

Measuring Local Tourism Attractiveness: The Case of Italy*

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Measuring Local Tourism Attractiveness: The Case of Italy

ABSTRACT

Tourism attractiveness is a key factor in destination marketing yet its measurement has been under-researched. This exploratory study presents a methodology for the measurement of tourism attractiveness applied at a provincial level in Italy. Potential drivers of attractiveness were collated using provincial-level data from the Italian National Institute of Statistics. A final list of drivers was subjected to Principal Components Analysis (PCA) to determine underlying structure, and then compared across the 107 Italian provinces using Exploratory Spatial Data Analysis (ESDA). The PCA revealed one general tourism attractiveness index which was supplemented by three other factors that covered more specific input drivers. Cartographic representations of the principal component scores and the ESDA clusters showed a range of provincial attractiveness profiles.

Keywords: Destination marketing, Tourism, Consumer behaviour, Marketing research

Tourism competitiveness and attractiveness, and their drivers, have in recent decades been increasingly investigated by tourism researchers (e.g. Buhalis 2000; Crouch & Ritchie 1999; Franch, Martini & Buffa 2010; Hong 2009; Ritchie & Crouch 2000; Viassone 2012; Weaver 2012). Despite the global financial crisis, and the even more marked decline in certain European economies such as Italy, international tourism increased by 6.5% at global level in 2010 (with reference to arrivals), and recovered further in 2011 (*Federalberghi* 2012). Tourism is economically very significant, being regarded as a US\$3 billion per day global industry, and accounting for up to 30% of world commercial services exports and 6% of overall exports of goods and services (McIntyre 2011). The tourism industry is, as a consequence, said to play a central role in the 'global quest for prosperity' (Crouch & Ritchie 1999: 138). In addition, there has been an increase in the quantity and variety of destinations to which tourists now travel and emerging destinations are placing pressure on more mature ones to enhance and expand their tourist experience so as to remain competitive (Cracolici & Nijkamp 2008; Gomezelj Omerzel 2011; Ritchie & Crouch 2000; Trunfio, Petruzzellis & Nigro 2006; Villanueva-Cuevas 2011). According to the World Tourism Organisation (2012), the top 15 tourism destinations – which includes Italy, currently in fifth place – in 1970 accounted for 75% of international arrivals; by 2010, that figure had fallen to 55%. The sharpest rise in international tourism has occurred in developing countries such as Vietnam at 35% annually to 2010. This is compared with the much lower growth rate of mature destinations such as Italy, at approximately 1.0% (World Tourism Organisation

2011). Italy has, arguably, lost some its tourism attractiveness, and its brand in 2010 exited from the top ten in the Country Brand Index (FutureBrand 2010).

Attractiveness is very important to tourism destinations (Massidda & Etzo 2012), and knowing the most attractive features in a particular tourist destination is the key to destination marketing (Hong-Mei, Guo-Wei & Shu-Fen 2007). Using Italy as the focal country, this paper considers what makes one destination more attractive than another. Few studies focus their attention on the measurement of attractiveness (Krešic 2008), and even fewer apply the concept at a provincial or local, versus country, level. This exploratory paper will aim to bridge this gap by:

1. Identifying the main drivers affecting Italian tourist attractiveness;
2. Creating an index of local tourism attractiveness at a provincial level by selecting those local aspects that can potentially attract tourists, and
3. Applying the index to the Italian provinces.

The paper consists of a review of the literature on tourist attractiveness, its drivers and its relationship with the topic of sustainability, and the measurement and application of attractiveness to the Italian provinces using Principal Components Analysis and Exploratory Spatial Data Analysis.

TOURISM ATTRACTIVENESS

Attractiveness has long been considered fundamental for both understanding and improving tourism destination competitiveness (Buhalis 2000; Crouch & Ritchie 1999; Hu & Ritchie 1993; Krešic 2008; Vengesai 2003). Attractiveness is often defined with reference to the features or attributes of a specific destination. Krešic (2008: 1813) refers to attractiveness as comprising 'those attributes of [a] tourism destination which, with their specific features, attract or motivate tourists to visit'. Cho (2008: 221) similarly states that attractiveness 'is an aggregated indicator of attributes that make a specific location appealing as a potential destination to travellers'. The list of attributes that might enhance destination attractiveness for tourists is potentially large. Various authors have pointed to such features as the price of venues, transportation, climate, and quality of accommodation (Cho 2008; Gartner 1989), as well as destination image (Anholt 2010; Babić -Hodović, Mehic, Kramo & Resic

2008; Harrison-Walker 2011; Kim & Perdue 2011). Indeed, Vengesai (2008) states that virtually every destination attribute has been identified at some stage as a source of its attractiveness to tourists.

