Tourism Management
The determinants of Italian domestic tourism: A panel data analysis
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A B S T R A C T

In this study, a GMM panel data estimation is used to investigate the main determinants of Italian domestic tourism demand as measured by regional bilateral tourism flows. The analysis is developed both at aggregate level and for the two traditional macro-areas of the country, namely Centre-North and South. For the whole nation, the importance of traditional economic variables in determining domestic tourism flows is confirmed. However tourist actual choices appear also to be influenced by past experiences and by regional differences in the quality of the wider environment. Additionally it appears that, for Italian tourists, domestic and international destinations behave as substitutable goods. The sub-sample analysis highlights some interesting differences between macro-areas. In particular, southern tourists appear more responsive to income variations, and less sensitive to prices differentials than their northern counterparts. Moreover, the degree of competition between domestic and outbound trips is higher in the South. Finally, southern tourists seem to be more influenced by environmental attributes while northern tourists are more sensitive to cultural activities.

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1. Introduction

It is common knowledge that in many countries domestic tourism is dominant with respect to international flows in terms of both size and economic contribution. In spite of that, only recently researchers have started to concentrate on this phenomenon and its economic impact, as well as on its potential for reducing disparities in less developed world areas. It follows that studies on the determinants of tourist choices within national borders are still rare and mainly concentrate on the impact of economic variables. There are, however, some recent contributions that have started to stress the potential role of non-economic factors for the domestic demand of a specific destination area, in the steps of the international tourism literature. Such factors may concern both the quality of local endowment of natural and cultural resources, and the capability of a destination to manage and organize its resources according to competitive strategies.

This paper aims to give a contribution in this line of research. It builds on a regional data set and implements a system GMM dynamic panel data analysis (Arellano & Bond, 1995; Blundell & Bond, 1998) to estimate the main determinants of the Italian domestic tourism in the context of an extended gravity model (Cf., inter al., Khadaroo & Seetanah, 2008). At this scope a large panel of explanatory variables is considered. It includes traditional economic demand-driven variables, such as price, income, and qualitative supply-side factors that can be crucial in determining the comparative advantages of the exporting regions. In particular, the role of culture, environment, public safety and transport infrastructure is explicitly investigated. Another important determinant considered in this paper is the number of trips for overseas destinations aimed to test whether domestic and outbound tourism are characterized by a crowding out effect or can be considered as two independent phenomena. The analysis is firstly performed at aggregate level. Here, the dependent variable is expressed in terms of bilateral tourism flows across the twenty Italian regions, treated both as origin and destination. Then, in consideration of the well-known differences characterizing the Italian economy, the full sample is split into two sub-samples, focusing on the two traditional macro-areas of the country, namely Centre-North and South. The main scope of the disaggregated analysis is to capture differences in tourists’ preferences according to the area of origin. Thus, one sub-sample includes the arrivals from the Centre-North tourists to the twenty Italian regions and, conversely, the other sub-sample comprises the arrivals registered in all regions but originated only from southern regions residents.

With respect to the existing literature, the content of this paper could turn out to be very rich of powerful insights for both tourism management and planning. On the one hand, it gives attention to several items related to the region of destination in terms of supply factors. In this respect, empirical results can be useful for both
public authorities and destination management organizations often involved in improving the competitive position of a specific destination. On the other hand, this paper has the advantage of developing a panel data analysis on domestic tourism in terms of interregional bilateral tourism flows. From a technical point of view, the gain of considering a disaggregated data set in terms of robustness of empirical results is well known. There are, however, many other good reasons to believe that such a disaggregated approach can be particularly useful for domestic tourism analysis. First of all, tourism can represent the engine for regional development and can be particularly relevant for regions that exhibit low economic growth and high unemployment rates. Secondly, a regional perspective may allow to evaluate how special idiosyncratic regional factors, such as natural endowment, cultural heritage and tourist infrastructure, may influence tourist choices within the same country. Thirdly, at regional level, factors that could bias national comparison, such as fiscal regimes and regulatory structure, do not matter. Finally, a regional approach helps to understand whether domestic tourism reproduces international tourism in a different scale or it is a different phenomenon indeed.

The paper is organized as follows. The following section focuses on recent trends characterizing Italian domestic tourism flows. Section 3 discusses the role of the main determinants of domestic tourism and summarizes the empirical literature for the Italian case. Section 4 presents our empirical model and research strategy. It also provides some descriptive statistics for the variables considered in the study. Then, Section 5 presents our results. Finally, Section 6 draws some conclusions.

2. Patterns and trends in Italian domestic tourism flows

In Italy, tourism represents one of the most important economic activities. Most of this activity is generated by the domestic demand which weights, on average, 57% and 58% for arrivals and nights respectively during the period 1998–2007 (Cf. Table 1). As a result, the economic contribution of the domestic component is dominant with respect to international flows in terms of both consumption, value added and employment. Moreover, this contribution shows an upward sloping trend over the last decades.

