transfers to families and firms (grants), and a political indicator (gov). A brief discussion of the relationship between the type of public spending and each explanatory variable together with the expected sign is given below.

The inclusion of population density among the explanatory variables is suggested by the possibility of accounting for scale economies and/or congestion effects in the provision of regional public services. In this framework we might expect a negative or a positive sign of the estimated coefficients, respectively. This variable is given by the population per square kilometre.

Different demands for public services may be explained by dissimilar regional demographic structures. To this extent we consider the fractions of population over 65 and under 15 years old which may be considered as the most dependent age classes. Beyond the potential scale/congestion effects on all the spending categories, for health we may expect a positive influence of the two explanatory variables while spending on education may be affected negatively by an aging population and positively by an increasing young population.

Per capita income is usually considered indicative of the tax base, and as a positive correlation exists between public expenditures and tax revenues we may expect the same between per capita income and public spending. However, in the richest regions the unsatisfied demand for public services may shift to the private sector, leading to a negative impact of per capita income on public spending.

Total transfers from the central administration to regional governments, given by the sum of current and capital account transfers to families and firms, are a measure of resources availability and hence may affect public expenditures positively.

Finally, a dummy variable, equal to one if the region is administered by a left-wing party and zero otherwise, is included in order to account for political effects. Most of the economic literature (Parkin et al., 1987; Henrekson, 1988; Costa-Font and Moscone, 2008, on health expenditure) suggests that left-wing governments tend to increase public expenditure more than those on the right. On the contrary, Tavares (2004) shows that left-wing parties enforce their credibility by cutting public expenditure while the right increase it by raising tax revenues. Given these frameworks the expected effect of the political indicator on public spending is not unique.

Although the overall period of our analysis covers the interval 1996-2010, we consider two different sub-periods in order to control for the impact of administrative decentralization introduced in Italy on October 2001. The econometric investigation will therefore examine the period prior to decentralization (1996-2001) and the period after (2002-2010).

Our data sources are as follows: Territorial Economic Accounts from ISTAT for GDP and population; the Territorial Public Accounts System of the Ministry of Economic Development for public spending categories and transfers to families and firms; Ministry of the Interior for political indicators.

In order to evaluate the spatial interdependencies of regional public spending we then introduce a spatial component and estimate the model through appropriate spatial panel techniques (section 4).

3.1 Descriptive analysis of public spending categories

In what follows we give a brief overview of the distribution and dynamics of regional public spending in Italy during the period 1996-2010. Tables 1 and 2 present the descriptive statistics while figure 1 shows trends over time for each spending category. Total spending represents on average 10.7% of regional GDP, with Valle d'Aosta and Lazio showing the highest and lowest percentage (26.5% and 4.9%, respectively). This category of public expenditure increased during the whole period although the Growth and Stability Pact imposed more severe criteria for the management of the public budget in all the Member States of the Economic and Monetary Union. As regards more disaggregated types of public spending, namely General Administration, Health, Education and Transport, they represent on average almost 80% of regional total spending. The largest share of spending is on health services (62.5%), which increased constantly during the period in question; Calabria and Sicilia showed the highest percentage value (9.15 and 8.06, respectively) while Veneto, with the lowest (4.94), spent approximately half (in percentage terms).

Regional spending on General Administration, Education and Transport showed a slight increase.

It is worth pointing out the interregional discrepancies which are notable for total spending and health. Besides, the dynamics of the variability during the sample period

indicates that interregional divergences increase in all spending categories except for General Administration.

4. Econometric methodology

Depending on the type of interaction between observations of different geographical units, different spatial econometric models may be used (Anselin 1988; Elhorst 2010, 2011):

- Spatial autoregressive models (SAR), when the dependent variable is influenced by the dependent variable observed in the neighbouring regions

$$PS_{it}^{c} = \delta \sum_{j=1}^{N} w_{ij} PS_{it}^{c} + \beta X_{it} + \mu_i + \lambda_t + \varepsilon_{it} \qquad (2)$$

  where w_{ij} is the single element of the row-standardized weight matrix for neighbourliness. A positive δ coefficient indicates similar movements among neighbouring regions' spending, while a negative value suggests differences with respect to neighbours' spending.

- Spatial error models (SEM), when error terms are correlated across space

$$PS_{it}^{c} = \delta \sum_{j=1}^{N} w_{ij} PS_{it}^{c} + \beta X_{it} + \mu_i + \lambda_t + \varphi_{it} \qquad (3)$$

$$\varphi_{it} = \rho \sum_{k=1}^{N} w_{ik} \varphi_{it} + \varepsilon_{it} \qquad (4)$$

  A significant ρ parameter indicates that a random shock in a spatially significant omitted variable that affects public spending in a region also extends to its neighbours.

- Spatial Durbin Models (SDM) containing a spatially lagged dependent variable and spatially lagged independent variables. For our analysis, this means that each region's public spending category also depends on the determinants of its neighbours' spending. This model enables us to distinguish between direct effects - that is the influence of a particular explanatory variable on the dependent variable on its own economy-and indirect

effects-that is the presence of spatial spillovers. On the basis of this approach the model changes as follows:

$$PS_{it}^{c} = \delta \sum_{j=1}^{N} w_{ij} PS_{it}^{c} + \beta X_{it} + \gamma \sum_{j=1}^{N} w_{ij} X_{ijt} + \mu_i + \lambda_t + \varepsilon_{it} \qquad (5)$$

where γ is a (K,1) vector of parameters measuring the influence of neighbouring regions explanatory variables.