The delineation of destination attributes represents what is referred to as the 'supply-driven' approach to attractiveness. That is, attractiveness is a force that draws tourists, as a result of the 'overall attractions existing in a given place at a certain time' (Formica & Uysal 2006: 419). Under this approach, a destination is a '*supplier* of spatial tourist services with distinct attractiveness features' (Cracolici & Nijkamp 2008: 337; see also Tardivo & Viassone 2009). Another approach to attractiveness focuses instead on the tourist versus the destination, and can be said to be 'demand-driven' (Formica & Uysal 2006). Under this approach, attractiveness is a function of the tourist's perception of the ability of the destination to satisfy their needs and deliver personal benefits (Mayo & Jarvis 1980). Vengesai (2003: 638) refers to attractiveness as reflecting the 'feelings and opinions of visitors about the destination's perceived ability to satisfy their needs'. Cracolici and Nijkamp (2008: 337) similarly speak about 'the extent to which the availability, quality and management of local tourist services satisfies the needs of the customer'. These authors also discuss 'tourist well-being' in relation to the holiday destination, which describes the overall tourist experience.

Tourism attractiveness, as it manifests in reality, is likely to be a combination of both supply and demand factors, that simultaneously influence a tourist's decision to choose a destination (Formica & Uysal 2006). The needs and expectations of the tourist (the demand) frame their experience of a destination, which is then enhanced or otherwise by the destination attributes (the supply). Both these sets of factors lead to the perceived attractiveness of a destination, and whether tourists will want to visit and spend their time and money there. Attractiveness is therefore important in understanding what it is that encourages people to travel and how competitive advantage can be created for particular destinations (Buhalis 2000; Formica 2002; Formica & Uysal 2006).

The Inputs and Outputs of Tourism Attractiveness

The current research considers the ability of a destination to satisfy a tourist's needs by dividing its attributes into input and output drivers (Vengesai 2003). The most important input driver is the

destination attractions themselves (Krešić 2008; Swarbrooke 2001; Ritchie & Crouch 2005). These are the main reasons that tourists travel to specific destinations, and Gunn (1988) has famously stated that without tourism attractions there would be no tourism. Goeldner, Ritchie and McIntosh (2000) classify attractions into five groups (with some overlap): cultural (e.g. museums, galleries, basilicas/cathedrals, castles), natural (e.g. beaches, mountains, lakes), events (e.g. festivals, fairs, sporting), recreation (e.g. boating, climbing, skiing), and entertainment (e.g. nightlife) (see also Buhalis 2000; Hamilton 2003; Puczko 2010; Ritchie 1984; Swarbrooke 2001). A second input driver concerns support facilities and includes such things as transport, accommodation, food, health and shopping (Vengesai 2008). A third input driver relates to the so-called experience environment (Baker, Grewal & Parasuraman 1992), that is, the place where the tourism experience occurs. This includes issues of geography and climate, as well as the social environment.

The output drivers of a tourism destination are less concerned with its intrinsic attributes but rather how it is perceived. These drivers encompass a number of issues. One is destination image, which is typically defined in terms of an individual's 'mental representation of knowledge (beliefs), feelings, and global impressions about a destination' (Bologlu & McCleary 1999: 870). Destination image researchers refer to the construct as bi-dimensional, comprising a cognitive domain and an affective domain (Kim & Perdue 2011). The cognitive domain concerns an individual's knowledge about the functional attributes of a destination, while the affective domain focuses on an individual's feeling about the destination and the experiences it provides. Image is regarded as a key construct in destination selection (Bigné, Sánchez & Sánchez 2001; Casalegno & Viassone *in press*; Olimpia 2008; Rial, García & Varela 2008; Watkins, Hassanien & Dale 2006). A second output driver is tourist satisfaction. This is an outcome of destination image in the sense that dissatisfaction by tourists increases in direct relation to the gap between the image and their own tourism experience at a destination (Avcikurt 2003). Vengesai (2003) argues that satisfaction impacts on a tourist's intention to revisit a destination as well as recommend it to friends and family. A third output driver is destination performance, which is usually measured by means of indices of total arrivals, visitor growth rate, average length of stay, tourism receipts and employment creation (Vengesai 2003).

TOURISM INTENSITY VERSUS TOURISM SUSTAINABILITY

The creation of competitive advantage for a particular tourism destination is the logical outcome of increasing its attractiveness. Competitive advantage is typically judged by the destination performance measures referred to above (Ritchie & Crouch 2000; Vengesai 2003). In this regard, enhanced tourism attractiveness, by increasing the competitiveness of a destination, is intended lead to high visitor numbers, high destination income, and more intensified tourism development (Buhalis 2000; Krešić 2008). Growth in tourism can provide much-needed economic stimulation for a country or region otherwise struggling to maintain or indeed develop a decent quality of life for its citizens (Martin 2007). This is because increased visitor numbers and increased tourism intensity generally give rise to greater local employment and entrepreneurship opportunities, improvements in infrastructure, and construction of facilities, as well as, potentially, enhanced positive social impacts such as growth in local pride, community participation and international recognition for regional values and traditions (Crouch & Ritchie 1999). However, there is a growing argument that tourism development cannot be couched just in economic terms. Rather, there is an essential interdependence between the economic benefits of tourism and its social, cultural, and environmental impacts, a proportion of which may not be positive (Cracolici & Nijkamp 2008; Crouch & Ritchie 1999; Peeters 2012; Saveriades 2000; Weaver 2012). What this broader view indicates is that while tourism may bring economic benefit to a region, excessive and unplanned development and elevated tourism intensity can result in negative environmental and socio-cultural consequences (Saveriades 2000).