The average dominance of the domestic tourism demand registered at national level is also confirmed in almost all the regions (Cf. Table 2). Among those with the highest domestic component, there are six that belong to southern Italy (Sic and Sar are the only exceptions). Conversely, as shown in Table 2, the international component prevails in Tua, Ven and Laz for both arrivals and nights, and in Tos and Lom only for arrivals and nights respectively. Interestingly, these regions belong to the richest area of the country and collect more than 50% of total tourism flows alone. When considering tourism growth rates, the same table shows that Umb, Pug, Cal and Bas registered the better performances, both in terms of arrivals and nights. Conversely, Laz, Lig, Cam, Vda and Lom stand out among the regions that performed the worst. All in all, while traditional destinations are confirmed, it emerges that unusual and less touristy areas of the country are gathering the increasing interest of domestic tourists. Aggregating this information at a macro-area level,3 it results that, while the North appears as the favorite destination in absolute terms, followed by the Centre, the South shows the highest growth rate for both arrivals and nights. Summing up, recent dynamics involving Italian tourism have raised the competition across regions called to preserve, or even increase, their relative market shares. In this scenario, local policy makers and private agents are expected to spark increasing effort to enhance regional attractiveness for domestic holidays. To this purpose, an understanding of the determinants of domestic tourism flows is fundamental. The discussion of this issue is left to the following sections.

### Table 1

<table>
<thead>
<tr>
<th></th>
<th>Domestic</th>
<th>Inbound</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Arrivals</td>
<td>Nights</td>
</tr>
<tr>
<td>Change 1998–2007</td>
<td>30%</td>
<td>20%</td>
</tr>
<tr>
<td>Weight 1998</td>
<td>0.57</td>
<td>0.60</td>
</tr>
<tr>
<td>Weight 2007</td>
<td>0.55</td>
<td>0.57</td>
</tr>
<tr>
<td>Average weight</td>
<td>0.57</td>
<td>0.58</td>
</tr>
</tbody>
</table>

Source: ISTAT.

3. The determinants of domestic tourism flows

There are relatively few investigations on domestic tourism and, therefore, the literature on domestic tourism determinants is quite scant and moves along the lines suggested by international tourism flows studies (Cf., Lim, 1997). According to this literature, the main

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1 Here region is intended as a sub-national territorial decision area where tourism management and planning can develop.
2 It generates about 10.5% of total internal consumption, 5% of value added and 9.7% of employment (source: ISTAT).
3 These regions collect 72% of international arrivals, 70% of international nights, 40% of domestic arrivals, 45% of domestic nights, 58% of total arrivals and 55% of total nights (source: ISTAT).
4 Survey data show that in 2007, 83.3% of total travels is given by trips within national borders, while the rest 16.7% represents the percentage of residents that choose to travel abroad. Domestic tourism accounted for 84.6% in 1998 (ISTAT, “Viaggi e vacanze”).
5 Cf. ISTAT for the definition of macro-areas in Italy.
factors determining tourists’ choices turn out to be both economic and non-economic. Despite being so important, in fact, economic demand-driven variables alone do not adequately explain tourism flows, since several supply-side qualitative determinants also affect travelers’ behavior (Cf., inter al., Zhang & Jensen, 2007; Eilat & Einav, 2004; Khadaroo & Seetanah, 2008). Despite such evidence, the majority of the (few) studies on domestic tourism still concentrate on the impact of economic variables, so that the role played by other factors is almost disregarded. Examples of studies estimating the role of relative prices and income are Seddighi and Shearing (1997), Garin-Munoz (2009), Taylor and Arigoni (2009), Bigano, Goria, Hamilton, and Tol (2005) for Italian domestic tourism. Other factors determining domestic tourism, in the case of developing countries, are transportation networks, telecommunications, commerce, urban development and public health (Wen, 1997).

### 3.1. Determinants of domestic tourism in Italy

With regards to the Italian case, the number of contributions focusing on domestic tourism is quite small and mainly refers to specific regions or areas of the country. In what follows, a selection of these contributions is presented. The choice includes papers that either shed lights on domestic tourists’ preferences and attitudes (i.e. on the tourist evaluation process of a certain destination), or give insights on the role of domestic tourism for growth and development.