In order to choose the proper spatial panel model specification for each public spending category (Anselin *et al*. 2008; LeSage and Pace 2009; Elhorst 2010, 2011), we performed the robust Lagrange-Multiplier test, namely the robust-LM*lag* and the robust-LM*err* tests. The null hypothesis for these tests is the absence of spatial dependence while the alternative hypotheses are, respectively, the presence of a spatial lag and spatial error dependence. We also undertook the likelihood ratio (LR) and the Wald tests to verify whether the SDM can be simplified to the spatial lag model or to the spatial error model (Elhorst 2010, 2011). The model specifications are estimated with Maximum Likelihood techniques, using the bias correction of Lee and Yu (2010), assuming that the disturbances are independent and identically distributed (i.i.d.) across *i* and *t*, with zero mean and variance σ^2. Finally, an LR test is used to investigate the joint significance of time- and spatial-specific effects, which may be treated as fixed or random. In particular, we treat the time-specific effects as fixed because our panel includes all the Italian regions, and not a sample of them, and each sub-period is not sufficiently large (Elhorst 2010), as T_1=6 and T_2=9. Regarding the spatial specific effects we use the Hausman test in order to choose between a random and a fixed model approach.

4.1. Weight matrices for neighbourliness

Following Case *et al*. (1993) and Baicker (2005) we explore different types of weight matrices in order to find out which type of neighbourliness best explains the spillover effects of public spending choices. To this extent we consider four measures of proximity:

- Geographic distance (INVDIS). Following Le Gallo and Ertur (2003) we chose a row-standardized weight matrix computed on the *k*-nearest regions, whose weights are given by the inverse distance among regional administrative centres (regional

capitals). This type of matrix is preferred over contiguity and adjacent ones due to the presence of islands in the sample and the possibility of selecting the same number of neighbours for each region (De Siano, D'Uva, 2013). In this study we considered the six-nearest regions.

- Population-weighted geographical distance (POPDIS), where the six-nearest regions are weighted by their own population size.
- Per capita income (GDP). In this matrix the weights are computed on the basis of per capita income differences among regions as follows:

$$w_{ij} = \frac{1}{\left|Gdp_i - Gdp_j\right| S_i} \qquad \text{with} \quad S_i = \sum_j \frac{1}{\left|Gdp_i - Gdp_j\right|}$$

where Gdp_i and Gdp_j are the initial levels (1996) of per capita income in regions i and j, respectively.

- Interregional mobility (MOB), where for each region i the weights are given by the share of immigrants from a region j (with $j \neq i$), with respect to region i's total immigration. Data on migrants are taken from the Territorial Economic Accounts of Istat.

5. Econometric results

This section presents the results of the spatial econometric analysis for the sub-periods 1996-2001 and 2002-2010. We undertook this analysis for only those public spending categories for which regions have a concurrent legislative power with the State, namely: total public spending, general administration, health, education and transport.

We performed the analysis using the four different weights matrices described above. As our results show that interregional mobility does not have a significant impact on regional spending spillovers, we present and discuss only the outcome obtained using the six nearest regions, the per capita income and the population-weighted geographical distance matrices.

With regard to model specification tests, comparison of the two sub-period robust-LM[2] results reveals that administrative decentralization leads to considerable public spending spillover when the six-nearest regions matrix is used. Spatial interdependencies do not appear to be modified when different matrices are considered.

Robust-LM, Wald and LR tests enable us to identify the spatial econometric model that best describes the data in the presence of spatial interdependencies. Tables 3a and 4a show the results only for those spending categories for which spatial interdependencies are found. When using the geographical distance matrix the SDM is chosen in the first sub-period for general administration and health, and in the second for total spending, health, education and transport. The sample based on the per capita income matrix reveals that in the first sub-period the SDM is preferred for general administration and education and the SAR model for health and transport; in the second sub-period the SDM is chosen for general administration, health and transport and an SAR model for education. Finally, when the population-weighted geographical distance is used, the SDM always proves to be the best model for all the spending categories except for education in the first sub-period (SEM) and transport in the second (SEM).

As mentioned above, we treat the time-specific effects as fixed while the Hausman test reveals that the spatial specific effects should be considered in the first sub-period as random only for general administration when using the per capita income matrix. Regarding the second sub-period, spatial effects are random in the case of the geographical distance matrix for total spending, education and transport, for health and transport when using the per capita income matrix and, finally, for total spending and general administration when the population-weighted matrix is used.

Estimation of the SDM reveals that there is no spatial autocorrelation for the public spending categories, in the sense that spending in the neighbouring regions does not affect one region's own spending. Indeed, the corresponding coefficients are negative or not significant. However, spatial interdependencies seem to pass through the neighbouring regions' determinants of public spending whichever measure of neighbourliness is considered. This

[2] These results are available upon request.

occurs mostly in the second sub-period, meaning that the constitutional reform had a significant impact on regional spending spillovers.

Regarding the measure of neighbourliness, our analysis reveals that the population-weighted geographical distance matrix is the one that best picks up the regional spillovers of public spending. The matrix gives the largest number of significant explanatory variables for all the expenditure categories, except for education where the distance between regions seems to be more crucial.

With regard to the determinants of regional public spending, below we present the overall findings of both the direct and indirect effects (tables 3b and 4b). The direct effects differ from their coefficient estimates due to the feedback effects in each explanatory variable on neighbouring regions, and then back on the regions themselves. In our study, these feedback effects appear to be mainly due to the coefficient of the spatially lagged value of the independent variables, rather than to the coefficient of the spatially lagged dependent variable, which is almost always negative or non-significant.

Congestion effects resulting from positive coefficients of the population density (popdens) direct effects are evidenced for all spending categories. Indirect effects are mainly positive, which may be due to population mobility among regions. When considering more similar regions in terms of per capita income we find a negative indirect effect for health and transport. Indeed, it is unlikely that individuals living in a rich/poor region move towards a region with a similar income level for transport or health services. All these effects are particularly strong after the constitutional reform, indicating that administrative decentralization drove regional interactions.

The population over 65 (pop>65) shows significant effects (positive) only for region own health expenditure, as expected. As regards indirect effects, coefficients are always positive (except for general administration) above all in the second period. This evidence confirms the presence of population mobility effects. The population under 15 years old (pop<15) does not have a significant direct effect on regional public spending while it seems to affect positively total and health expenditure of neighbouring regions.