Ongoing concern over the potentially negative effects of the tourism industry has meant that the idea of sustainability has become central to any discussion of tourism development (Weaver 2012). Sustainable tourism speaks to the viability of the industry in a particular region for an indefinite period of time such that a planned, proactive, long-term view is taken to development rather than a short-term, spontaneous, reactive one (Høyer 2000; Trunfio et al. 2006). While there are many approaches to sustainability, in essence, it implies that there is a point beyond which a destination cannot support a certain volume of tourists (Saveriades 2000; Weaver 2012). This can be understood in terms of both physical and social carry constraints (Høyer 2000; Saveriades 2000). Physical carrying constraints

encompass the resources that are used by tourists and tourism developers, such as water, energy, land, and infrastructure, as well as the capacity of the region to manage waste and pollution, including transport-related air pollution and congestion (Giannoni 2009; Høyer 2000; Peeters 2012).

Sustainability of physical resources also involves the preservation of attractions and iconic sites – such as, in Italy, *Cinque Terre*, Venice, or Pompeii – so as to curb degradation from over-use (Schwartz, Stewart & Backlund 2012). Social carrying constraints include both the tolerance of the local population to the presence of tourists and the quality of the destination experience visitors will accept before looking elsewhere (Saveriades 2000). Heavy concentrations of visitors typically attract negative attitudes from local residents, and, depending on the destination, from visitors who might want an authentic experience of local culture and tradition (Brida, Osti & Faccioli 2011).

In this regard, sustainability and carrying capacity, both physical and social, are vital in developing and maintaining destination attractiveness and competitiveness, particularly given the growing segment of the market that is no longer prepared to tolerate over-development (Buhalis 2000; McIntyre 2011). Ritchie and Crouch (2000) argue that destination competitiveness is illusory without sustainability. As tourist satisfaction derives from the quality of their destination experience (Formica & Uysal 2006), the importance of planning for sustainable tourism cannot be emphasised enough.

WHAT MAKES ITALY ATTRACTIVE?

Notwithstanding its slow tourism growth rate (FutureBrand 2012; Trunfio et al. 2006; World Tourism Organisation 2012), Italy offers a diversity of tourist attractions that cover most of Goeldner et al.'s (2000) classifications. It continues to be one of the top cultural destinations in the world, with a large number of unique UNESCO World Heritage sites, in addition to numerous museums and galleries (OECD 2011), and strong culinary and fashion tourism sectors (Trunfio et al. 2006). This, in theory, allows the Italian National Tourism Agency (ENIT) to plan strategically and maintain a steady presence in priority markets. Many of the main Italian cultural attractions are in Rome (e.g. the Colosseum, Vatican City, St. Peter's Basilica), however, the country as a whole is well-endowed with cultural and heritage sites (e.g. the Roman ruins in Pompeii; the leaning Tower in Pisa; the *Basilica di*

Santa Maria del Fiore in Florence; the *Piazza del Campo* in Siena; the 150 or so canals in Venice). Italy is also visited for its natural attractions, including various famous coastlines (e.g. Amalfi, *Cinque Terra*, Sardinia, Sicily), lakes and mountains (e.g. Lake Como, the Apennines) and national parks (e.g. *Grand Paradiso* in *Valle d'Aosta*) (Cracolici & Nijkamp 2008; *Unioncamere e Osservatorio Nazionale del Turismo* [UONT] 2012). There are, of course, numerous festivals such as the Venice and Viareggio Carnival and the *Palio di Siena*; long seasons of opera and ballet (in Milan, Rome, Verona and Venice), cultural events such as Venice Film Festival, the Rome Cinema Festival, and Greek drama in Sicily. There are also many local, small town festivals which celebrate local products.

With reference to support facilities, at the beginning of 2011, Italy had approximately 40,000 hotels with 2.25 million beds, about 20,450 B&Bs (more than 66% of which are in Northern and Central Italy), and 105 farm-holidays (*Federalberghi* 2012; *Rapporto B&B Italia* 2011). There were approximately 247,000 restaurants active in 2009 (ISTAT 2010). Italy has 44 airports, 16,704 km of railway network, and 259 harbours (*Federalberghi* 2012). Again, despite the low growth, tourism satisfaction is high for Italy (7.9 out of 10), with the highest ratings for food quality (8.2), hospitality (8.1), accommodation and its cleanliness (8.0), and the lowest for traffic (7.1) (UONT 2011).

Given the gradual loss of competitiveness of the Italian tourist industry alluded to above, the challenge for Italy as a tourist destination is to manage, strategically, its diversity of offerings. In particular, organisations engaged in regional destination management face challenges in improving the performance of their provinces (Cracolici, Nijkamp & Cuffaro 2006). With the traditional archaeological and seaside attractions of Italy now considered to be in a phase of maturity with only moderate growth foreseeable (Alexander 2000; Trunfio et al. 2006), the measurement and assessment of tourism attractiveness for the Italian provinces is an important step in supporting and marketing appropriate tourism development and thus optimising the tourism industry.

DEVELOPING AN INTEGRATED MODEL TO ASSESS THE PERFORMANCE OF TOURISM AT A REGIONAL LEVEL

This paper presents the quantitative methodology used in the development of a tourist attractiveness index (Tardivo & Cugno 2007), applied to the performance of the 107 Italian provinces.