There are two studies focusing exclusively on the domestic tourism demand that are worth mentioning, namely Gardini (1979) and Cracolici and Nijkamp (2008). Gardini (1979) considers the interregional tourism flows and studies the relationship between the Leontief–Strout gravitational coefficients, distance, and regional market shares evolution. He finds that the distance between the region of origin and destination had increased until the oil shock of the earlier 70s. After that, higher transportation costs started to discourage long-distance traveling. Moreover, the impact of higher transportation costs seems to be greater in regions that strongly compete through prices. Cracolici and Nijkamp (2008) aim to assess the relative attractiveness of competing tourist destinations in Southern Italy. They find that the evaluation of domestic tourists is strongly connected to the complementary elements of the tourism supply such as information, tourist services and living costs. Natural and cultural resources give only a comparative advantage to tourist destinations.

Among those studies where domestic tourism is analyzed jointly with the inbound component we have Mazzocchi and Montini (2001), Guizzardi and Mazzocchi (2009), Bigano et al. (2005) and Cortés-Jiménez (2008). Mazzocchi and Montini (2001) estimate the impact on tourism flows of the earthquake that hit Central Italy’s Umbria region in 1997. They find that the reduction of arrivals was slightly more prominent for the domestic component and that the impact on foreign tourism was reabsorbed more quickly. Guizzardi and Mazzocchi (2009) provide a strategy for modeling the effect of the business cycle on both domestic and inbound tourism and find that the former is less sensitive owing to its lower elasticity with respect to prices and income. Cortés-Jiménez (2008) develops an analysis of the impact of tourism in regional economic growth for both Italy and Spain. The proposed results reveal that both domestic and international tourism have positive for countries with low incomes, but falls as income grows and eventually goes negative. Athanasopoulos and Hyndman (2008) confirm this hypothesis. They find a negative impact of GDP on domestic tourism expressed by the number of nights spent for holiday purposes. They argue that when the economic activity rises, Australians prefer foreign to home destinations for their holidays. In this regard, the existence of a possible trade-off between overseas departures and trips within the country is an interesting issue which also other literature has recently pointed out (Cf. Bigano et al., 2006).

Within this scenario, as previously anticipated, a very small number of non-economic variables have been considered in domestic tourism analyses. Taylor and Arigoni (2009), for instance, focus on the role played by climate at destination as a determinant of domestic tourism in the UK. They find that the mean temperature and the average sunshine hours have a significant impact. The strong effect of monthly temperatures and extreme weather events has also been found by Bigano, Goria, Hamilton, and Tol (2005) for Italian domestic tourism. Other factors determining domestic tourism, in the case of developing countries, are transportation networks, telecommunications, commerce, urban development and public health (Wen, 1997).

### Table 2

<table>
<thead>
<tr>
<th>Arrivals</th>
<th>Nights</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>2007</td>
</tr>
<tr>
<td>Mol</td>
<td>0.88</td>
</tr>
<tr>
<td>Bas</td>
<td>0.88</td>
</tr>
<tr>
<td>Abr</td>
<td>0.88</td>
</tr>
<tr>
<td>Pug</td>
<td>0.85</td>
</tr>
<tr>
<td>Cal</td>
<td>0.85</td>
</tr>
<tr>
<td>Mar</td>
<td>0.84</td>
</tr>
<tr>
<td>Eml</td>
<td>0.76</td>
</tr>
<tr>
<td>Umb</td>
<td>0.71</td>
</tr>
<tr>
<td>VdA</td>
<td>0.67</td>
</tr>
<tr>
<td>Lig</td>
<td>0.67</td>
</tr>
<tr>
<td>Sar</td>
<td>0.65</td>
</tr>
<tr>
<td>Pte</td>
<td>0.64</td>
</tr>
<tr>
<td>Sic</td>
<td>0.62</td>
</tr>
<tr>
<td>Cam</td>
<td>0.60</td>
</tr>
<tr>
<td>Fvg</td>
<td>0.59</td>
</tr>
<tr>
<td>Lom</td>
<td>0.53</td>
</tr>
<tr>
<td>Tos</td>
<td>0.49</td>
</tr>
<tr>
<td>Tea</td>
<td>0.47</td>
</tr>
<tr>
<td>Vern</td>
<td>0.38</td>
</tr>
<tr>
<td>Laz</td>
<td>0.36</td>
</tr>
</tbody>
</table>

Legend: Ab — Abruzzo; Bas — Basilicata; Cal — Calabria; Cam — Campania; Em — Emilia Romagna; Fvg — Friuli Venezia Giulia; Laz — Latium; Lig — Liguria; Lom — Lombardy; Mar — Marches; Mol — Molise; Pte — Piedmont; Pug — Apulia; Sar — Sardegna; Sic — Sicily; Tos — Tuscany; Tea — Trentino Alto Adige; Umb — Umbria; Ven — Veneto; VdA — Val d’Aosta.

[Fig. 1. Linear trends of domestic tourism weights and per capita GDP.](#)
a significant and positive role in regional economic growth, although only domestic tourism really matters for internal regions. Finally, Bigano et al. (2005) finds that temperature is an important indicator of domestic tourism whose impact depends on the type of destination. Expectations about future temperature levels also appear to be relevant.