Direct effects of income level, significant only in the first period, are positive on regional general administration and health spending while they are negative on education. The

results suggest that there is a shift of the demand to the private sector only for education. The negative spillover effect of the income level on neighbouring regions' health spending when using the population-weighted geographical distance matrix must be emphasized. This means that individuals tend to move towards richer regions that probably offer higher quality services in the health sector.

Transfers of the central government to families and firms of a region affect the region's own spending positively, as suggested by the theoretical literature, while they do not affect neighbouring regions' expenditure.

Finally, as regards the political indicator, our analysis shows that regional total and general administration expenditures have always been increased by left-wing parties while spending on education has been reduced. Neighbouring region spillover effects are of less relevance.

When, as indicated by diagnostic tests, the models that best describe the data are the SAR and SEM, the results do not show the presence of spatial autocorrelation in the dependent variables as in the error terms. As regards the determinants of regional public spending, they confirm the outcome given by direct effects in the SDMs.

6. Conclusions

This paper contributes to the empirical debate on the spatial interaction in public spending decisions at a local level. To this extent, on the basis of the literature, we built an empirical model including the determinants of Italian regional public expenditure in the following sectors: total public spending, general administration, health, education and transport. Besides, as the recent econometric theory has pointed out that ignoring spatial interdependencies may lead to inefficient estimates (Anselin 1988; Elhorst 2010; LeSage and Pace 2009), we included a spatial component in the model and estimated it through spatial econometric techniques. In order to check the robustness of the results and to find the measure of neighbourliness which best explains the interregional public spending spillover effects we used four measures of proximity: geographic distance, population-weighted geographical distance, per capita income and interregional mobility. The study covered two sub-periods,

1996-2001 and 2002-1010, so as to account for the importance of administrative decentralization, introduced in Italy with the constitutional reform of Art. 117 in 2001, and tested its impact on regional spending spatial interdependencies.

Regarding the measure of neighbourliness, the population-weighted geographical distance matrix is the one that best reveals the presence of regional public spending spillovers. However, the six-nearest regions matrix more clearly emphasized the effects of administrative decentralization in terms of interregional interdependencies.

In general, diagnostic tests revealed that the model specification to be preferred is the Spatial Durbin. This model enabled us to distinguish between the influence of a particular explanatory variable on the dependent variable on its own economy (direct effects) and the presence of spatial spillovers (indirect effects).

Estimation of the SDM shows that spending in the neighbouring regions does not affect one region's own spending (absence of spatial autocorrelation). However, spatial interdependencies seem to pass through the neighbouring regions' determinants of public spending mostly in the second sub-period, indicating significant impact of the constitutional reform on regional spending spillovers.

The signs of the explanatory variables coefficients are generally consistent with theoretical predictions. When considering demographic explanatory variables we found congestion and mobility effects. All these effects are particularly strong after the constitutional reform indicating that the administrative decentralization enforced regional interactions. The GDP explanatory variable suggests the presence of both a shift in demand to the private sector for education and a mobility of individuals towards richer regions for the health sector services. Transfers to a region positively affect only the region's own spending. The political indicator evidences a positive correlation between left-wing governments and total and general administration expenditures.

The main result of our analysis is that administrative decentralization in Italy has greatly increased spatial interdependencies of public spending choices. Therefore policy-makers in defining public spending programmes should make due allowances for the direct and feedback effects of their actions.

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Table 1. *Descriptive statistics of public spending categories by year*

Year	Total spending		General Administration		Health		Education		Transports	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
1996	9.364	4.777	0.785	0.900	5.296	1.406	0.309	0.536	0.422	0.283
1997	9.403	4.745	0.794	0.946	5.458	1.429	0.348	0.555	0.424	0.311
1998	9.768	4.745	0.807	0.927	5.588	1.189	0.415	0.693	0.413	0.350
1999	9.812	4.707	0.809	0.761	5.547	1.244	0.370	0.878	0.473	0.490
2000	10.209	4.752	0.850	0.839	5.816	1.194	0.366	0.840	0.553	0.511
2001	11.516	7.477	0.894	1.031	6.186	1.485	0.370	0.867	0.661	0.505
2002	10.639	5.416	0.835	0.976	6.125	1.392	0.393	0.883	0.638	0.533
2003	10.832	5.151	0.876	1.021	6.172	1.153	0.389	0.902	0.682	0.554
2004	10.823	5.411	0.855	1.033	6.480	1.635	0.362	0.850	0.622	0.512
2005	10.690	5.289	0.820	0.997	6.399	1.733	0.351	0.825	0.532	0.480
2006	10.960	5.715	0.865	1.080	6.567	1.625	0.365	0.868	0.532	0.470
2007	10.834	5.366	0.865	0.956	6.565	1.772	0.357	0.880	0.541	0.480
2008	11.156	5.373	0.927	1.022	6.765	1.857	0.372	0.905	0.592	0.495
2009	12.848	8.590	0.949	1.126	7.373	2.103	0.582	1.675	0.740	0.888
2010	12.132	8.524	0.862	0.921	7.429	2.385	0.539	1.557	0.661	0.814