The province (e.g. Como, Cuneo, Parma) has been chosen as the unit of analysis versus the region (e.g. Piedmont, Tuscany, Umbria), as the province is the administrative unit which defines objectives, policies and programs for local socio-economic and tourist development. The research is exploratory in nature and aims to identify an initial set of potential drivers of attractiveness, distil this list to those for which data is available at a provincial level in Italy, subject the list to Principal Components Analysis to identify the underlying structure, and then determine the performance of the Italian provinces on the identified components. Principal components data is then subjected to Exploratory Spatial Data Analysis so as to identify the existence of any regional attractiveness clusters.

Building a local tourist system attractiveness index first of all required developing a preliminary set of drivers that could potentially attract tourists which could then be applied at a provincial level. Attractiveness drivers mentioned in the literature were thus compiled into three ‘macro-level’ groupings, under which there were seven identified ‘micro-level’ components. The aim was, at this stage, to be as exhaustive as possible and to attempt to cover both input and output drivers. This resulted in a list of potential variables that could be used in the analysis (displayed in Table 1) that were also available in the relevant databases published by the Italian National Institute of Statistics (ISTAT), as well as the Departments of Transportation and Navigation, Civil Aviation, and Cultural Heritage (ISTAT 2010). The three groupings and their components are as follows:

1. Tourist Attractiveness Indicators (TAI) – this group represents the attributes of a province that may attract tourists and covers four subcomponents: territory and environment (TAI1); infrastructure (TAI2); historical and natural attractions (TAI3); and other attractions (TAI4); this grouping principally concerns input drivers of attractiveness
2. Tourist Bed Places (TBP) – this group represents the ‘equipment’ of the tourist industry; it was not divided into micro-levels; this grouping principally concerns input drivers of attractiveness
3. Tourist Impact Indicators (TII) – this group represents aspects of destination performance that may result from the input drivers and covers two components: tourist economic profile

(T11); and tourist demand (T12); this grouping principally concerns output drivers of attractiveness

Insert Table 1 approximately here

Having compiled this preliminary list, it was then necessary to distil those variables for which data was also available at a provincial level. This excluded a number of potential variables, indicated in italics in the table, and resulted in a smaller list for analysis. Subsequent analyses were conducted on these variables using data available from 2010.

MAIN FINDINGS

Principal Components Analysis (PCA) was conducted on the final list of 14 variables. The Kaiser-Meyer-Olkin statistic ($KMO=0.73$) indicated that the data had a reasonable level of latent structure. Five components were found to have initial eigenvalues greater than Kaiser's criterion of 1.0 (see Table 2). However, as recommended by Fabrigar, Wegener, MacCallum and Strahan (1999), parallel analysis was conducted so as to determine the most suitable number of components to extract. The parallel analysis indicated that there were four components with eigenvalues above the 95th percentile of a distribution of eigenvalues of 100 random datasets of the same dimensions as the one under consideration. The fifth component also only obtained a loading from one variable (length of coastline) and so was not interpreted further. Rotation of the axes did not change the structure of the principal component solution. Table 3 shows the component matrix for the final four components.

Insert Table 2 approximately here

Insert Table 3 approximately here

Overall, the first four principal components explained 72.53% of the variance which indicates a very sound degree of suitability of the solution. The highest or 'standout' loadings were used to interpret each component. The first component accounted for 30.04% of the variance and obtained high loadings (above 0.6) from six variables: number of museums, galleries, etc; leisure time services; domestic and international flight arrivals; arrivals and nights in hotels, and expenditure on cultural

activities. This component therefore appears to represent a general tourism attractiveness index, with both input and output drivers. The remaining components are all related to input drivers. The second component accounted for 18.97% of the variance and obtained high loadings (above 0.9) from two variables – arrivals and nights in non-hotels – and a loading of 0.73 from the number of seaports variable. Notwithstanding this third loading, the component appears to represent non-hotel hospitality. The third and fourth components are each related to infrastructure issues, and account for 13.04% and 10.49% of the variance respectively. The third component obtained high loadings from the number of railway stations and number of airports items; the fourth component obtained high loadings from the extent of the road and motorway and extent of the railway network items. These are clearly related but identify a difference between, respectively, terminus versus network issues.

The next stage of the analysis involved applying these four principal components to each of the 107 Italian provinces. Figure 1 shows a cartographic representation of how each province scores on the four components: red-pink colouring represents higher principal component scores and blue-light blue colouring represents lower principal component scores. Using the first component as an example, this mapping makes it possible to see that general tourism attractiveness is low for many of the provinces, contrary to what might be expected given the cultural loadings on the component, but consistent with the low growth rate of Italian tourism. The other three components reveal more diversity across the provinces, and show, for example, a similarity between those regions which score low on non-hotel hospitality (component two) and the extent of road and railway networks (component four). This may reveal access problems for those provinces.