Summing up, to the best of our knowledge, empirical research on the Italian domestic tourism lacks studies aimed at understanding and comparing the role of alternative explanatory variables, both economic and non-economic. However, some interesting information arises from the existing literature. In particular, it seems that other factors such as distance, tourist services and infrastructure can strongly influence domestic tourists’ choice, besides income and living costs. Natural and cultural resources strongly matter as well, even though they only seem to give a comparative advantage to specific regions or areas.

4. The empirical model and research strategy

The aim of this paper is to investigate the main determinants of the domestic tourism flows in Italy, giving particular emphasis to the role of supply-side variables as driving forces of tourists’ choice. In particular, the intent is to test whether destination attributes also matter for the case of the Italian domestic tourism, besides the variables typically used to explain international tourism flows. With per capita GDP (gdp) it is possible to test the extent to which the size of a region can positively affect the amount of tourism generated by a particular region. Outbound tourism (trips) serves to test whether the two goods, that is, domestic tourism and outbound tourism, are somehow competing with each other. A negative elasticity would reveal that the two goods are substitutable, whilst a positive sign would indicate that they are complementary. With population density (densp) it is possible to test the extent to which the size of a region can positively affect the amount of tourism it generates. The second group of variables includes population density, culture, the degree of regional tourism vocation, transport infrastructure and public safety. With population density at destination (denspj) and a rich set of economic and non-economic determinants. These determinants can be classified into three groups: variables measured in origin, variables measured in destination and variables linking origin and destination. The first group includes population density, per capita GDP and outbound tourism flows. With per capita GDP (gdp) it is possible to test the extent to which wealth can positively affect the amount of tourism generated by a particular region. Outbound tourism (trips) serves to test whether the two goods, that is, domestic tourism and outbound tourism, are somehow competing with each other. A negative elasticity would reveal that the two goods are substitutable, whilst a positive sign would indicate that they are complementary. With population density (densp) it is possible to test the extent to which the size of a region can positively affect the amount of tourism it generates. The second group of variables includes population density, culture, the degree of regional tourism vocation, transport infrastructure and public safety. With population density at destination (denspj) it is possible to test the extent to which the size of a region can attract or discourage tourist arrivals. To investigate the role of culture as a possible attracting factor for tourism demand, public effort in supporting and promoting various initiatives is taken into account. As supporting activity the volume of public expenditure for culture activities and events is considered (cultexp), while the ratio between costly tickets and free tickets sold for visiting public museums and historical buildings (cultprom) is intended to capture the role of promotion. To analyze the role of regional differences in the degree of tourism vocation, an index measuring the relative endowment of touristic places (places)6 for each region has been constructed. High values of this index indicate that in the destination area there is a higher number of tourism

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6 See the end of this Section for details about the index.
sites relative to the total national endowment. This index is expected to be positively correlated with the number of arrivals. The role of transport infrastructure is controlled through the number of kilometers of highways (roads), which expresses the convenience of internal mobility, particularly important for those tourists wishing to visit different places in the same region. Finally, a social variable is considered in order to capture the role of public safety. At this scope, the variable is measured as the percentage of minor crimes over total crimes (crime). From a tourist viewpoint, the higher the ratio, the lower the level of security. The third group of determinants links origin and destination and includes distance, relative prices and relative pollution. The distance between origin and destination (dist) represents one of the baseline gravity variables and is measured in kilometers. Relative prices (price) are expressed as CPI at destination over CPI in the region of origin. Therefore, the model assumes that tourists choosing a destination respond to differentials in their income purchasing power between origin and destination. The same assumption applies for pollution (pollut) that is defined as the ratio between CO2 emissions at destination and CO2 emissions at origin. All these three variables are expected to discourage domestic tourism flows.

The proposed econometric model takes the following representation

\[
\begin{align*}
\text{arr}_{ij,t} = & \beta_0 + \beta_1 \text{dist}_{ij,t} + \beta_2 \text{densp}_{ij,t} + \beta_3 \text{trips}_{ij,t} + \\
& \beta_4 \text{price}_{ij,t} + \beta_5 \text{pollut}_{ij,t} + \beta_6 \text{gdp}_{ij,t} + \beta_7 \text{places}_{i} + \\
& \beta_8 \text{culturexp}_{ij,t} + \beta_9 \text{cultprom}_{ij,t} + \beta_{10} \text{trips}_{ij,t} + \beta_{11} \text{roads}_{ij,t} + \\
& \beta_{12} \text{crime}_{ij,t} + \beta_{13} \text{pollut}_{ij,t} + \beta_{14} 2005 + \beta_{15} 2006 + \\
& \beta_{16} 2007 + \epsilon_{ij,t}
\end{align*}
\]

where, together with the rest of the covariates, the impact of the lagged dependent variable (arr\(_{ij,t-1}\)) is also tested. With this variable it is possible to capture the tendency of tourists of one region to return to the same place to spend their holidays. By construction the variable also captures the social networks effects and consequently the role of reputation. The model in equation (1) also includes time dummies which have been added in order to control possible idiosyncratic temporal effects. All the variables are in logs and therefore coefficients can be read in terms of elasticity.