Table 2. *Descriptive statistics of public spending categories by region*

Region	Total spending		General administration		Health		Education		Transport	
	Mean	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**
Abruzzo	8.635	1.352	0.885	0.226	6.156	1.153	0.114	0.032	0.173	0.122
Basilicata	11.750	1.092	0.794	0.084	7.407	1.202	0.112	0.079	0.408	0.220
Calabria	13.415	1.241	0.662	0.160	9.152	1.188	0.090	0.045	0.762	0.459
Campania	10.601	1.143	0.760	0.298	7.866	0.940	0.086	0.027	0.792	0.240
Emilia Romagna	6.437	0.561	0.181	0.029	5.177	0.581	0.069	0.029	0.265	0.048
Friuli Venezia Giulia	9.281	1.397	0.691	0.202	4.917	0.340	0.099	0.035	0.381	0.119
Lazio	4.882	0.837	0.282	0.130	3.722	0.805	0.095	0.037	0.402	0.229
Liguria	7.554	0.864	0.550	0.436	5.589	0.643	0.041	0.025	0.510	0.158
Lombardia	5.770	1.000	0.138	0.021	4.751	0.958	0.055	0.022	0.340	0.055
Marche	7.444	0.443	0.506	0.189	5.709	0.465	0.103	0.020	0.225	0.074
Molise	11.265	0.995	1.270	0.152	6.474	0.612	0.094	0.133	0.763	0.247
Piemonte	7.011	1.201	0.274	0.060	5.278	0.918	0.072	0.017	0.390	0.186
Puglia	9.831	1.312	0.366	0.047	7.902	1.079	0.086	0.037	0.542	0.168
Sardegna	14.467	0.610	1.222	0.158	7.489	0.879	0.248	0.088	0.402	0.193
Sicilia	15.354	1.461	1.182	0.258	8.069	0.971	0.252	0.097	0.404	0.060
Toscana	6.923	0.326	0.283	0.082	5.561	0.481	0.115	0.038	0.310	0.072
Trentino	22.071	8.232	1.893	0.508	6.767	2.883	3.385	1.540	1.992	1.003
Umbria	9.209	0.859	0.552	0.127	6.797	0.715	0.099	0.019	0.398	0.113
Valle d'Aosta -	26.545	3.891	4.387	0.493	5.291	0.547	2.591	0.282	1.617	0.238
Veneto	6.202	0.633	0.182	0.026	4.949	0.678	0.046	0.032	0.237	0.057

Tables 3.a. *Spatial panel models results, sub-period 1996-2001*

Determinants	**Total spending**	**General administration**			**Health**			**Education**		**Transport**	
	SDM	**SDM**	**SDM**	**SDM**	**SDM**	**SAR**	**SDM**	**SDM**	**SDM**	**SAR**	**SEM**
	POPDIS	**INVDIS**	**GDP**	**POPDIS**	**INVDIS**	**GDP**	**POPDIS**	**GDP**	**POPDIS**	**GDP**	**POPDIS**
Popdens	7.31	-2.24	0.34	-4.50	222.38	320.08	370.76	-0.15	-2.88	9.30	8.81
	(2.53)	(-0.27)	(1.09)	(-0.60)	(3.98)	(6.66)	(7.38)	(-0.67)	(-0.59)	(1.17)	(1.23)
Pop>65	129.8	30.62	-35.77	-1.47	1695.57	1958.8	2422.6	-30.21	-198.23	-141.04	-114.2
	(4.80)	(0.40)	(-2.59)	(-0.02)	(3.38)	(3.98)	(5.15)	(-2.90)	(-4.37)	(-1.77)	(-1.60)
Pop<15	3.16	16.47	1.43	7.02	5.57	82.15	44.06	2.51	-6.09	-15.67	-17.40
	(0.61)	(1.16)	(0.12)	(0.52)	(0.05)	(0.80)	(0.49)	(0.31)	(0.71)	(-0.92)	(-1.16)
Gdppc	-6.003	22.57	31.87	20.64	887.62	777.34	618.77	24.19	-41.56	-55.19	-56.53
	(-0.48)	(0.65)	(1.67)	(0.63)	(3.84)	(3.66)	(2.84)	(1.80)	(-1.98)	(-1.58)	(-1.92)
Grants	1.41	7.03	6.45	8.90	39.61	45.11	53.55	-2.34	-2.76	3.53	4.67
	(1.50)	(2.87)	(2.86)	(3.64)	(2.42)	(2.41)	(3.27)	(-1.51)	(-1.75)	(1.14)	(1.80)
Gov	16.66	132.11	114.09	81.96	574.87	659.46	302.24	-18.11	-64.67	-60.01	-63.99
	(1.11)	(3.94)	(4.35)	(2.10)	(2.55)	(2.77)	(1.15)	(-1.00)	(-2.57)	(-1.54)	(-1.78)
W*Popdens	29.40	49.58	0.09	-0.18	-889.12		-100.1	-0.19	-20.94	0.10	
	(3.02)	(1.38)	(0.20)	(-0.007)	(-3.67)		(-0.57)	(-0.55)	(-1.28)	(-1.00)	
W*Pop>65	138.49	440.0	-65.60	634.26	-58.13		5432.33	17.22	261.92		
	(1.33)	(2.32)	(-2.45)	(2.40)	(-0.04)		(3.01)	(0.90)	(1.54)		
W*Pop<15	101.05	130.6	-98.15	195.61	714.18		3364.0	17.51	13.80		
	(2.82)	(2.12)	(-3.43)	(2.13)	(1.70)		(5.43)	(0.89)	(0.23)		
W*Gdppc	-21.79	-135.05	-65.12	-154.85	917.97		-716.25	-5.65	90.04		
	(-0.58)	(-1.64)	(-2.63)	(-1.61)	(1.62)		(-1.10)	(-0.32)	(1.45)		
W*Grants	-0.62	-6.50	1.90	-3.71	-45.23		-28.05	-0.06	0.64		
	(-0.45)	(-1.20)	(0.58)	(-1.01)	(1.25)		(-1.17)	(-0.03)	(0.28)		
W*Gov	39.53	-41.82	52.68	-148.32	714.53		-458.98	33.52	-14.23		
	(1.10)	(-0.36)	(1.01)	(-1.51)	(0.95)		(-0.72)	(0.95)	(-0.23)		
δ	-0.15	-0.26	-0.25	-0.23	-0.05	-0.07	-0.10	-0.26	-0.009	-0.10	
	(-1.03)	(-1.59)	(-2.50)	(-1.52)	(-0.37)	(-0.81)	(-1.04)	(-2.53)	(-0.06)	(-1.00)	
ρ											-0.23
											(-1.64)
Theta			0.23					0.20			
			(4.55)					(4.53)			
R^2	0.98	0.90	0.88	0.90	0.97		0.97	0.88	0.91	0.88	0.89
Corrected R^2	0.28	0.39	0.51	0.39	0.62		0.62	0.41	0.26	0.06	0.85
Wald test spatial lag	32.37	10.49	22.67	12.24	40.87		43.24	2.57	5.84		
	(p=0.000)	*(p=0.10)*	*(p=0.000)*	*(p=0.05)*	*(p=0.000)*		*(p=0.000)*	*(p=0.86)*	*(p=0.44)*		
LR test spatial lag	34.40	12.59		13.30	42.34		41.20		6.30		
	(p=0.000)	*(p=0.05)*		*(p=0.03)*	*(p=0.000)*		*(p=0.000)*		*(p=0.38)*		
Wald test spatial error	30.92	11.25	19.04	13.35	39.99		42.50	3.89	5.87		
	(p=0.000)	*(p=0.08)*	*(p=0.000)*	*(p=0.03)*	*(p=0.000)*		*(p=0.000)*	*(p=0.69)*	*(p=0.43)*		
LR test spatial error	35.41	13.63		14.42	40.24		40.92		6.11		
	(p=0.000)	*(p=0.03)*		*(p=0.02)*	*(p=0.000)*		*(p=0.000)*		*(p=0.41)*		
Hausman test	31.83	58.03	4.60	28.04	99.41		107.34	9.49	23.10		
	(p=0.002)	*(p=0.000)*	*(p=0.98)*	*(p=0.008)*	*(p=0.000)*		*(p=0.000)*	*(p=0.73)*	*(p=0.04)*		