Insert Figure 1 approximately here

The final stage of the analysis involved subjecting the PCA data to Exploratory Spatial Data Analysis (ESDA). ESDA is a technique used to describe and visualize spatial distributions; identify atypical locations or spatial outliers; and find out spatial patterns and associations (Anselin, Syabri & Kho 2006). ESDA allows for a determination of whether there are regional clusters, where a particular province which has a high, or low, score on a given principal component is surrounded by provinces

that also have high, or low, scores on the same component. This is assessed using Local Indicators of Spatial Association (LISA) analysis. Within this process, a Moran scatter-plot is derived which allows for a statistical determination of the extent of high-high, low-low, high-low and low-high associations, and their level of significance. In essence, the ESDA process considers the value of a certain variable in one area (in this case, the component score in each province), and what happens to the same variable in adjacent areas. Thus, the extent of geographic continuity is determined (Cliff & Ord 1973).

Figures 2a and 2b show the results of the ESDA cartographically. The first map in each cell identifies provinces that have an association with their surrounding provinces with regard to their scores on the four principal components (high-high in red; high-low in pink; low-high in light blue; low-low in blue). The second map shows the level of significance of the association (light to dark green for p -values: $<0,05$; $<0,01$; $<0,001$; $<0,0001$). Below the second maps are the relevant Moran scatter-plots. Figures 2a and 2b reveal that there are a small number of regional clusters. Using the first component as an example, the ESDA shows that there is a high-high cluster in the region of Campania north of Naples indicating a positive association between the provinces of Caserta, Latina and Benevento in terms of general tourism attractiveness. This is consistent with the higher score for these provinces on the first component (see Figure 1), but additionally shows that this level of association is significant. There is similarly a significant low-low cluster for this component in the provinces to the east of Piedmont in the north-west. Maps for the remaining principal components similarly identify clusters, for example, in the north for component four regarding the extent of road and railway networks.

Insert Figures 2a and 2b approximately here

CONCLUSIONS

This paper has shown the results from an exploratory attempt to develop and apply a tourism attractiveness index at a local or regional level, using Italy as the focal country. Potential drivers of attractiveness were collated according to what data was available at a provincial level from the Italian National Institute of Statistics. A final list of drivers was analysed to determine their underlying

structure, and then compared across the 107 Italian provinces using ESDA. The PCA revealed one general tourism attractiveness index encompassing both input and output drivers, which was supplemented by three other factors that covered more specific input driver components. Cartographic representations of both the principal component scores and the ESDA clusters showed a range of provincial attractiveness profiles across the Italian Peninsula. The analysis shows that there is a high growth potential for many provinces.

From a destination marketing point of view, the ability to determine what tourists are likely to find attractive and unattractive about a specific destination is vitally important (Massidda & Etzo 2012). Indeed, this is the key to improving destination performance and assisting, in this case, the Italian tourism industry to regain its competitiveness. Local tourism planning and management needs to be undertaken on a firm foundation of research so as to maximise development and entrepreneurial activity (Cracolici & Nijkamp 2008; Weaver 2012). The analyses undertaken in this paper were limited by the type and extent of data that were available at a provincial level in Italy. This meant that some of the possible input factors, in particular, were not considered, such as bed places. In addition, the framework of variables used could be further enhanced with specific indices of environmental sustainability, for example, volumes of waste separation, number of 'Sites of Community Interest', and so forth. Also, the study was applied to a specific area (the Italian provinces) and no benchmark analyses or comparisons with other cross-national areas were performed. However, it has been possible to determine where there are cross-provincial differences as well as similarities. While the value of ESDA as a technique is reliant on the quality of the underlying dataset it is applied to, it is a useful planning tool for regional tourism development, and tourism attractiveness is a useful lens through which to view regional performance. Future research could use a similar analytical method in other countries for which standardised data is available across regions or for comparing the performance of contiguous countries, or be applied to particular types of tourism. The application of ESDA can, at the very least, point researchers and planners in the right direction.

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Table 1. List of potential variables for use in the analyses (2010 ISTAT data)

<u>TOURIST ATTRACTIVENESS INDICATORS (TAI)</u>	<u>TOURIST BED-PLACES (TBP)</u>	<u>TOURIST IMPACT INDICATORS (TII)</u>
<p>1) <u>TERRITORY AND ENVIRONMENT (TAI1)</u></p> <ul style="list-style-type: none"> ▪ % mountains ▪ % hills ▪ Length of coast in Km <p>2) <u>INFRASTRUCTURE (TAI2)</u></p> <ul style="list-style-type: none"> ▪ Extent of road and motorway network ▪ Extent of railway network ▪ number of railways ▪ number of airports ▪ number of seaports <p>3) <u>HISTORICAL AND NATURAL ATTRACTIONS (TAI3)</u></p> <ul style="list-style-type: none"> ▪ number of museums, state galleries, state monuments and archaeological sites, art institutions ▪ <i>protected sites</i> ▪ <i>site popularity</i> <p>4) <u>OTHER ATTRACTIONS (TAI4)</u></p> <ul style="list-style-type: none"> ▪ <i>cultural services (religious and non-religious traditions, cultural events)</i> ▪ leisure time services: <ul style="list-style-type: none"> – farmhouses, other services (hiking, bicycle riding) – <i>sports events</i> – <i>number of discos, clubs dancing halls</i> – <i>fitness services</i> – <i>local products</i> 	<p>1) <u>TOURIST INFRASTRUCTURE (TBP1)</u></p> <ul style="list-style-type: none"> ▪ <i>number of:</i> <ul style="list-style-type: none"> – <i>hotels</i> – <i>others</i> ▪ <i>bed places in:</i> <ul style="list-style-type: none"> – <i>5 and 4 star hotels</i> – <i>3 star hotels</i> – <i>residences</i> – <i>campsites, resorts</i> – <i>apartment / house rentals</i> – <i>farmhouse accommodations</i> – <i>youth hostels</i> – <i>holiday homes</i> – <i>alpine shelters</i> – <i>bed & breakfasts</i> – <i>other accommodations</i> ▪ <i>Rate of 5 and 4 star hotel</i> 	<p>1) <u>ECONOMIC TOURIST PROFILE (TII1)</u></p> <ul style="list-style-type: none"> – <i>number of hospitality service LU employees</i> – <i>GDP per-capita</i> <p>2) <u>TOURIST DEMAND (TII2)</u></p> <ul style="list-style-type: none"> ▪ domestic and international flight arrivals ▪ <i>seaport arrivals</i> ▪ Italian and foreign hotel arrivals ▪ Italian and foreign hotel nights ▪ Italian and foreign non-hotel arrivals ▪ Italian and foreign non-hotel nights ▪ Expenditure on cultural activities ▪ <i>reasons for the trip and features of the traveller</i> ▪ <i>tourist expense</i>