According to the scope of the present study, the model in equation (1) is firstly tested for the full sample of the twenty Italian regions. Then, the data set is disaggregated into two regional-wise sub-panels and the model is re-estimated twice. The strategy has been set up to build these sub-samples only with respect to the region of origin. Thus, one sub-sample includes the arrivals from the Centre-North tourists to the twenty Italian regions and, conversely, the other sub-sample comprises the arrivals registered in all regions but originated only from Southern regions residents. The time span of the analysis is 2004–2007. Given that there are 20 regions of origin and 19 regions of destinations, the panel dimension is \(T = 4\) and \(N = 380\).

The data on arrivals disaggregated at regional level are taken from the census investigation entitled “Movimento dei clienti negli esercizi ricettivi,” conducted by the Italian National Institute of Statistics (ISTAT). With the only exception of the index cultexp, whose data were taken from Osservatorio Finanziario Regionale (2008), ISTAT also provides data on the explanatory variables. The index places is constructed as the ratio between the tourist places every region is naturally endowed, and the total national endowment. The data are taken from the ISTAT investigation entitled “Capacità degli esercizi ricettivi” and refer to seven groups of tourist places: mountains, hilly and maritime sites, art cities, lakes, thermal resorts and religious sites.

The details on definition and data sources are shown in Table 4. To conclude, Table 5 shows the main descriptive statistics of the variables.

### 5. Estimation and results

In this section, the empirical results are presented and discussed at both full-sample and macro-area level. Being equation (1) a dynamic panel regression model with the lagged dependent variable among its regressors, the system GMM estimator has been considered as the appropriate econometric tool to conduct our empirical analysis (Arellano & Bond, 1995; Blundell & Bond, 1998). This estimation technique is particularly suitable to correct the dynamic endogeneity which may be caused by the potential correlation between past realization of the dependent variable and some explanatory variables. It accommodates situations with fixed effects and autocorrelation within individuals and is specifically designed for dynamic panels with large units observed over short-time periods (Cf. Rodman, 2006).

#### 5.1. Results at full-sample level

The results at full-sample level reveal a general satisfactory performance of the econometric model. The autocorrelation tests (Arellano and Bond, 1991) show that the subsequent lags are valid instruments. As expected, in fact, the residuals in differences are autocorrelated of order 1, whilst there is no autocorrelation of second order. In addition, the Sargan test (Sargan, 1958) does not reject the null for joint validity of the instruments. The details on the significance and magnitude of the estimated elasticities are reported in Table 6.

With regards to the variables measured at origin, a positive elasticity of 0.4307 is estimated for population density, which means that the higher the population density in a region, the higher

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>arr</td>
<td>Number of arrivals registered per region per year</td>
<td>ISTAT</td>
</tr>
<tr>
<td>densp</td>
<td>Population density (equal to the ratio between yearly average population and (km^2))</td>
<td>ISTAT</td>
</tr>
<tr>
<td>dist</td>
<td>Aerial distance (in km) between the main city in the region of origin and the main city in the region of destination</td>
<td>ISTAT</td>
</tr>
<tr>
<td>gdp</td>
<td>Per capita GDP at constant price (year – 2000)</td>
<td>ISTAT</td>
</tr>
<tr>
<td>price</td>
<td>Ratio of CPI (with Tobaccos) at destination to CPI at origin</td>
<td>ISTAT</td>
</tr>
<tr>
<td>trips</td>
<td>Number of resident travelers in the region of origin who made an international trip</td>
<td>ISTAT</td>
</tr>
<tr>
<td>places</td>
<td>Ratio of the regional endowment of touristic places to the total national endowment.</td>
<td>ISTAT</td>
</tr>
<tr>
<td>cultexp</td>
<td>Regional expenditure in cultural activities (% of total regional expenditure)</td>
<td>Osservatorio Finanziario Regionale</td>
</tr>
<tr>
<td>cultprom</td>
<td>Ratio between paying and not paying visitors of national museums</td>
<td>ISTAT</td>
</tr>
<tr>
<td>roads</td>
<td>Highways kilometers</td>
<td>ISTAT</td>
</tr>
<tr>
<td>crime</td>
<td>Percentage of minor crime over total crime</td>
<td>ISTAT</td>
</tr>
<tr>
<td>pollut</td>
<td>CO2 emissions in metric tons</td>
<td>ISTAT</td>
</tr>
</tbody>
</table>

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7 In the analysis, Centre-North comprises Emilia Romagna, Friuli Venezia Giulia, Lazio, Liguria, Lombardy, Marche, Piedmont, Trentino Alto Adige, Tuscany, Umbria, Veneto, Val d’Aosta. The rest of the regions belong to the South, namely Abruzzo, Apulia, Basilicata, Calabria, Campania, Molise, Sardinia, Sicily.

