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THE REGIONAL PUBLIC SPENDING FOR TOURISM IN ITALY: AN EMPIRICAL ANALYSIS [^]

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Abstract - In this paper, we analyse the effects of public spending for tourism in the twenty Italian regions. The evaluation is made possible by the availability of the databank under the project 'Conti Pubblici Territoriali' ('Regional Public Account') of the Ministry of Economic Development, wherein the spending of all public institutions is aggregated for each region, and it is also classified according to different criteria, including the sectoral criterion. We take a cross-sectional regression analysis approach, and the effects of public spending for tourism on tourism attraction are investigated. Generally speaking, the effectiveness of public spending appears to be weak.

Keywords: Tourism; Regions; Public Spending; Regional Public Accounts

JEL Classification: R53, R58, L83, C21, M49.

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Abstract - In this paper, we analyse the effects of public spending for tourism in the twenty Italian regions. The evaluation is made possible by the availability of the databank under the project 'Conti Pubblici Territoriali' ('Regional Public Account') of the Ministry of Economic Development, wherein the spending of all public institutions is aggregated for each region, and it is also classified according to different criteria, including the sectoral criterion. We take a cross-sectional regression analysis approach, and the effects of public spending for tourism on tourism attraction are investigated. Generally speaking, the effectiveness of public spending appears to be weak.

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INTRODUCTION

Starting from the mid-Nineties, in Italy, under the Project 'CPT - Conti Pubblici Territoriali' (i.e., RPA – Regional Public Account), data on public spending at the regional level have been collected by aggregating, on a regional basis, all spending centres, namely, the National Government, Regional and Local administrations, public enterprises and other public institutions. Public expenditures were also re-classified according to different perspectives, in particular, according to both the economic sectors to which they are devoted and according to the functional categories. The novelty of the RPA project is relevant for empirical studies because data on the total amount of public spending for each region, independent of the level of government that spent the money, and information on the specific sector to which the money is directed are made easily available through it.

In this paper, we aim to analyse the effects of public spending in a specific sector, namely, the tourism sector. A comprehensive body of applied research is available concerning the effect of tourism development on regional growth and the precondition for having effective spending in tourism (Adams and Parmenter, 1995; Soukiazis and Proença 2008, just to mention two different contributions, referring to different countries). However, no contribution is available, as far as we know, that focuses on the effectiveness of *public spending* on tourism, at the regional level. We take Italy as a case study. Tourism is of primary importance in Italy. Nevertheless, the financial efforts of the public sector have been rather limited, as the data at hand will clearly show. In any case, the evaluation of its effectiveness is worth analysing.

Over the period of 1996 to 2007, we can count on the data of public spending in capital accounts and in current accounts. If we cumulate over time the spending in capital accounts, then –based on the permanent inventory principle– we can obtain a 'financial' measure of the stock of public capital accumulated over the considered period of time. If this computation is made for the specific sector of tourism, we obtain a measure of public capital specific to this sector. In the present paper, this piece of information is studied in comparison with other measures of tangible and intangible forms of capital, and it is used to evaluate the effects of public spending for tourism on the dynamics of specific inputs, as well as on the final output (tourists' presence, in the case at hand).

Our analysis provides information on the relationship among different inputs in the tourism industries, and the relative importance of different types of infrastructure in attracting tourists. A debate dating back to Hansen (1965) is still alive, for instance, on the relative importance of general economic infrastructures *vs.* sector-specific structures, or on the relative

importance of 'core' economic infrastructure *vs.* 'non-core infrastructure' like social organisations (see the review of Torrisi, 2009, or La Rosa, 2008, specific on tourism). A clear-cut conclusion emerges from our present analysis: we find that the ties of the measures of public capital for tourism accumulated at the regional level over the time period under consideration (that is, the cumulative expenditure in capital accounts for tourism) is very weakly correlated with any specific infrastructure; moreover, its links with the size and dynamics of tourists' presence are weak as well.

The outline of the paper is as follows: Section 2 presents the data, with a particular focus on the features of the RPA data, Section 3 describes the data related to tourists' presence at the regional level in Italy, and Sections 4 and 5 provide the multivariate analysis, based on cross-sectional (or cross-regional) regression exercises. Section 6 concludes.

DATA

THE REGIONAL PUBLIC ACCOUNT

The regional public account (RPA) database[1] provides financial data on revenues and expenditures in current and capital accounts of the public sector at the regional level. Data are available from 1996 to 2007.

The collected data are divided both according to a *sector-based* classification broken down into 30 items (including tourism) that can be mapped both with respect to the Classification of the Functions of Government (COFOG) and according to *economic functional categories* (seven are in current accounts , like general administration, wages, and so on, and the other seven are in capital accounts).

The RPA information system was developed to create a structured, centralised database that would ensure the full accessibility and exploratory flexibility of the data, both for the network of data producers (the Regional Teams and the Central Team) and for external users. The primary aim of the Project was to evaluate the real adoption of the principles of additionality in the decision of how to allocate European funds. However, the information can easily be used to evaluate (ex-ante and ex-post) the regional policies, their bases and their effects. The data 'have contributed to fill an historical hole in information sources concerning the territorial distribution of public expenses.' (Ministero dello sviluppo economico, 2007, p. 7, our translation).

The *reference universes* of the RPA consist of two parts: General Government and the Public Sector. Essentially, General Government is formed of entities that primarily deliver nonmarket services, while the definition of 'Public Sector' supplements and expands on that required by the European Union for the verification of the principle of additionality. Hence, the latter comprises, in addition to General Government, a 'non-general-government' sector consisting of central and local entities that operate in the public services sector and are subject to direct or indirect control. The numbers of entities that make up these two different universes and the precise boundary between general government and non-general-government can vary over time, and they are directly connected with the legal nature of the entities themselves and the laws that govern the various sectors of public action. In the RPA database, the EU criteria were expanded to achieve a broader coverage, thereby including, at the central level, a significant number of public enterprises held by the state and, at the local level, several thousand entities that had not previously been covered in a comprehensive manner by any other statistical source. The entities within the various aggregates of the public sector are subject to periodic monitoring as part of the RPA project.

In this paper, we always consider the tourism spending of the Public Sector, in its broad definition used by the RPA. The benefits of considering such a vast universe of public institutions can be expressed primarily in terms of knowledge and information acquired.