* Italics: data unavailable at a provincial level

Table 2. Variance explained and scree-plot for the Principal Components Analysis (PCA)

Components	Extraction Sums of Squared Loadings		
	Eigenvalue	% Variance	Cumulative % Variance
1	4.51	30.04	30.04
2	2.85	18.97	49.01
3	1.96	13.04	62.04
4	1.57	10.49	72.53
5	1.22	8.15	80.68

The scree plot displays the eigenvalues for 15 principal components. The y-axis represents the Eigenvalue, ranging from 0 to 6. The x-axis represents the Component number, ranging from 1 to 15. The plot shows a steep decline in eigenvalue for the first two components (Component 1: ~5.5, Component 2: ~2.85), followed by a more gradual decrease for components 3 through 15. The eigenvalue for Component 3 is approximately 1.96, Component 4 is 1.57, and Component 5 is 1.22. The eigenvalues for components 6 through 15 are all below 1.0, with Component 15 having the lowest eigenvalue near 0.

Table 3. Principal components matrix

	Components			
	1	2	3	4
Coastal length km	.061	.057	.013	-.076
Extent of road and motorway	.174	-.067	.177	.795
Extent of railway	.178	.003	.055	.848
No. Railway	-.044	.166	.825	.249
No. Airports	.053	-.159	.741	.078
No. Seaports	.093	.727	.105	-.192
No. museums, state galleries, etc	.655	.161	.223	.185
Leisure time services	.948	.048	.095	.062
Domestic and international flight arrivals	.914	.037	.147	.061
Arrivals – hotels	.852	.447	.028	.049
Arrivals - non hotels	.243	.917	-.075	.088
Nights – hotels	.705	.520	-.028	.040
Nights - non hotels	.113	.952	-.043	.039
Expenditure in cultural activities	.849	.046	-.053	.235