8 The owners of establishments providing accommodation on the basis of an entrepreneurial activity are asked to collect information about their clients. By filling a form they register the number of arrivals and departures, distinguished by country of origin and Italian region of residency.
the arrivals from that region. Both sign and magnitude of the
coefficient are in line with previous empirical literature on inter-
national tourism (Cf., inter al., Khadaroo & Seetanah, 2008). As
expected, a positive elasticity is also estimated for per capita GDP,
indicating that the wealth in the region of origin positively affects
the number of arrivals from that region to each destination. The
estimated elasticity, 1.4274, results higher than the existing
evidence for both domestic (e.g., 0.86 in Garin-Munoz, 2009) and
international tourism (Cf., inter al., Khadaroo & Seetanah, 2008; Zhang & Jensen, 2007; Eilat & Einav, 2004). According to this esti-
mate, domestic tourism in Italy seems to behave as a luxury good.
Conversely, a negative impact of the numbers of trips to foreign
destinations seems to arise. The negative coefficient of trips
(−0.2488) suggests that domestic destinations, besides competing
with each other, also compete with destinations outside the
national borders.

Turning the attention to covariates measured at destination,
Table 6 shows the positive role of population density, cultural
expenditures and promotion, and endowment of tourist attractiveness
and transport infrastructure. With a positive elasticity of 0.7116,
population density, which controls the size of each region, acts as
attracting factor for domestic tourism demand. The role of pulling
factor is also detected for cultural expenditure (cultexp); in this,
case, an elasticity of 0.1190 reveals that a rise in the public
involvement of cultural initiatives can determine a significant
increase in tourism arrivals. The promotion of culture plays a posi-
tive role as well, though with a minor impact (−0.0559). A positive
coefficient is also estimated for the index capturing regional
endowments of tourist attractiveness, places. The relative weak
impact (0.0300) suggests either that the number of tourist sites
does not influence domestic tourism flows considerably, or that this
variable might be a poor proxy of the degree of tourism vocation of
a specific region. Finally, the variable roads, with an elasticity of
0.0450 also emerges as a pulling factor for tourists demand, even
though the relative elasticity is very small when compared to other
empirical results related to international tourism (Cf. Khadaroo &
Seetanah, 2008). A negative impact is conversely estimated for
the variable crime (−0.2329) at destination. As expected, the
negative sign means that domestic tourists are attracted by places
with high level of security. Again, it is worth pointing out that this
elasticity is smaller with respect to international tourism empirical
findings (Eilat & Einav, 2004).

As for the role of the covariates linking each pairs of region,
namely distance, relative prices and pollution, three negative elas-
ticities are respectively estimated. Distance shows the expected sign,
thus confirming its role as proxy for travel monetary and non
monetary costs (e.g., time travel). However, the size of the coefficient
(−0.0762) appears relatively smaller than what is suggested for
international context. Khadaroo and Seetanah (2008), for instance,
find an average elasticity of −0.22. Thus, it seems that when
domestic tourism is taken into account, tourists are less sensitive to
distance than international ones. For relative prices, the estimated
elasticity (−0.8978) is well above the range of values suggested for
the international context (Cf., inter al., Khadaroo & Seetanah, 2008).
Accordingly, Italian tourists seem to be very responsive to price
differentials across destinations and, therefore, discouraged from
visiting places which are more expensive than their own region.
Finally, the high and significant negative coefficient (−0.9452) esti-
mated for pollution suggests that tourist choices seem to be highly
affected by environmental quality differentials.

To conclude, the attention turns on the lagged dependent vari-
able which reports a high and significant estimated coefficient. In
this case, an elasticity of 0.7976 reveals the presence of important
habit persistence among Italian tourists who tend to return to the
same region where they spent the previous year’s holidays. In
addition, by using bilateral flows, the result strengthens the reputa-
tion role for each region with respect to the region of origin. In
comparison with previous literature, this estimate appears higher
than what found by Garin-Munoz (2009) for the case of domestic

### Table 5

Descriptive statistics.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. dev.</th>
<th>Min</th>
<th>Max</th>
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<td>0.178738</td>
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<td>91.000000</td>
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<tr>
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<td>234.0049</td>
<td>78.000000</td>
<td>15.395834</td>
<td>251.5265</td>
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<tr>
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<td>51.000000</td>
<td>0.0000008</td>
<td>28.15265</td>
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<tr>
<td>price</td>
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<td>trips</td>
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<td>0.0000008</td>
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<td>cultprom</td>
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<td>75.33565</td>
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<td>roads</td>
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<td>298.8719</td>
<td>298.8719</td>
<td>0.0000008</td>
<td>817.000000</td>
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<tr>
<td>crime</td>
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<td>40.400000</td>
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<td>pollut</td>
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<td>0.014848</td>
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<td>0.0000008</td>
<td>67.34912</td>
</tr>
</tbody>
</table>

### Table 6

Results at full-sample level.