t-values and p-values in parentheses

Tables 4.a. *Spatial panel models results, sub-period 2002-2010*

Determinants	**Total spending**		**General administration**		**Health**			**Education**			**Transport**		
	SDM INVDIS	**SDM POPDIS**	**SDM GDP**	**SDM POPDIS**	**SDM INVDIS**	**SDM GDP**	**SDM POPDIS**	**SDM INVDIS**	**SAR GDP**	**SEM POPDIS**	**SDM INVDIS**	**SDM GDP**	**SDM POPDIS**
Popdens	0.80	1.30	11.84	0.89	95.40	22.30	155.28	0.38	-1.09	-1.87	1.71	1.14	11.11
	(1.36)	*(2.77)*	(3.28)	(1.98)	(3.63)	(5.01)	(7.08)	(0.68)	(-1.07)	(-1.77)	(3.39)	(3.99)	(2.50)
Pop>65	7.41	14.20	-13.18	-22.24	64.73	-30-05	525.56	5.02	-32.86	18.01	-20.31	-12.83	72.72
	(1.03)	(1.96)	(-0.38)	(-1.26)	(0.29)	(-0.19)	(2.72)	(0.56)	(5.52)	(1.78)	(-1.34)	(-0.88)	(-1.87)
Pop<15	-1.03	-0.03	-21.66	6.21	-160.75	66.75	-80.97	4.48	12.44	14.56	63.22	54.40	57.46
	(-0.29)	(-0.01)	(-1.41)	(0.49)	(-1.39)	(0.86)	(-0.81)	(1.02)	(3.24)	(3.34)	(4.31)	(4.17	(2.83)
Gdppc	0.23	-0.121	1.87	2.89	-33.76	-11.74	-16.86	-9.62	-7.54	-9.42	5.23	4.47	4.19
	(0.22)	(-0.11)	(0.42)	(0.71)	(-1.07)	(-0.39)	(-0.64)	(-7.05)	(-5.57)	(-6.65)	(1.08)	(0.84)	(0.79)
Grants	-0.0001	0.001	0.03	0.05	-0.28	0.21	-0.18	0.01	0.007	0.015	0.03	-0.004	-0.03
	(-0.02)	(0.37)	(1.65)	(2.74)	(-1.44)	(1.72)	(-1.45)	(1.19)	(1.50)	(2.49)	(0.95)	(-0.19)	(-1.36)
Gov	33.07	33.17	58.28	34.15	-445.77	-671.74	32.25	-16.76	-21.23	-20.92	62.23	25.35	70.68
	(4.61)	(4.64)	(1.87)	(1.20)	(-2.15)	(-3.27)	(0.18)	(-1.78)	(-2.36)	(-235)	(1.82)	(0.72)	(-96)
W*Popdens	2.52	5.64	11.59	-1.69	-23.98	-7.34	166.43	4.75			1.92	-1.08	9.78
	(1.13)	(3.59)	(2.08)	(-0.86)	(-0.25)	(-1.00)	(3.13)	(2.17)			(0.93)	(-2.36)	(0.91)
W*Pop>65	93.97	90.35	134.63	-214.60	2270.38	-313.00	4658.24	118.68			-13.74	-15.58	364.54
	(5.00)	(3.51)	(-1.66)	(-2.99)	(3.91)	(-1.32)	(5.97)	(5.18)			(-0.33)	(-0.80)	(2.31)
W*Pop<15	26.32	15.89	-41.34	-65.26	536.13	-1.179	607.77	14.65			-42.78	-20.68	-20.33
	(3.32)	(1.98)	(-1.40)	(-3.25)	(1.83)	(-1.53)	(2.43)	(1.60)			(-1.73)	(-1.01)	(-0.39)
W*Gdppc	5.27	-5.66	-7.28	42.18	13.39	111.53	-457.54	-7.37			20.58	13.29	91.42
	(1.64)	(-0.92)	(-0.48)	(2.06)	(0.13)	(1.47)	(-2.82)	(-1.72)			(1.59)	(1.44)	(2.78)
W*Grants	-0.021	0.001	0.002	2.02	-1.61	-0.12	-0.38	-0-02			0.23	0.03	0.09
	(-0.82)	(0.04)	(0.08)	(0.23)	(-2.23)	(-0.62)	(-0.68)	(-0.73)			(1.87)	(0.82)	(0.82)
W*Gov	4.71	22.14	29.18	-93.78	779.08	-985.56	1594.13	-22.77			-58.39	-157.78	-32.51
	(2.39	(1.23	(0.49)	(-1.31)	(1.36)	(-2.51)	(3.56)	(-0.86)			(-0.59)	(-2.29)	(-0.36)
δ	-0.49	-0.25	-0.08	-0.15	0.25	-0.23	-0.30	-0.49	-0.086	-0.11	-0.22	-0.05	-0.14
	(-3.51)	(-2.06)	(-0.95)	(-1.35)	(-1.87)	(-2.72)	(-2.94)	(-3.47)	(-1.00)	(-0.96)	(-1.67)	(-0.56)	(-1.23)
ρ						0.10						0.30	
						(4.49)						(4.63)	
Theta	0.02	0.03		0.14				0.04			0.25		
	(4.47)	(4.47)		(4.51)				(4.47)			(4.58)		
R^2	0.99	0.99	0.89	0.88	0.98	0.97	0.98	0.98	0.98	0.98	0.86	0.85	0.89
Corrected R^2	0.02	0.13	0.19	0.27	0.23	0.67	0.42	0.07	0.29	0.97	0.62	0.69	0.27
Wald test spatial lag	48.45	60.29	9.17	16.32	26.11	13.46	93.95	39.73			19.87	17.85	27.70
	(p=0.000)	*(p=0.000)*	*(p=0.16)*	*(p=0.01)*	*(p=0.000)*	*(p=0.03)*	*(p=0.000)*	*(p=0.000)*			*(p=0.003)*	*(p=0.006)*	*(p=0.000)*
LR test spatial lag			11.63		25.07		73.33						29.85
			(p=0.07)		*(p=0.000)*		*(p=0.000)*						*(p=0.000)*
Wald test spatial error	42.75	56.10	8.25	16.78	26.53	16.04	87.29	35.45			19.82	19.09	27.53
	(p=0.000)	*(p=0.000)*	*(p=0.22)*	*(p=0.01)*	*(p=0.000)*	*(p=0.013)*	*(p=0.000)*	*(p=0.000)*			*(p=0.003)*	*(p=0.004)*	*(p=0.000)*
LR test spatial error			9.37		25.28		72.17						30.85
			(p=0.15)		*(p=0.000)*		*(p=0.000)*						*(p=0.000)*
Hausman test	2.81	3.47	59.72	10.90	28.67	4.55	79.28	3.75			15.64	7.03	25.73
	(p=0.99)	*(p=0.99)*	*(p=0.00)*	*(p=0.62)*	*(p=0.007)*	*(p=0.98)*	*(p=0.000)*	*(p=0.99)*			*(p=0.27)*	*(p=0.90)*	(0.018)