Figure 1. Principal component scores for the 107 Italian provinces

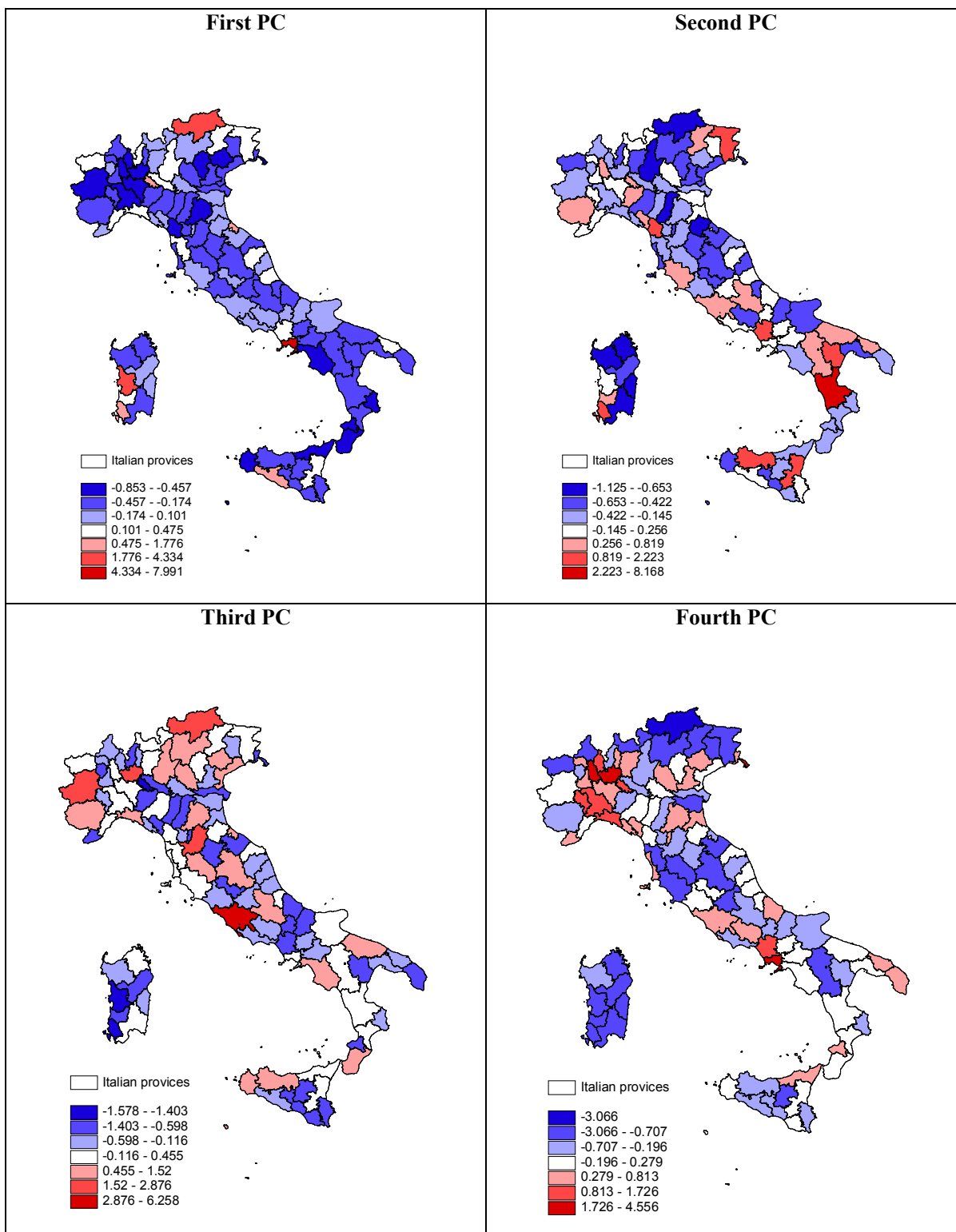
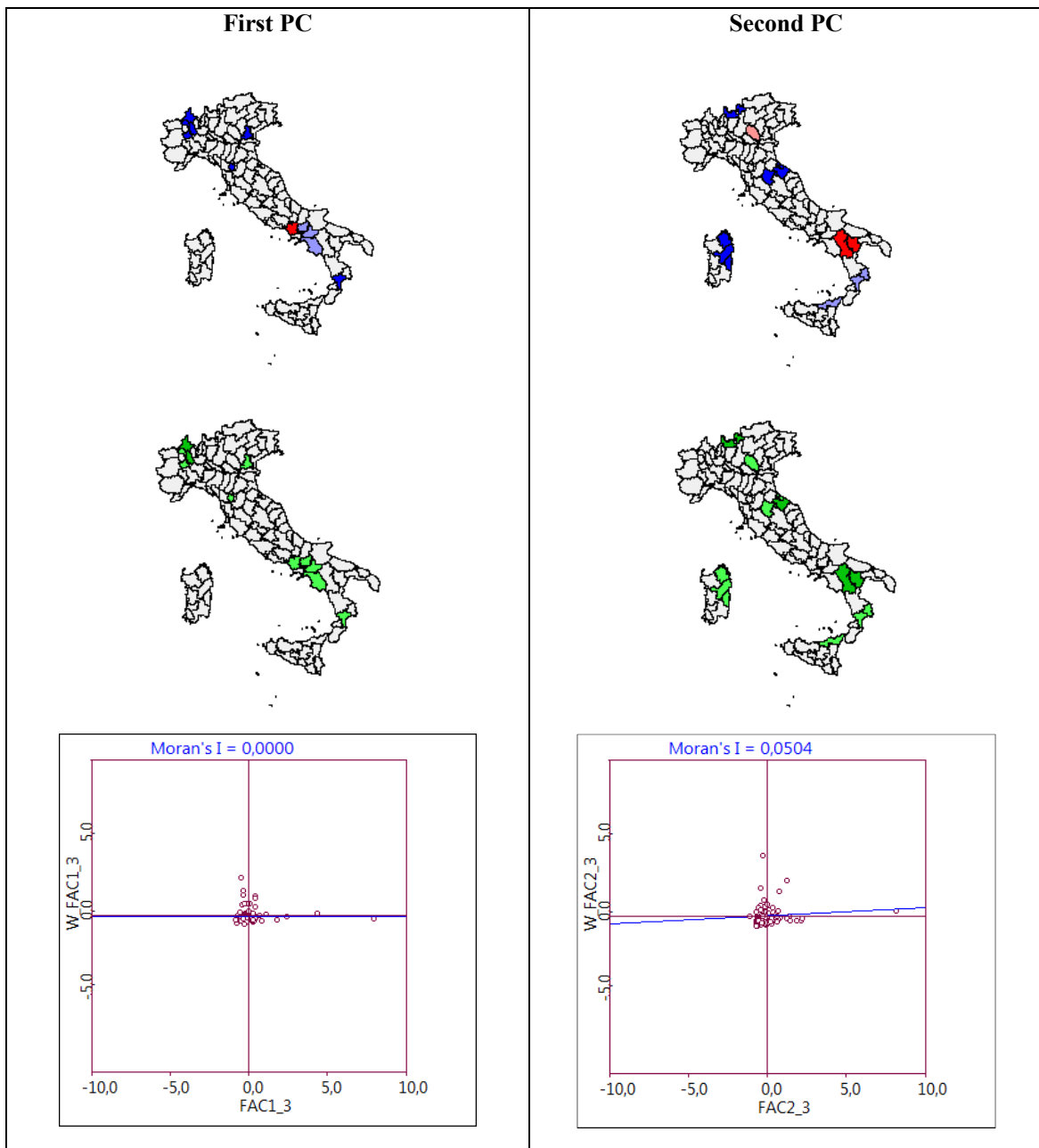