<table>
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<tr>
<th>Variable</th>
<th>System GMM Coefficients</th>
<th>SE</th>
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<td>0.0759</td>
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<td>0.0050</td>
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<tr>
<td>cultexp</td>
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<td>0.0144</td>
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<tr>
<td>cultprom</td>
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<td>0.0118</td>
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<tr>
<td>trips</td>
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<td>0.0545</td>
</tr>
<tr>
<td>roads</td>
<td>0.0450**</td>
<td>0.0144</td>
</tr>
<tr>
<td>pollut</td>
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<td>0.1374</td>
</tr>
<tr>
<td>crime</td>
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<td>0.0314</td>
</tr>
<tr>
<td>Const</td>
<td>3.9769***</td>
<td>0.7742</td>
</tr>
</tbody>
</table>

Note: the system GMM estimator has been applied using the xtabond2 command in Stata (Roodman, 2006). The lag of the dependent variable is treated as endogenous. Time dummies have been added to avoid cross-individual correlation. JB stands for Jarque–Bera normality test, which assumes under the null hypothesis that the residuals follow a normal distribution. Stars denote p-values as follows: *p < 0.05; **p < 0.01; ***p < 0.001.
tourism in Galicia (0.24) and by Khadaroo and Seetanah (2008) for the case of international tourism flows (0.13).

Summing up, at aggregate level the main determinants of the domestic tourism demand in Italy seem to be relative prices and per capita tourist income, jointly with environmental quality. Other relevant determinants are overseas departures and the lagged dependent variable which controls the role of reputation and habit formation. These findings seem to suggest a major role for the variables measured in the region of origin and for those referring to the origin-destination relationship. Conversely, a relative minor role is detected for the covariates defined only at destination. Nevertheless, statistically significant coefficients prove that elements of tourism supply such as culture, public safety and transport infrastructure can give an important comparative advantage to a tourism destination.

5.2. Results at macro-area level

As previously anticipated, the model in equation (1) is also estimated for the two traditional Italian macro-areas. The results are shown in Table 7. In general terms, the good model performances are confirmed and the validity of the instruments is proved by both the autocorrelation tests and the Sargan test.

In detail, two main findings are worth noting in Table 7. On the one hand, the sub-sample analysis confirms the dominant role of such economic determinants as relative prices and tourists’ income. On the other hand, the disaggregated picture highlights interesting differences in the behavior of tourists coming from two different areas of the Country.

As for the variables measured at origin, Southern tourists seem comparatively more income sensitive than Northern ones. According to the estimated elasticities, a rise in per capita GDP in the Southern regions raises tourism demand almost four times more than in the northern ones. This finding supports what already emerged in the context of international tourism literature where the responsiveness to income variations is proved to decline as income rises (Bigano et al., 2006). Given the existing substitutability between domestic and international tourism, already proved at full-sample level, a possible explanation is that the growth of low incomes greatly affects domestic flows until tourists can afford only cheap holidays. Income elasticity for domestic tourism demand starts declining when people are rich enough to buy more expensive holidays abroad. Other interesting differences can also be remarked for the rest of the variables. Trips to foreign destinations, for instance, is another variable that reports the expected negative sign for both macro-areas, even though the responsiveness of Southern tourists demand is higher. This result can be explained, again, in terms of per capita income differentials across Italian regions. A higher elasticity expressed by Southern tourists implies that for low level incomes the degree of competition between domestic and international tourism becomes higher. As far as the coefficient for population density in the region of origin is concerned, its size may depend on the different weight that domestic tourism exhibits in the two areas of the country.\footnote{For 2007, domestic tourism account for 88% of the total tourism for the South, 84% for the Centre, and 80% for the North (ISTAT).}\footnote{ISTAT.} In other words, the propensity to travel within the country borders is higher for the Southern regions than for Northern ones, making national destinations more sensitive to population variations in the South.