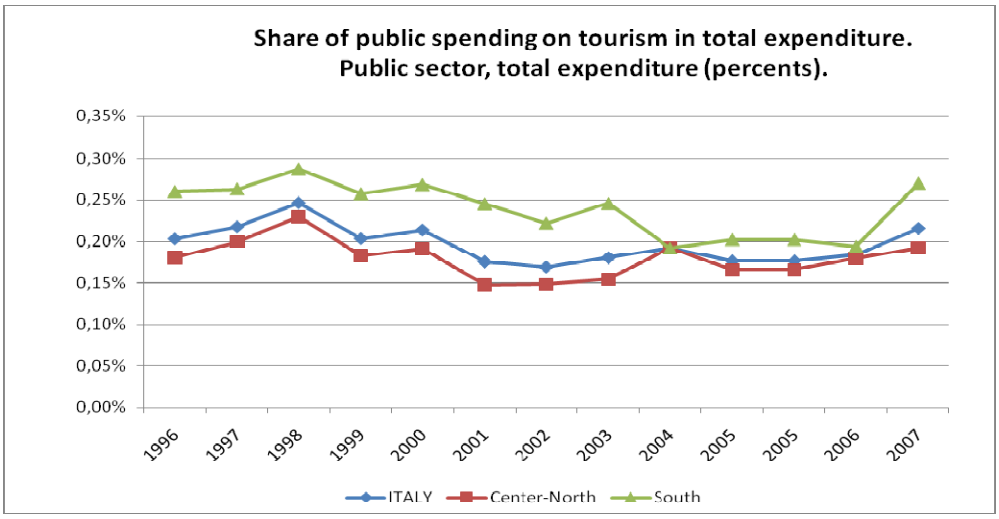
PUBLIC EXPENDITURE FOR TOURISM

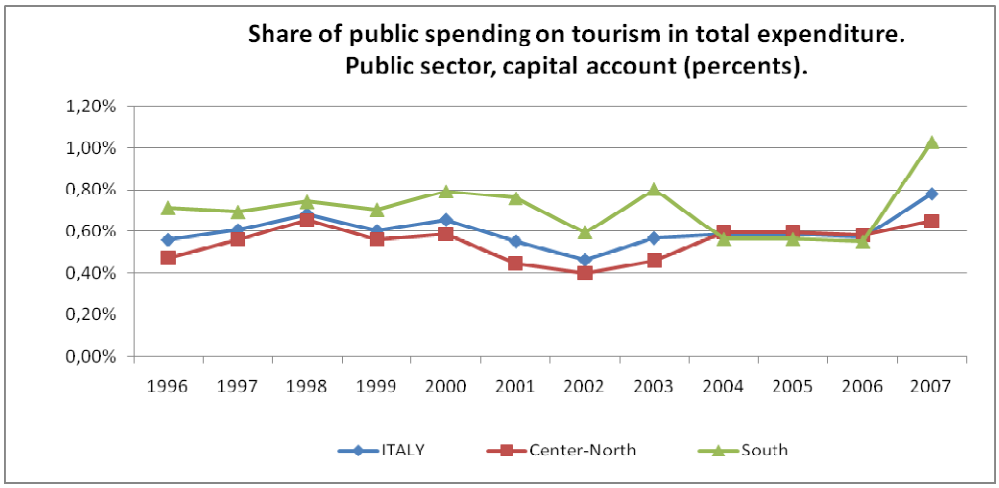
Expenditures for tourism include, in particular, spending for general administration in tourism, such as the promotion of tourism attraction and related contributions; the organisation of and information for tourism flows (in current accounts); and the building and restoring (or renewing) of tourism accommodation structures, which represents the major part of spending in capital accounts.

During the period of 1996 to 2006, public expenditures for tourism registered a nominal increase of about 33%. In relative terms, the tourism sector accounts for a very small part (about 0.20%) of public expenditures, ranging in the interval 0.18–0.25% over the years under consideration. Expenses in capital accounts represented about 50% of the public spending for tourism, a datum much larger than the percentage referred to the whole of public spending; however, this ratio differs greatly across different regions: after limiting our attention to the sector of tourism, public expenses in current accounts varied between around 14% in Basilicata to around 85% in Lazio. Figure 1 shows the pattern of the percentage of the part of public

spending devoted to tourism: panel (a) considers the total spending while panel (b) focuses on the spending in capital accounts. In all cases, tourism represents a very small part of public spending; however, in the southern regions it represents a slightly larger part as compared to the northern regions. (All variables and their names are listed in Table A.1 in Appendix A).

Figures 1.a, 1.b.
Patterns of the share of sector "tourism" in total public expenditure and in public expenditure in capital account.





By cumulating the expenditure in capital accounts over time, we obtained a datum (denoted by *TOURKAP*) which, on the basis of the permanent inventory technique, is interpretable as the accumulated stock of public capital for tourism over the considered time. Of

course, we are aware that such a datum could simply be interpreted as the accumulated value of public expenditure, and its interpretation as a measure for a capital stock could be questionable under certain perspectives. First, sometimes public expenditure does not translate into physical structures, even if it is in a capital account. Second, the depreciation rate is assumed to be zero in our computation. Third, we do not consider the stock at the initial period (for this reason, the cumulated spending is more correctly interpretable as the increase in the stock of public capital, rather than the stock capital in itself). Fourth, we do not consider the autocorrelation of expenditure in subsequent periods. However, the tradition of considering the cumulated expenses in capital accounts as a measure for capital is rather widespread in economics literature (see Romp and De Haan, 2007, for a discussion, along with Picci, 1997, 1999 on the Italian case).

Of course, the *TOURKAP* data depend on the dimension of the region, and they have to be normalised (according to the size of the region, as measured by its surface or population) if the dimension is not explicitly accounted for in the analysis.[2] Expenses for tourism, in particular, can be related to *space-serving* structures or *population-serving* structures, so that it is not clear ex-ante whether the normalisation according to the territorial surface is more appropriate than the normalisation based on population.[3] Nevertheless, the simple correlation between the cross-sectional series of the cumulated public expenditure, normalised alternatively according to the surface area and according to the population, is 0.885, so that the different choices have no effect on the final results. Table A.2 in Appendix A (Columns 1 and 2) reports the series. It is worth noticing that data on per-capita public expenditures for tourism at the regional level, in capital accounts, show a great deal of variability ranging (e.g., in the per capita case) from 0.31 (Lazio) to 24.49 (Valdaosta).

From a different perspective, cumulated expenses can be normalised according to the tourists' presence. Tourists' presence is measured in this paper by the tourist overnight stays. Indeed, such a normalisation, provides values that can be interpreted as the reciprocals of the average productivities of public expenditures in capital accounts (See Table A.2, Col. 3): Veneto, Lazio and Emilia R. are the regions with the lowest public capital for tourism per tourists' presence (i.e., the regions in which public spending is the most productive), while at the opposite side we find Molise, Basilicata and Valdaosta.[4]

However, it is clear that several general infrastructures are relevant for tourism. To this end, we take into account the indices computed by Marrocu, Paci e Pigliaru (in Barca et al., 2006) with respect to the whole public capital. Marroccu et al. (2006) built such indices starting from the data regarding public expenditure in capital accounts at the regional level (for all sectors) available from the RPA, and they combined the computation with data from SISTAN

related to the situation in 1995. They also computed the ratio between public and private capital so that the computation of the index for the total capital (i.e., the private capital plus the public capital) at the regional level is possible. It is worth stressing that the data computed by Marrocu et al. are original, since SISTAN does not provide series for the capital stock at the regional level. The meaning of 'capital' adopted by Marroccu et al. is very broad, since it includes both tangible and intangible forms of capitals (see Marroccu et al., 2006, Figures 1 and 2, page 212; the data cover the period 1996-2002). We denote the indices for public capital and total capital (per capita) computed by Marroccu et al. by *XKPUBPOP* and *XKTOTPOP,* respectively. The data are reported in Table A.3 in Appendix A.