t-values and p-values in parentheses

Tables 3b. *Direct, indirect and total effects from Spatial Durbin models, sub-period 1996-2001*

Determinants	**Total spending**	**General administration**			**Health**			**Education**	
	POPDIS	**INVDIS**	**GDP**	**POPDIS**	**INVDIS**	**GDP**	**POPDIS**	**GDP**	**POPDIS**
Direct effect Popdens	6.83	-4.17	0.34	-4.75	233.52	322.39	373.51	-0.14	-2.97
	(2.39)	(-0.54)	(1.09)	(-0.64)	(4.10)	(6.73)	(7.69)	(-0.61)	(-0.61)
Indirect effect Popdens	25.28	41.39	0.01	1.64	-862.92	-21.02	-122.79	-0.13	-20.85
	(2.62)	(1.34)	(0.02)	(0.07)	(-3.50)	(-0.81)	(-0.78)	(-0.44)	(-1.19)
Total effect Popdens	32.12	37.22	0.35	-3.10	-629.40	301.37	250.72	-0.27	23.83
	(2.87)	(1.04)	(0.70)	(-0.11)	(-2.19)	(5.66)	(1.37)	(-0.72)	(-1.17)
Direct effect Pop>65	126.64	14.50	-30.80	-19.49	1702.14	1974.03	2370.26	-32.94	-198.32
	(4.45)	(0.18)	(-2.10)	(-0.25)	(3.47)	(4.00)	(5.11)	(-2.99)	(-4.48)
Indirect effect Pop>65	101.83	353.25	-48.97	532.72	-71.95	-124.28	4901.40	22.03	257.79
	(1.05)	(2.19)	(-2.04)	(2.27)	(-0.05)	(-0.77)	(2.92)	(1.24)	(1.54)
Total effect Pop>65	228.48	367.76	-79.77	513.22	1630.19	1849.74	7271.66	-10.90	59.47
	(2.39)	(2.06)	(-3.78)	(2.22)	(1.15)	(3.62)	(4.34)	(-0.72)	(0.35)
Direct effect Pop<15	1.21	11.51	10.32	2.03	-5.05	82.54	-5.63	0.82	-6.39
	(0.21)	(0.78)	(0.78)	(0.14)	(-0.05)	(0.78)	(-0.05)	(0.09)	(-0.74)
Indirect effect Pop<15	89.36	103.51	-86.61	162.85	724.74	-5.60	3147.30	13.77	11.38
	(2.70)	(1.91)	(-3.31)	(1.96)	(1.81)	(-0.42)	(5.26)	(0.77)	(0.18)
Total effect Pop<15	90.57	115.03	-76.28	164.89	719.68	76.94	3141.66	14.60	4.99
	(2.70)	(2.07)	(-3.24)	(2.01)	(1.69)	(0.79)	(5.20)	(0.91)	(0.08)
Direct effect Gdppc	-6.32	28.63	40.41	25.75	872.40	788.74	633.33	24.64	-41.30
	(-0.51)	(0.79)	(1.83)	(0.74)	(3.70)	(3.76)	(2.83)	(1.65)	(-1.94)
Indirect effect Gdppc	-19.40	-117.70	-67.11	-136.30	837.67	-50.66	-743.62	-10.24	91.88
	(-0.54)	(-1.62)	(-2.53)	(-1.60)	(1.47)	(-0.77)	(-1.24)	(-0.57)	(1.41)
Total effect Gdppc	-25.73	-89.07	-26.69	-110.54	1710.07	738.08	-110.28	14.39	50.57
	(-0.75)	(-1.25)	(-3.04)	(-1.36)	(2.88)	(3.50)	(-0.19)	(2.28)	(0.78)
Direct effect Grants	1.42	7.35	6.45	9.13	40.37	44.73	54.39	-2.38	-2.69
	(1.53)	(3.03)	(2.79)	(3.69)	(2.47)	(2.32)	(3.32)	(-1.55)	(-1.66)
Indirect effect Grants	-0,70	-6.81	0.13	-4.77	-43.57	-2.89	-32.96	0.42	0.62
	(-0.54)	(-1.52)	(0.04)	(-1.47)	(-1.23)	(-0.72)	(-1.42)	(0.21)	(0.27)
Total effect Grants	0.72	0.53	6.58	4.35	-3.20	41.84	21.42	-1.96	-2.06
	(0.51)	(0.11)	(2.08)	(1.25)	(-0.08)	(2.25)	(0.85)	(-0.83)	(-0.78)
Direct effect Gov	16.09	134.99	112.46	87.06	565.36	681.04	301.42	-21.96	-64.40
	(1.12)	(4.09)	(4.07)	(2.27)	(2.50)	(2.81)	(1.17)	(-1.21)	(-2.57)
Indirect effect Gov	32.95	-64.14	19.96	-142.56	629.30	-43.50	-467.47	31.53	-12.44
	(1.05)	(-0.71)	(0.43)	(-1.83)	(0.85)	(-0.73)	(-0.82)	(1.03)	(-0.20)
Total effect Gov	49.05	70.84	132.42	-55.49	1194.67	637.54	-166.04	9.57	-76.85
	(1.22)	(0.68)	(2.79)	(-0.55)	(1.40)	(2.70)	(-0.22)	(0.29)	(-1.01)