Figure 2a. ESDA outcomes for the first and second principal components



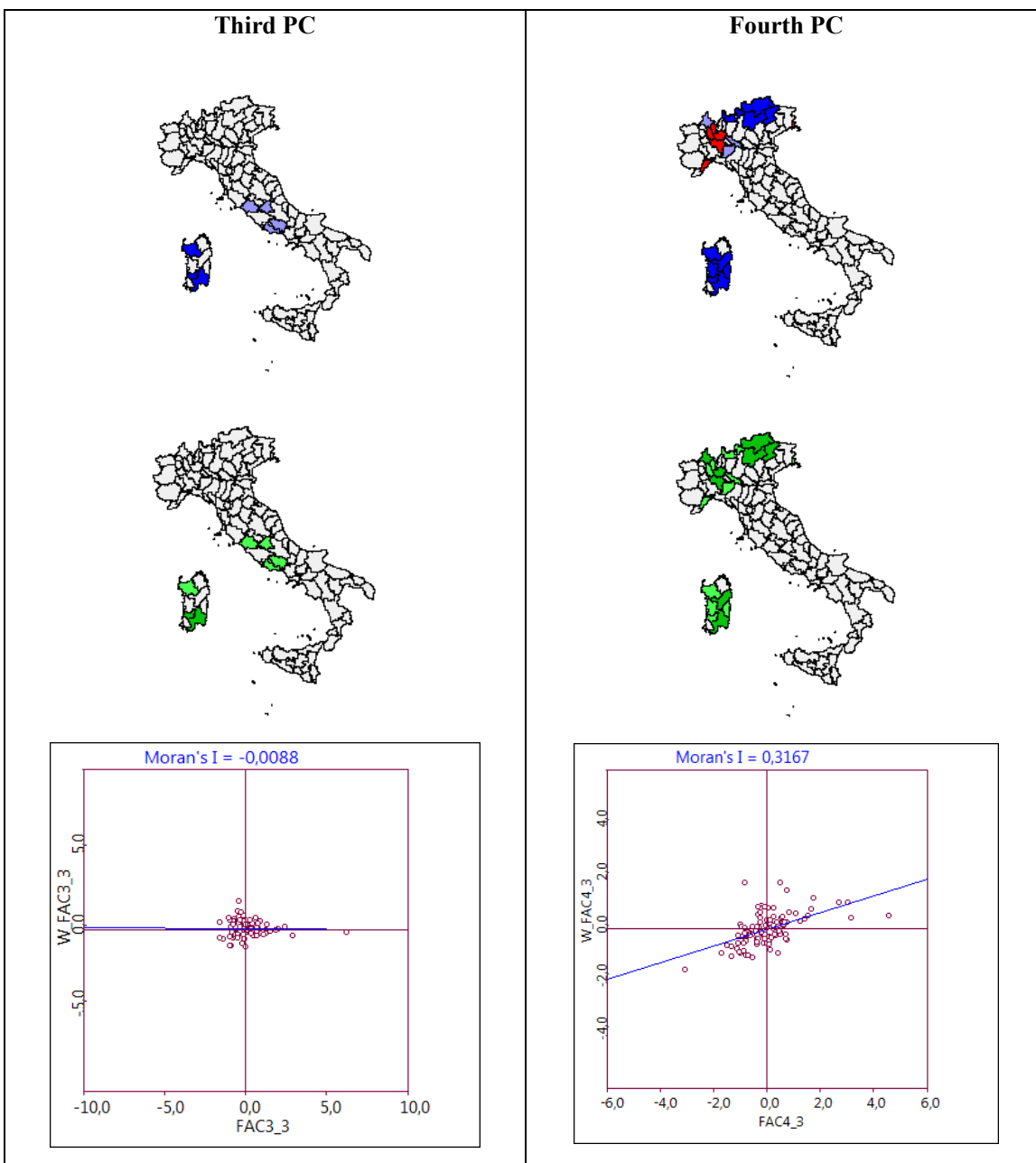
(1) LISA Cluster Map

- Not Significant
- High-High
- Low-Low
- Low-High
- High-Low

(1) LISA Significance Map

- Not Significant
- $p = 0.05$
- $p = 0.01$
- $p = 0.001$

Figure 2b. ESDA outcomes for the third and fourth principal components



(1) LISA Cluster Map

- Not Significant
- High-High
- Low-Low
- Low-High
- High-Low

(1) LISA Significance Map

- Not Significant
- $p = 0.05$
- $p = 0.01$
- $p = 0.001$