As is well known (and discussed by Marroccu et al., 2006), the public capital (in per capita terms) appears to be larger in the southern regions of Italy as compared to the northern ones, precisely because of the larger dimension of public spending in capital accounts. This does not hold for the total (public and private) capital. The simple cross-sectional correlation between total capital and public capital is equal to 0.275 (quite a low value).

Table 1 provides the simple correlation between the two above-mentioned capital variables (*XKPUBPOP* and *XKTOTPOP*) on the one side, and some selected indices of public infrastructures, which we computed based on the ISTAT (2006) databank, on the other side. The selected public infrastructures are normalised according to the territorial surface and according to the population, but the substantial conclusions remain unchanged. Some points are worth stressing. First, the correlation between our index for public capital specific to tourism and the index of the general capital are 0.280 and 0.403 (total capital and public capital, respectively), of which the latter is not low. Second, the endowment of beds and structures of accommodation (appropriately normalised) show a good correlation with our index of public capital for tourism, while the correlation is weak with respect to total capital. Third, the indices for transport infrastructures show low correlation with total capital and public capital—in several cases, they are even negative; this supports the point that public spending has weak ties with the concrete realisation of infrastructures.

Table 1.
The simple correlation between the indices for public and total capital and other infrastructures indices.

	Corr. with XKTOTPOP	Corr. with XKPUBPOP
IND_ROADSUP	-.347	.384
IND_ROADPOP	*-.056*	*.673*
IND_HIGHWSUP	.102	-.346
IND_HIGHWPOP	*.205*	*-.147*
IND_RAILSUP	-.0820	-.344
IND_RAILPOP	*-.052*	*.606*
IND_PORTSUP	-.597	-.124
IND_PORTPOP	*-.548*	*.117*
IND_AIRPSUP	-.311	-.589
IND_AIRPPOP	*-.035*	*-.233*
INFRACOMPPRINC	-.371	-.544
IND_HOTTOTPOP	*.466*	*-.132*
IND_TOTBEDPOP	*.479*	*-.207*
IND_TOURKAPPOP	*.402*	*.2802*
IND_CGTURAVEPOP	*.376*	*.0844*

Note: IND_(*) denotes an index for variable (*) computed for each region and having average value equal to 100; ROAD corresponds to the total kms of road, HIGHW corresponds to the total kms of highways, RAIL corresponds to the total kms of rails, PORTS corresponds to the number of ports, and AIRP corresponds to the total number of airports. INFRACOMPPRINC is the first principal component computed on the above mentioned five variables –each of them normalised according to the territorial surface.

TOURISTS' PRESENCE IN ITALIAN REGIONS

Tourists' presence cannot be evaluated simply in aggregate terms: otherwise, a picture would emerge in which Veneto, Trentino A.A. and Emilia R. steadily attracted the highest numbers, while Molise, Basilicata and Valdaosta recorded the lowest ones. However, this is due to the different dimensions of the regions. It is meaningful to consider the tourists' presence normalised according to resident population or territorial size. The following table, Table 2, shows the results.

The rankings of regions according to the tourism density (tourists per hmsq) or touristicity rate (tourists per resident) are rather stable over time (though not perfectly static).[5] Whereas the highest tourists' densities pertain to Trentino A.A., Veneto and Liguria, the highest touristicy rates are in Trentino A.A., Valdaosta and Veneto. At the bottom of the list, one finds Molise and Basilicata.

Table 2.
Tourists' presence normalised according to territorial surface or resident population: Rankings of Italian regions

Presence 1996 per hmsq		Presence 2007 per hmsq		Presence 1996 per resident		Presence 2007 per resident	
Molise	1.043	Molise	1.469	Molise	1.4155	Molise	2.037
Basilicata	1.0675	Basilicata	1.858	Basilicata	1.7567	Piemonte	2.370
Sardegna	3.1338	Piemonte	4.062	Puglia	1.8345	Basilicata	2.821
Piemonte	3.1904	Sardegna	4.918	Piemonte	1.9088	Sicilia	2.910
Calabria	3.2447	Sicilia	5.679	Sicilia	2.0099	Lombardia	3.001
Puglia	3.8407	Calabria	5.789	Calabria	2.3794	Puglia	3.139
Sicilia	3.9167	Puglia	5.929	Lombardia	2.5692	Campania	3.415
Abruzzo	5.1459	Abruzzo	6.829	Campania	3.1660	Calabria	4.369
Umbria	5.3674	Umbria	7.393	Lazio	3.9337	Abruzzo	5.630
Lombardia	9.584	Valdaosta	9.519	Abruzzo	4.4189	Lazio	5.844
FriuliVG	10.2583	Friuli VG	11.119	Sardegna	4.5787	Sardegna	7.141
Valdaosta	10.792	Lombardia	12.006	Umbria	5.5614	Marche	7.161
Marche	11.5526	Marche	14.014	FriuliVG	6.8407	Friuli VG	7.202
Lazio	11.7559	Campania	14.545	Marche	7.7632	Liguria	8.813
Campania	13.308	Emilia R	17.254	Emilia R	8.6288	Marche	8.843
Toscana	13.749	Toscana	18.130	Toscana	9.0481	Emilia R	9.039
Emilia R	15.234	Lazio	18.659	Liguria	9.5031	Toscana	11.460
Veneto	23.1916	Liguria	26.139	Veneto	9.6362	Veneto	12.889
TrentinoAA	25.253	TrentinoA.A.	30.864	Valdaosta	9.9506	Valdaosta	24.890
Liguria	28.3779	Veneto	33.454	TrentinoAA	37.6913	TrentinoA.A.	42.220

Table 3 provides data on the ratio between tourists' presence and beds (in all accommodation structures); also, in this case, the ratio can easily be interpreted as a productivity measure, which ranges between the minimum values in Calabria and Molise to the highest scores of Trentino A.A. and Lazio. However, in this case, an opposite interpretation could be appropriate as well: Calabria and Molise appear to be overendowed, while Trentino A.A. and Lazio appear at the opposite end of the list.

Table 3.
Tourists' presence per bed

Tourist overnight stays per bed (1996)		Tourist overnight stays per bed (2007)	
Calabria	26.744	Calabria	44.785
Molise	37.508	Molise	47.523
Basilicata	43.876	Basilicata	48.766
Sardegna	56.840	Puglia	54.752
Abruzzo	56.865	Friuli VG	57.018
Piemonte	60.468	Piemonte	57.392
Marche	60.707	Marche	59.854
Puglia	64.298	Valdaosta	60.721
Valdaosta	66.670	Sardegna	62.625
Friuli VG	77.924	Abruzzo	70.993
Sicilia	86.647	Umbria	75.665
Toscana	89.787	Sicilia	80.492
EmiliaR	91.945	Toscana	86.244
Lombardia	93.941	Emilia R	88.395
Trentino A.A.	94.312	Friuli VG	89.754
Umbria	96.670	Lombardia	90.023
Liguria	98.809	Veneto	97.230
Lazio	102.49	Campania	104.701
Veneto	103.53	Trentino AA	111.824
Campania	110.13	Lazio	117.945

A PARAMETRIC ANALYSIS OF CROSS-REGIONAL PUBLIC SPENDING

In this Section, we aim to evaluate the effectiveness of public spending in capital accounts: (i) first, on the accumulation of tourism structures; (ii) second, directly on the number (and growth rate) of tourists' presence. To this end, we took a cross-sectional (or, more precisely, a cross-regional) regression approach. All of the analysis was carried out in per-capita terms, if not otherwise stated.