t-values in parentheses

Tables 4b. *Direct, indirect and total effects from Spatial Durbin models, sub-period 2002-2010*

Determinants	**Total spending**		**General administration**		**Health**			**Education**	**Transport**		
	INVDIS	**POPDIS**	**GDP**	**POPDIS**	**INVDIS**	**GDP**	**POPDIS**	**INVDIS**	**INVDIS**	**GDP**	**POPDIS**
Direct effect Popdens	0.63	1.15	11.57	0.93	97.65	23.12	151.13	0.07	1.66	-1.55	10.94
	(1.21)	(2.46)	(3.31)	(2.02)	(3.95)	(5.19)	(7.04)	(0.15)	(3.44)	(4.09)	(2.45)
Indirect effect Popdens	1.51	4.51	10.14	-1.63	-37.56	-11-11	98.26	3.45	1.36	-1.11	7.29
	(1.00)	(3.17)	(1.90)	(-0.91)	(-0.48)	(-1.82)	(2.29)	(2.24)	(0.78)	(-2.50)	(0.74)
Total effect Popdens	2.14	5.66	21.72	-0.07	60.09	12.00	249.39	3.53	3.02	0.04	18.23
	(1.21)	(3.47)	(2.96)	(-0.35)	(0.67)	(1.47)	(4.87)	(1.93)	(1.43)	(0.07)	(1.53)
Direct effect Pop>65	1.47	11.72	-10.20	-19.35	-14.73	-2.69	365.02	-3.75	-19.72	-12.47	67.33
	(0.19)	(1.54)	(-0.28)	(-1.09)	(-0.07)	(-0.01)	(1.87)	(-0.39)	(-1.26)	(-0.86)	(1.71)
Indirect effect Pop>65	66.19	72.67	-129.34	-187.49	1929.11	-275.71	3642.13	85.79	-7.86	-14.30	323.16
	(4.61)	(3.32)	(-1.65)	(-3.06)	(3.85)	(-1.19)	(5.66)	(4.89)	(-0.21)	(-0.73)	(2.21)
Total effect Pop>65	67.67	84.39	-139.54	-206.83	1914.37	-278.40	4007.16	82.04	-27.58	-26.77	390.49
	(5.30)	(3.57)	(-1.54)	(-3.32)	(3.91)	(-1.44)	(6.02)	(5.18)	(-0.73)	(-1.50)	(2.51)
Direct effect Pop<15	-2.62	-0.62	-20.91	6.67	-184.81	83.24	-108.01	3.53	64.87	55.00	58.33
	(-0.69)	(-0.17)	(-1.36)	(0.51)	(-1.57)	(0.96)	(-1.08)	(0.74)	(4.17)	(4.25)	(2.86)
Indirect effect Pop<15	19.76	13.39	-37.72	-58.41	486.45	-172.82	510.91	8.92	-48.53	-22.17	-24.88
	(3.21)	(2.02)	(-1.26)	(-3.03)	(1.89)	(-1.46)	(2.56)	(1.19)	(-2.09)	(-1.10)	(-0.53)
Total effect Pop<15	17.14	12.77	-58.63	-51.74	301.63	-89.58	402.90	12.45	16.35	32.83	33.45
	(3.18)	(1.80)	(-1.77)	(-2.86)	(1.21)	(-1.09)	(1.96)	(1.95)	(0.96)	(2.01)	(0.65)
Direct effect Gdppc	-0.17	0.09	2.28	-1.99	-34.42	-19.40	-0.39	-9.41	4.63	4.48	2.22
	(-0.16)	(0.08)	(0.49)	(0.48)	(-1.08)	(-0.60)	(-0.01)	(-6.23)	(0.97)	(0.82)	(0.41)
Indirect effect Gdppc	3.79	-4.55	-7.52	37.51	22.05	100.34	-367.19	-1.93	16.22	12.26	79.65
	(1.61)	(-0.84)	(-0.53)	(2.12)	(0.27)	(1.43)	(-2.88)	(-0.61)	(1.49)	(1.34)	(2.79)
Total effect Gdppc	3.62	-4.46	-5.24	39.50	-12.37	80.94	-367.58	-11.35	20.85	16.74	81.87
	(1.57)	(-0.85)	(-0.38)	(2.26)	(-0.14)	(1.35)	(-2.99)	(-3.82)	(1.90)	(2.25)	(2.88)
Direct effect Grants	0.001	0.002	0.03	0.05	-0.23	0.31	-0.16	0.01	0.02	-0.003	-0.03
	(0.22)	(0.40)	(1.70)	(2.72)	(-1.24)	(1.76)	(-1.37)	(1.65)	(0.74)	(-0.16)	(-1.45)
Indirect effect Grants	-0.01	-0.000	-0.0005	0.01	-1.33	-0.16	-0.29	-0.02	0.19	0.03	0.08
	(-0.92)	(-0.001)	(-0.02)	(0.19)	(-2.19)	(-0.97)	(-0.67)	(-0.89)	(1.79)	(0.82)	(0.89)
Total effect Grants	-0.01	0.002	0.03	0.06	-1.55	0.06	-0.46	-0.007	0.21	0.02	0.05
	(-0.69)	(0.09)	(0.86)	(0.77)	(-2.11)	(0.29)	(-0.96)	(-0.27)	(1.65)	(0.57)	(0.49)
Direct effect Gov	31.11	32.53	56.86	36.90	-486.65	-601.99	-34.01	-15.83	63.80	27.52	71.33
	(4.36)	(4.65)	(1.94)	(1.27)	(-2.40)	(-3.05)	(-0.20)	(-1.80)	(1.92)	(0.83)	(2.09)
Indirect effect Gov	23.81	12.03	24.75	-90.39	739.73	-737.90	1281.97	-10.78	-62.66	-152.93	-35.80
	(1.71)	(0.78)	(0.45)	(-1.41)	(1.60)	(-2.22)	(3.41)	(-0.55)	(-0.75)	(-2.25)	(-0.45)
Total effect Gov	54.93	44.56	81.61	-53.48	253.07	-1339.89	1247.96	-26.61	1.14	-125.41	35.53
	(3.46)	(2.44)	(1.15)	(-0.68)	(0.47)	(-3.21)	(2.85)	(-1.24)	(0.11)	(-1.45)	(0.37)