Turning the attention to the region of destination, population density exhibits a higher elasticity for northern tourists, though only slightly. This could probably mean that people traveling from the richest area of the country, with a higher population density,\footnote{\cite{Note1}} tend to prefer less crowded destinations. The variable roads is statistically significant only for Southern tourists. This result probably depends on the great regional disparities in transport infrastructure and services. Tourists from Southern regions are more concerned with this variable probably because they are used to experiencing frequent inland connection problems. Another possible explanation could be that Southern tourists, differently from Northern ones, mainly use cars for their trips. Also for the role of culture, the impact of public expenditure in cultural activities is estimated positive for both macro-areas but higher for the North, whilst cultural promotion is significant only for the Northern regions. The role of regional endowments of tourist attractiveness is confirmed not to be crucial in determining tourism flows, it is only significant for Northern tourists and its impact is very low. Finally, with regards to the role of the covariates linking origin and destination, it is interesting to notice how distance is significant only for Northern tourists that, accordingly, are more likely to avoid long-distance travels. Northern tourists seem to be more responsive than Southern ones to relative price movements as well. Conversely, it appears that only Southern tourists are sensitive to the relative environmental quality.

6. Conclusions

Italy is one of the top tourism destinations in the world with a fast growing tourism industry. The largest part of this industry, in terms of consumption, value added and employment, is due to domestic tourism activities. In spite of that, empirical literature on domestic tourism is quite scant and the attention of policy makers is not adequately focused on its determinants. Consequently, this paper investigated the determinants of interregional tourism flows in Italy. The study used a panel of 380 individuals constructed...
considering the bilateral flows of arrivals between the twenty Italian regions, observed during the period 2004–2007. An extended gravity model was estimated, with the inclusion of both economic and non-economic variables, using the system GMM estimator for dynamic panel data models. The analysis was firstly conducted at aggregate level and later at sub-sample level, corresponding to the North–South geographical partition of the country. The results shown in the present analysis seem to be very interesting and rich of powerful insights.

At aggregate level, Italian tourists seem to be particularly sensitive to differences in relative prices between their region and the possible destinations. The per capita GDP in the sending regions plays a significant role as well. Other variables also emerge as important determinants of domestic flows. In particular, actual tourist destinations appear to be influenced by their past choices as well as by differences in the environmental quality. Another noticeable result is that, for Italian tourists, domestic destinations and international destinations act as substitutable goods. Finally, local governments support to culture activities appeared to have a positive impact on tourist arrivals. The sub-sample analysis highlighted some differences in the behavior of tourists, probably expressing the remarkable differentials between the two macro-areas. The economic inequities are reflected on the impact that income exerts on tourist flows, with the Southern tourists appearing more responsive to per capita GDP changes. By contrast, Northern tourists appear more sensitive to price differentials. Another important difference emerges in the degree of competition with the outbound trips, which decreases from South to North, that is from less to more developed regions. Only Southern tourists seem to be influenced by the environmental quality of their destinations, whilst the promotion and support of cultural activities turned out to be particularly attractive for Northern tourists.

In summary, with respect to previous literature, this study confirms the importance of traditional economic variables in determining domestic tourism flows. Moreover, it highlights the presence of other relevant determinants such as environmental quality, overseas departures and the lagged dependent variable which controls the role of reputation and habit formation. These findings seem to suggest a major role for the variables measured in the region of origin and for those that determine a comparison between origin and destination. At the same time, statistically significant coefficients, though low, prove that elements of tourism supply such as cultural, public safety and transport infrastructures can also give an important comparative advantage to a tourism destination.

From the point of view of practitioners and agencies aiming at identifying a destination attractiveness, the empirical evidence proposed in this study may turn out to be particularly useful. In this respect, the two main indications seem to arise. On the one hand, the strong responsiveness of domestic tourism to economic variables suggests that the abatement of holiday prices, with respect to quality, could be very successful in enhancing regional opportunities. In this respect, cultural and environmental-friendly initiatives could offer a sensible contribution and thus give a comparative advantage to tourist destinations. On the other hand, the persistence/reputation effect is both the result of return tourism and social networks effects. To take advantage of this behavior, regions are called to increase their efforts to gain a good reputation and to create the conditions for unique and unforgettable experiences. This is only possible if destinations have clear in mind how exactly they want to appear (“The way to gain a good reputation is to endeavor to what desire to appear”, Socrates 469–399 B.C.).

As for public policy implications, important suggestions seem also to emerge from the present analysis. First, the high impact of economic determinants suggests that public measures aimed at supporting domestic holidays for households with less income could result to be very successful to boost domestic tourism and consequently its important economic and social impact. Second, local and central governments should integrate the improvement of supply-side factors in their tourism planning. In particular, it appears feasible that domestic tourism opportunities could be enhanced through investments aimed at exploiting cultural and natural resources in a sustainable way. In this respect, there are, however, many other destination attributes not considered in the present study, whose impact deserves to be deeply investigated. For this scope, the analysis of the survey data could be useful and is left for future research.

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References