Let us start with the evidence concerning the tourists' presence. Cross-sectional regressions were run in which the dependent variable was the percentage variation of tourists per resident, regressed against the constant term, the value of tourists per resident at the initial level, and one additional regressor. Table 4 shows the coefficients (and the significant statistics) of the additional regressor. The standard errors are robust *à la* White. In formal terms, Table 4 considers each of the following regressions:

$$(1) \qquad \dot{y}_i = \alpha_o + \alpha_1 y_{0i} + \alpha_2 x_i + e_i$$

where y denotes the tourists' presence per resident (y-dot is its percentage variation over 1996-2007; y_0 is its value at the initial period), x is an additional regressor (in several cases, it is the growth rate of a variable) and e is the residual. Results –and, in particular, the estimates of the coefficient α_2– are provided in Table 4, whose interpretation is quite easy. For example, the percentage variation of the hotel (per resident) is significant in explaining the percentage variation of tourists per resident (once the initial level of tourists per resident is considered, along with the constant term), while the percentage variation of extra-hotel structures is not significant. In general, one can observe that the percentage variation of the density of hotels gives a (marginal) positive and significant contribution to the growth rate of tourists (per resident); a similar conclusion holds for the percentage variation of beds, the percentage variation of workers in the tourism sector and the percentage variation of the share of luxury hotels.

Quite surprisingly, the physical transportation infrastructure does not exert any positive effect on the growth rate of tourists. This holds true for both specific infrastructures, such as roads, railways, and ports (not reported for the sake of brevity), and the first principal components of such structures. A similar insignificant effect emerges also for 'cultural endowments', as measured by a dummy variable capturing the presence of site(s) with the UNESCO recognition. The aggregate public capital (in all sectors, not only tourism) has a positive effect, while the private capital has a negative effect; the total (public plus private) capital has an insignificant effect. This outcome can be explained by observing that private capital is higher in the regions with low specialisation in tourism.

The last three rows report results relative to two important general factors that are able to influence tourism visits in Italian regions, namely, EU financial support and economic growth.

As for European subsidies, it is reasonable that EU funds contribute to improve the infrastructure endowment, and hence they may exert beneficial effects on tourism attraction. At this point, we ran two additional regressions using the average current EU transfers received by each region during the period from 1996 to 2007 in per capita terms (*EUCUPOP*) and the accumulated value of EU transfers in capital accounts, at the regional level, during the period from 1996 to 2007 in per capita terms (*EUKAPOP*). Although (as expected) both variables showed a positive sign, they are not significant at the 5% level. Nonetheless, it is worth noticing that, as opposed to the EU transfers in capital accounts, which were definitely not significant, our measure of EU transfers in current accounts is significant at the 10% level and of quite a high magnitude. Therefore, our results suggest that the EU's direct financial role in promoting tourism in Italian regions is quite weak and limited to transfers in current accounts.

As for economic performance, one could argue that the change in tourist visits across regions could be explained by national economic growth in the sense that higher economic growth will result in higher income available to individuals (or households) to be spent for tourism activities. Hence, the expected sign is positive. However, using the 1996–2007 average growth rate of GDP at regional level (*GROWTH*) as a proxy for economic performance, our estimate reports a negative sign. Moreover, the coefficient is not statistically significant, suggesting that the change in the number of tourists has not been driven by internal economic performance.

Let us now focus on the variable of main interest in this study, which is the accumulation of public spending for tourism in capital accounts. It has not exerted any significant effect, both if considered per resident and if it has first been normalised to the size of the territory under consideration. Public spending in current accounts for tourism exerted a negative effect on the percentage growth of tourists per resident; such a negative effect is significant if the normalisation is made according to the territorial size. However, the fact that public spending for tourism had no positive effect on the tourists' presence does not necessarily mean that it was not effective at all: it simply means that it had no *direct* effect.

Table 4.
The marginal effect of a list of factors on the growth rate of tourists per resident in Italian regions

X	Constant	**Coeff.**	R2
PV_HOTPOP	0.290 (0.001*)	**0.830** **(0.002*)**	0.503
PV_EXHOTPOP	0.419 (0.000*)	**-0.002** **(0.720)**	0.273
PV_HOTTOTPOP	0.412 (0.000*)	**-0.003** **(0.870)**	0.270
PV_HOTBEDPOP	0.208 (0.003*)	**0.466** **(0.002*)**	0.684
PV_EXHBEDPOP	0.394 (0.003*)	**0.032** **(0.876)**	0.272
PV_TOTBEDPOP	0.277 (0.021*)	**0.326** **(0.032*)**	0.398
PV_WORKTOURPOP	0.255 (0.005*)	**0.369** **(0.001*)**	0.431
…			

PV_SHARE4-5STARH	0.162 (0.114)	**0.250** **(0.001)**	0.572
TOURKAPPOP	0.408 (0.000*)	**0.004** **(0.766)**	0.274
TOURKAPSUP	0.422 (0.000*)	**-129.7** **(0.710)**	0.274
TOURCURPOP	0.406 (0.000*)	**-1398.6** **(0.110)**	0.294
CGTURAVESUP	0.504 (0.000*)	**-4994.1** **(0.004*)**	0.434
XKPUBPOP	0.129 (0.155*)	**0.002** **(0.018*)**	0.480
XKPRIVPOP	0.885 (0.000*)	**-0.002** **(0.007*)**	0.502
XKTOTPOP	0.704 (0.070)	**-0.0001** **(0.388)**	0.300
INFRACOMPPRINC	0.404 (0.000*)	**0.003** **(0.911)**	0.270
UNESCODU	0.451 (0.002*)	**-0.005** **(0.636)**	0.280
EUCUPOP	0.3542 (0.000)	**163.173** **(0.076)**	0.390
EUKAPPOP	0.393 (0.000*)	**11.582** **(0.477)**	0.292
GROWTH	0.984 (0.012*)	**-16.697** **(0.101)**	0.352

Note: The table reports the estimates of the coefficients a_0 and α_2 (in bold) in eq. (1). One separate regression is carried out for each additional regressor reported in the table, and it is considered along with the initial level of tourists' presence per resident. Estimates are robust à la White. The P-value is in parenthesis. Starred variables are significant at the 5% level.

In fact, it is interesting to investigate whether public spending for tourism has exerted some effect on the structures which have shown a positive impact on the tourists' presence. Specifically, based on the evidence from Table 4, it is necessary to check whether public spending affects (the change of) hotel, beds and workers involved in tourism, and so on.