t-values in parentheses

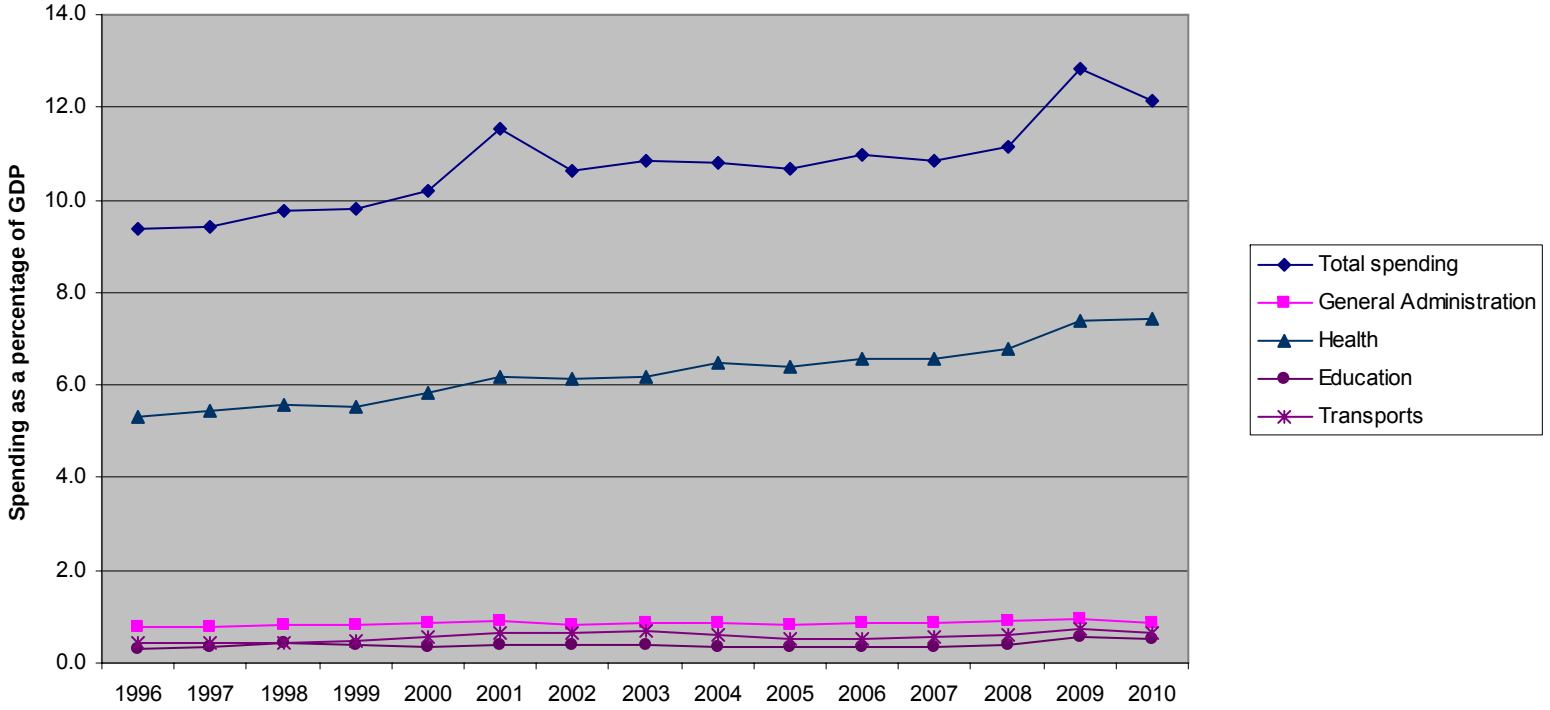

Figure 1. Regional public spending trends (annual average values)