To this end, different estimation exercises have been conducted, and they considered variations in levels, in difference, in growth rate, and according to different normalisations. The results are substantially univocal across the different specification procedures, and we report (in

Table 5) only the specification referred to percentage variation. We considered the (cross-regional) regression

$$(2) \qquad \dot{x}_i = \beta_o + \beta_1 x_{0i} + \beta_2 \, TOURKAPPOP_i + u_i$$

in which the percentage growth rate of variable x (over the period from 1996 to 2007) is regressed against: (i) a constant term, (ii) the value of x at the initial time (i.e., x in 1996 is denoted by x_0 in eq. (2) and by *X0* in Table 5), and (iii) the cumulative public spending in capital accounts. For instance, the first row of Table 5 shows that the cumulative spending in capital accounts was not significant in explaining the percentage growth rate of hotels (per resident), once the initial hotels per resident (and a constant term) were taken into consideration. The value of hotels per resident in 1996, on the other hand, has exerted a (negative) effect on its growth rate, which, at the 6% level, is significant. That is, the density of hotels grew at a higher rate where it was lower at the initial period (so a sort of beta-convergence has taken place). In reference to the factor at hand, namely, the density of hotels per resident, we can thus conclude that whereas the variation of hotels per resident has given a significant positive contribution to the growth of tourists' presence (as documented by Table 4), it has not been affected by public spending in capital accounts.

Similarly, the effect of the growth of the numbers of beds on the growth of the numbers of tourists is significant, but the growth of beds is affected significantly by public spending in capital accounts (contrary to what one would expect). Again, the extra-hotel accommodations were not affected in a significantly positive way by public spending in capital accounts, nor was public spending (in capital accounts) effective in improving the quality of hotel structures (as measured by the variation of the share of 4–5 star hotels).

So far, we have focussed on the public spending in capital accounts, because this type of spending should have affected the variations of infrastructure. It would be interesting, however, to analyse the effects of public spending for tourism in current accounts. To this end, we have repeated the regression analysis reported in Table 5, adding the regressor of current public spending for tourism (per resident; we used the average value over the period from 1996 to 2007) in each regression. The consideration of this additional regressor does not modify the conclusions: in most cases, it is not significant; in some cases, it is significant (with a negative sign) and precisely in such cases, public spending in capital accounts became significantly positive. However, our interpretation does not change: public spending was in general not significant; in some cases, the results are not robust and their signs and significance change if different types of public spending are considered together. When public spending in capital

accounts for tourism appears to have had a significant positive (marginal) effect on the accumulation of structures, the public spending in current accounts exerted a marginally significant negative impact.

Table 5.
The marginal effect of TOURKAPPOP on a list of factors potentially affecting the growth rate of tourists per resident in Italian regions

X	Constant	X0	TOURKAPPOP	R2
PV_HOTPOP	0.047 (0.395)	-77.71 (0.060^{+})	0.011 (0.212)	0.319
PV_EXHOTPOP	5.218 (0.013*)	-595.2 (0.002*)	-0.126 (0.119)	0.096
PV_HOTTOTPOP	1.806 (0.019*)	-150.8 (0.033*)	-0.012 (0.735)	0.094
PV_HOTBEDPOP	0.296 (0.004*)	-4.386 (0.118)	0.028 (0.288)	0.258
PV_EXHGEDPOP	0.397 (0.002*)	-2.975 (0.355)	0.006 (0.841)	0.172
PV_TOTBEDPOP	0.341 (0.000*)	-2.642 (0.098^{+})	0.032 (0.263)	0.294
PV_WORKTOURPOP	0.325 (0.000*)	-109.1 (0.089^{+})	0.012 (0.601)	0.399
PV_SHARE4-5STARH	0.715 (0.031*)	0.001 (0.382)	-0.019 (0.122)	0.178

Note: This table reports the estimates of beta coefficients in eq. (2). One separate regression is carried out for each additional regressor reported in the table. Estimates are robust *à la* White. Variables denoted by * or + are significant at the 5% or 10% level, respectively.

MULTIVARIATE ANALYSIS OF THE TOURISM SUCCESS OF ITALIAN REGIONS

In this section, we present some cross-sectional regression exercises, which are aimed at estimating the determinants of tourists' presence (per resident) and the value generated in the tourism sector, at the regional level, considering the twenty Italian regions. This analysis complements the evidence presented above, and maintains the ultimate goal of evaluating the effectiveness of public spending for tourism.

Table 6 provides the results of regressions in which the percentage variation of tourists' presence per resident (in 2007 w.r.t. 1996) is considered as the dependent variable. This Table

can be considered, of course, as the extension to the multivariate context of Table 4. The variables which appear to have a strong effect on the dynamics of tourists' presences –and whose coefficients are robust– are the percentage variation of hotels and the percentage variation of workers in the tourism sector. Such variables have to be inserted as explanatory factors in any regression considered in Table 6. It is interesting to note that the initial level of tourist presence is always not significant. As to the public spending variables, the spending in capital accounts is marginally insignificant (Column (2)), while the public spending in current accounts appears to be negative and statistically significant (Column (3)). If inserted jointly (Column (4)), the public spending in current accounts continues to have a significantly negative coefficient, while the public spending in capital accounts becomes positive, and significant at the 5% level. However, the joint inclusion of public spending for tourism in capital and current accounts does not improve the explanatory power of the regression (as compared to the case in which no variables of public spending are inserted), and the information criteria suggest one should prefer the specification without public spending variables. Tests on omitted variables, made with reference to the specification of Column (1) of Table 6, and reported in Table 6.bis, support the choice of that specification as the preferable one. In particular, transportation infrastructures were not significant. Neither the presence of sites under the UNESCO recognition nor the Putnam index of social capital exerted a significant marginal effect.

Table 6.
The variation of tourists' presence per resident (1996-2007): multivariate analysis

Dependent variable: VPPRESPOP	(1)	(2)	(3)	(4)
COSTANT	0.165	0.192	0.214	0.223
	(4.47)	(4.37)	(5.30)	(6.09)
	[0.000]*	[0.001]*	[0.000]*	[0.000]*
VPH	0.770	0.780	0.769	0.707
	(3.48)	(3.23)	(3.42)	(4.05)
	[0.003]*	[0.005]*	[0.004]*	[0.001]*
VPWORKTOURPOP	0.324	0.284	0.251	0.242
	(3.43)	(2.30)	(1.89)	(2.72)
	[0.003]*	[0.034]	[0.076]+	[0.015]*
TOURKAPPOP	===	-0.006	===	0.039
		(-1.15)		(2.46)
		[0.264]		[0.026]*
CGTURAVEPOP	===		-1.35Ee-4	-0.051
			(-3.09)	(-3.46)
			[0.007]	[0.003]*
N	20	20	20	20
R2	0.61	0.63	0.65	0.69
Akaike	-0.52			-0.56
Schwarz	-0.36			-0.32

Note: Student-*t* is in brackets; the *p*-value is in squared brackets. Variables denoted by * or + are significant at the 5% or 10% level, respectively.

Table 6.bis
Omitted variable test w.r.t. Column (1) of Table 6

Dependent variable: VPPRESPOP	
TOURKAPPOP	*F*=0.575 [0.459]
CGTURAVEPOP	*F*=1.681 [0.213]
VPHOTTOT	*F*=0.018 [0.893]
VPPLETTPOP	*F*=0.266 [0.613]
XKTOTPOP	*F*=0.564 [0.463]]
INFRACOMPPRINC	*F*=0.004 [0.948]
UNESCODU	*F*=0.296 [0.593]
PUTN	*F*=0.096 [0.760]

Note: an F-test is reported, with its p-value, on the addition of each of these variables in the specification considered by Column(1) of Table 6.

If we considered the variation (rather than the percentage variation) of tourists' presence per resident across regions, we would find that the initial level of presence is significant, and the same is true of the other considered variables. Verbally, the distribution of tourists' presence across regions appears to be very static and all of the investigated factors appear to be unable to modify their distribution significantly.

However, the tourists' presence is not the only way to measure and evaluate the success of tourism in different regions. We also considered data on Value Added generated in the sector of tourism (Source: ISTAT, 2008). More specifically, we considered the Value Added in tourism normalised to the resident population (*VATURPOP*), and we investigated its determinants. Table 7 provides the results of some regression exercises. The number of beds (per resident), and workers in the tourism sector, and the total aggregate capital per resident are always significant (and have been inserted in any considered regression). It is interesting to note that if the capital specific for tourism is considered instead of the total capital, it turns out to have a negative (and significant!) sign (see Column (2) vs. (1)). From Columns (3)-(4), it clearly emerges that public spending does not contribute to the value added in the tourism sector. If these public expenses are considered together, both become significant, and whereas public spending in current accounts has a positive effect, public spending in capital accounts has a negative effect. This could be interpreted as a result of the fact that the two variables have complementary effects on the dependent variable. The complementary effects would be the opposite of each other. Note also that the inclusion of the two variables does not affect the signs and significances of the other regressors, and that the explanatory power of the regression does

not improve significantly once the two public spending variables have been inserted. Moreover, the Akaike and the Schwarz criteria lead one to consider the specification of Column (1) to be preferable to the specification of Column (5). Thus, the inclusion of both variables of public spending is, in any case, questionable. Even if it is included, however, the conclusion remains that public spending in capital accounts does not exert any positive effect on value added in the tourism sector.

Table 7.
Value-Added per capita in the tourism sector (2007)

Dependent variable: VATURPOP	(1)	(2)	(3)	(4)	(5)
COSTANT	-3.88e-4	2.9e-4	3.41e-4	-3.81e-4	-4.05e-4
	(-2.47)	(5.28)	(-2.10)	(-2.17)	(-2.36)
	[0.024]*	[0.000]*	[0.053]$^{+}$	[0.046]*	[0.033]*
PLETT07POP	1.81e-3	2.51e-3	2.61e-3	1.91e-3	2.23e-3
	(3.72)	(2.35)	(3.25)	(2.27)	(2.88)
	[0.002]*	[0.031]*	[0.005]*	[0.038]*	[0.012]*
WORKTOURPOP	0.159	0.255	0.161	0.159	0.183
	(3.62)	(4.53)	(3.28)	(3.41)	(4.89)
	[0.002]*	[0.003]	[0.005]*	[0.004]*	[0.001]*
XKTOTPOP	2.08e-6	===	1.86e-6	2.05e-6	1.98e-6
	(4.70)		(4.05)	(4.03)	(4.17)
	[0.000]*		[0.001]*	[0.001]*	[0.001]*
TOURKAPPOP	===	-2.46e-5	-1.55e-5	===	-5.363-5
		(-2.24)	(-1.44)		(-3.36)
		[0.039]*	[0.168]		[0.005]*
CGTURAVEPOP	===	===	===	-0.218	5.51
				(-0.19)	(3.09)
				[0.849]	[0.008]
N	20	20	20	20	20
R2	0.95	0.92	0.95	0.95	0.97
F	106.6*	70.09*	86.05*	75.09*	95.84
Akaike	-14.86				-15.18
Schwarz	-14.67				-14.88

Note: Student t is in parenthesis and the p-value is in squared brackets; significant variables at the 5% level are starred.

CONCLUSIONS

In this paper, we have taken a cross-sectional regression approach to analysing the effectiveness of public spending for tourism in the Italian regions. The exercise has been made possible by the availability of the data-bank built under the project 'Conti Pubblici Territoriali', in which the

spending of all public centres are aggregated and re-classified according to different criteria. In particular, it is possible to know both the spending for each region (made by different public entities) and its type and category.

The total public spending for tourism, in capital accounts, has appeared to have weak ties with the size and dynamics of the specific physical infrastructure (of both a public and a private nature); moreover, the effects are far from being significant as concerns the tourists' presence, and the value-added (per capita) in the tourism sector.

In fact, our results have an exploratory nature, at the present stage. Nevertheless, they are consistent with the results obtained by different studies. Generally speaking, the public spending, in Italian regions, appears to have a questionable impact on the dynamics of income and productivity in different territorial areas (see Barca et al., 2006; Ashauer, 1989, and Picci, 1997 e 1999; see also the review of La Rosa, 2008, on the effects of infrastructures).

On the point of the contribution of specific public capital—that is, the contribution of specific investment in tourism, i.e., for the tourism sector—we limited our observations here in noting that in other sectors, specific investments have a significant impact, unlike what we have found for the tourism sector. Perhaps, in this case, it is also worth mentioning that tourism is a very large and composite basket of goods and services, and the focus on a subset of factors could be misleading.

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APPENDIX A: VARIABLES

Table A.1 – List of variables

AIRP: number of airports
TOURCUR: average annual public spending (1996 to 2007) for tourism in current account
EXHOT: number of tourist accommodation structures different from hotels
EXHOTBED: number of beds in EXHOT
HIGHW: km of higheways
HOT: number of hotel
HOTBED number of beds in HOT
HOTTOT: number of tourist accommodation structures (HOT+EXH)
INFRACOMPPRINC: first principal component computed on specific transport infrastructures (roads, higheways, rail, ports, airports)
TOURKAP: Cumulated public spending for tourism in capital account (1996 to 2007)
PORTS: number of ports
PRES##: tourist presences in year ##
PUTN: Putnam index for social capital
RAIL: km of railways
ROAD: km of roads
SHARE4-5STARH: share of 4 and 5 star hotel on the number of hotel
TOTBED: number of beds in HOTTOT
VATUR: value added in the sector of tourism
UNESCODU: dummy variable for the presence of sites under the UNESCO recognition
WORKTOUR: workers employed in the tourism sector
XKPUB: Index for total public capital stock per capita
XKTOT: Index for total capital stock per capita
D* : Variation over time (2006 or 2007 w.r.t. 1996) of variable *
IND_*: Index for variable *
PV_*: Percentage variation of variable * (2006 or 2007 w.r.t. 1996)
*POP : * per resident
*SUP : * normalised according to the territorial surface

Table A.2 – Cumulated public expenditure in capital account for tourism (TOURKAP), normalised according to different criteria

TOURKAP/pop07		TOURKAP/sup		TOURKAP/pres07	
Lazio	0.31	Umbria	89.4	Veneto	5.31
Campania	0.39	Puglia	89.7	Lazio	5.34
Puglia	0.42	Lazio	99.6	Emilia R	6.02
Lombardia	0.45	Emilia R	104	Marche	8.60
Emilia R	0.54	Marche	121	Toscana	9.23
Friuli VG	0.68	Toscana	167	Campania	1.17
Marche	0.76	Campania	170	Umbria	1.21
Umbria	0.86	Calabria	173	Puglia	1.51
Toscana	1.05	Friuli VG	178	Lombardia	1.52
Calabria	1.30	Lombardia	182	Liguria	1.84
Sicilia	1.58	Basilicata	193	Friuli	2.48
Liguria	1.62	Abruzzo	205	Trentino AA	2.59
Abruzzo	1.69	Molise	214	Calabria	2.99
Veneto	1.78	Veneto	276	Abruzzo	3.00
Piemonte	2.19	Sicilia	309	Sicilia	5.44
Molise	2.97	Sardegna	344	Sardegna	7.00
Basilicata	3.25	Piemonte	376	Piemonte	9.26
Sardegna	5.00	Liguria	481	Valdaosta	9.84
Trentino AA	10.92	Trentino AA	799	Basilicata	10.4
Valdaosta	24.49	Valdaosta	937	Molise	14.6

Note: The cumulated spending is divided as follows: (a) per 100 residents; (b) per 100 hmsq of territorial size; (c) per 10,000 tourists' presence (all data referred to are for the year 2007).

Table A.3 - Indices of public capital and total capital (per capita) in Italian regions

Region	XKPUBPOP	XKTOTPOP
Piemonte	88.00	440.00
Valdaosta	88.00	440.00
Lombardia	67.00	478.57
Trentino A A	231.00	624.32
Veneto	66.00	440.00
Friuli V G	134.00	496.29
Liguria	146.00	442.42
Emilia R	73.00	456.25
Toscana	83.00	395.23
Umbra	115.00	383.33
Marche	94.00	391.66
Lazio	116.00	446.15
Abruzzo	119.00	383.87
Molise	198.00	421.27
Campania	107.00	314.70
Puglia	83.00	286.20
Basilicata	236.00	393.33
Calabria	137.00	318.60
Sicilia	104.00	315.15
Sardegna	180.00	382.97
Simple Average	123.25	412.52
Italy	100.00	313.12

Note: The normalisation is such that Italy has XKPUBPOP equal to 100.

APPENDIX B: ROBUSTNESS CHECKS

There are a number of reasons that the estimates in this paper may not accurately represent the effect of our variables of interest, especially those regarding the financial measure of the stock of public capital belonging to the tourism sector. In this section, we present a series of robustness checks that address three particularly important issues that could lead to our estimates being biased, namely: endogeneity between the change tourist per capita and tourism spending, an alternative measure of public capital for tourism, and spatial effects.
These checks do not find evidence that our estimates are biased by any of these important standards.

The endogeneity between the change in tourists per capita and tourism spending.

In our estimates, we assumed that expenditure for tourism (both in current and in capital accounts) was exogenous with respect to tourist visits. Nevertheless, public spending for tourism could, at least partially, follow rather than precede tourism growth in terms of tourists' presence. If so, it is well known that the OLS estimates of *all* coefficients are generally inconsistent. To address this issue, a two-step procedure has been followed.
Let us start with expenditure in capital accounts. First, a three-year-lagged value of *TOURKAP* (*TOURKAP04*) has been used as an instrument of *TOURKAP* (2007 datum) to run a 2SLS regression as—per equation (1)—of the growth rate of tourists per resident over the period from 1996 to 2007 against (i) a constant term, (ii) its value at the initial time, and (iii) *TOURKAP*. In this regard, it is worth stressing that Anderson's (1951) underidentification statistic shows a value of 19.557 with a p-value of 0.000, meaning that the model is identified, that is to say that the instruments are 'relevant' in the sense that they are correlated with the (assumed) endogenous regressors. On the other hand, the Sargan (1958)-Hansen (1982) J statistics for overidentifying restrictions lead to conclude that the instruments are valid instruments, i.e., that they are uncorrelated with the error term, and that the excluded instruments are correctly excluded from the estimated equation. It shows a value of 0.00, meaning that the equation is exactly identified. Step two explicitly tests the exogeneity assumption by means both of Wu (1973)-Hausman (1978) and Durbin (1954)-Wu (1973)-Hausman (1978) statistics focusing on the principal hypothesis that tourism infrastructures are (exogenous variables and) not accommodating factors. Both tests reported in Table B.1 do not reject the null hypothesis that tourism investments are exogenous at an usual level of significance.

Table B.1
The endogeneity test of *TOURKAP*

Wu-Hausman F test:	*0.22301*	*F(1,16)*	*P-value =*	*0.64313*
Durbin-Wu-Hausman chi-sq test:	*0.27493*	*Chi-sq(1)*	*P-value =*	*0.60004*

Similarly, to investigate the endogeneity of expenditure in current accounts—*CGTURAVE*—a 2SLS regression of the growth rate of tourists per resident over the period 1996-2007 against a constant term, along with its value at the initial time and *TOURCUR*, has been run using the number of workers in the tourism sector in 1996 in per capita terms (*WORKTOURPOP96)* as an instrument for the latter. On theoretical grounds, this choice is supported by the argument that 'wages' is one of the most (numerically) important categories of expenditure in current accounts during the sample considered. Moreover, both underidentification and weak identification tests report values of 12.244 (a p-value of 0.0005) and 0.000 (meaning the equation is exactly

identified), respectively. The tests reported in Table B.2 do not reject the null hypothesis that spending in current accounts for tourism is exogenous.

Table B.2
The endogeneity test of *TOURCUR*

Wu-Hausman F test:			*0.33581*	*F(1,16)*	*P-value = 0.57033*
Durbin-Wu-Hausman	*chi-sq*	*test:*	*0.41114*	*Chi-sq(1)*	*P-value = 0.52139*

Therefore, the results from Table B.1 and Table B.2 suggest that our estimates are not affected by endogeneity.

An alternative measure of tourism capital.

Results concerning tourism spending, regardless of its endogeneity (which has already been analysed), could be biased because of the intrinsic weakness of the variables utilised as proxies for tourism facilities. A major concern is about the appropriateness of public spending for tourism in capital accounts—as a whole—representing public capital for tourism. Indeed, one could doubt that certain categories of public spending, such as (long-term) marketing spending or transfers, might be treated as *public capital*. To address this issue, different regressions have been run considering an alternative (restrictive) measure of the stock of public capital accumulated over the period from 1996 to 2007. This measure consists in the cumulated value of only 'building and real estate' spending (*TOURKAPB*) excluding, for example, the whole set of loans, public holdings, and transfers in capital accounts. Nevertheless, regressions using the aforementioned alternative proxy do not show any substantial change in the statistical significance of the coefficients. Table B.3 reports estimates relative to this alternative measure in absolute terms and normalised both according to the size of the population and the size of the surface area.

Table B.3
The marginal effect of building and real estate spending for tourism on the growth rate of tourists per resident in Italian regions

Variables	Regression		
	(a1)	(a2)	(a3)
CONSTANT	0.108* (0.003)	0.402* (0.000)	0.400* (0.000)
PRE96POP	0.006* (0.037)	-0.015* (0.029)	-0.015* (0.038)
TOURKAPB	0002 (0.593)	==	==
TOURKAPBPOP	==	61.08527 (0.627)	==
TOURKAPBSUP	==	==	30.490 (0.853)
N	20	20	20
R2	0.279	0.275	0.270
F	3.27	2.54	2.85

Notes: estimates are robust à la White. The P-value is in parenthesis. Starred variables are significant at the 5% level.

Therefore, we are confident that our main results reported in the paper do not heavily depend, in terms of statistical significance, on the particular proxy for tourism capital that we adopted.

Spatial effects.

As a final robustness check, we address the issue of spatial effects in our regressions. Indeed, given the explicit spatial nature of our data, it would be plausible that our regressions showed a systematic bias in capturing the effects of variables considered based on geographical grounds. In that case, spatially specific regression techniques would be required. To investigate this possibility, we test for spatial autocorrelation of residuals relative to each regression. More precisely, building on Anselin (1999), we performed the test on residuals based on the Moran's I statistic that, in matrix notation, can be expressed as follows:

$$(\text{A.1}) \quad I = \frac{N}{S_0}\frac{\varepsilon' W \varepsilon}{\varepsilon' \varepsilon}$$

where N is the number of geographical units considered, $S_0 = \sum_i \sum_j w_{ij}$ is a standardisation factor that corresponds to the sum of the weights for the nonzero cross-products, ε indexed the vector of residuals, and W is a spatial weights matrix. Moran's I tests have been computed for all regressions reported in the paper both in the cumulative and in the consecutive distance bands case for four different distance bands. For example, the results reported in Table B.4 below refer to regressions reported in Table 4.

Table B.4 Moran's I on the residual of regressions (1) reported in Table 4

Residuals of regression having the following variables as explanatory	Moran's I Distance bands			
	(0-1]	(0-2]	(0-3]	(0-4]
PV_HOTPOP	-0.435 (0.480)	-0.042 (0.954)	-0.203 (0.215)	0.009 (0.461)
PV_EXHOTPOP	-0.098 (0.935)	0.056 (0.569)	-0.176 (0.324)	0.033 (0.319)
PV_HOTTOTPOP	-0.120 (0.904)	0.035 (0.647)	-0.182 (0.302)	0.026 (0.364)
PV_HOTBEDPOP	0.097 (0.789)	-0.217 (0.389)	-0.172 (0.341)	-0.076 (0.782)
PV_EXHBEDPOP	-0.145 (0.868)	-0.008 (0.815)	-0.196 (0.251)	0.005 (0.503)
PV_TOTBEDPOP	-0.176 (0.818)	-0.136 (0.649)	-0.209 (0.194)	-0.073 (0.808)
PV_WORKTOURPOP	0.077 (0.813)	-0.033 (0.915)	-0.142 (0.467)	0.034 (0.305)
PV_SHARE4-5STARH	0.010 (0.912)	0 (0.786)	-0.108 ((0.662)	-0.057 (0.958)
TOURKAPPOP	-0.127 (0.895)	0.027 (0.676)	-0.187 (0.285)	0.032 (0.327)
TOURKAPSUP	-0.170 (0.833)	-0.002 (0.791)	-0.197 (0.248)	-0.001 (0.545)
CGTURAVEPOP	-0.064 (0.984)	-0.038 (0.940)	-0.197 (0.245)	-0.013 (0.644)
CGTURAVESUP	0.186 (0.670)	-0.015 (0.844)	-0.176 (0.323)	-0.016 (0.670)
XKPUBPOP	0.571 (0.256)	0.098 (0.419)	-0.151 (0.426)	0.041 (0.269)
XKPRIVPOP	-0.288 (0.671)	-0.012 (0.829)	-0.264 (0.088)	0.083 (0.111)
XKTOTPOP	-0.301 (0.658)	0.002 (0.775)	-0.218 (0.187)	0.041 (0.278)
INFRACOMPPRINC	-0.136 (0.881)	0.009 (0.748)	-0.192 (0.265)	0.014 (0.440)
UNESCODU	-0.029 (0.967)	0.086 (0.470)	-0-131 (0.533)	0.063 (0.180)
EUCUPOP	-0.076 (0.967)	0.035 (0.645)	-0.167 (0.364)	0.039 (0.288)
EUCAPPOP	0.194 (0.658)	0.078 (0.492)	-0.179 (0.311)	0.043 (0.263)
GROWTH	0.194 (0.658)	0.078 (0.492)	-0.179 (0.311)	0.043 (0.263)

Note: Note: Moran's *I*s have been computed using linear geographic coordinates of *capoluoghi* (regional capital) relative to the Italian waypoint available at http://xoomer.alice.it/ntpal/GPS/ISTAT/links.html (retrieved on 18/09/2010). P-values of 2 tails distribution are in parenthesis.

The results reported in Table B.4 confirm that the hypothesis of spatial independence cannot be rejected for all estimates reported in Table 4. Furthermore, Moran's test performed in a generalised way to all estimates (Stata® do-file available upon request to the authors), confirms that, overall, the error structure of our estimates is not spatially biased.

Therefore, as mentioned, we are confident that our estimates are robust with respect to all of the critical aspects here investigated.

ENDNOTES

[1] The RPA project officially started in 1994, with the 'Delibera' (Decision) N. 8/1994 of the 'Osservatorio per le Politiche Regionali' (Regional Policy Committee); in 2004, starting with the 2005-2007 National Statistics Programme (NSP), the RPA became a product of the National Statistical System (SISTAN). Currently, the project and the databank are run by the Italian Ministry of Economic Development.

[2] The twenty Italian regions have very different dimensions: the populations range from 120,000 inhabitants in Valdaosta to over 9 million in Lombardia, and the surface area ranges from 326 to 2,570 thousand kmsq (Valdaosta and Sicily, respectively).

[3] On the difference between *space-serving* and *population-serving* public capital, see Golden and Picci (2005) and their references.

[4] This situation is rather stable over time: an identical situation emerged with reference to the data of 2004, and it was very similar at the beginning of the time period considered.

[5] Reports on tourism in Italy are provided, e.g., by Mercury – Turistica (2003 or more recent editions). According to the data, the regions in which tourists' presence showed the highest percentage growth rate (in 2007 w.r.t. 1996) are Calabria, Basilicata and Lazio, while the lowest rates pertained to Friuli V.G., Liguria and Valdaosta.

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