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Valuing scenic views in coastal tourism in Italy



ABSTRACT

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Aesthetic landscape features may be measured by monetary units in market goods boosting economic activity, in particular in coastal tourism. Apart from the estimation of environmental and cultural non-market values, this empirical study demonstrates how scenic views affect the demand for coastal tourism in Italy. By using the hedonic pricing method, this paper investigates the extent to which relevant criteria involving agritourism, natural parks, vicinity to the beach as well as entertainments and transportation infrastructure impact demand for coastal tourism in a positive or negative direction considering regional diversity of Italian coastal areas by market segmentation.

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Introduction

The Italian coast of about 8000 km is an important natural and economic resource. While commercial activity in some cases harms the coastal natural heritage (see, e.g., Parsons and Wu, 1991), it is reasonable to expect that coastal tourism increases social welfare. On the other hand, strong negative effects resulting from the congestion of tourist attractions and the major transformation of Italian coastal areas are considered to be major problems, although recreational services and the proximity of accommodations to beaches also seem to be important (Brau and Cao, 2006). Cultural and environmental preservation are not only of public interest, but also fundamental for the stability of tourism economics, as tourists implicitly attribute monetary value to non-market environmental and cultural services.¹ As pointed out by Brau and Cao (2006), these considerations appear in sharp contrast with how the tourism industry is being often developing in practice in many areas, where the main focus has been the setting up of infrastructure, residential buildings and services, whose construction often negatively affects the original features of just the natural resources that made a given area attractive as a tourist destination in the first place. The assessment of the tourists' marginal willingness to pay (MWTPs) for non-market characteristics serves as a basis for public policy to prevent such undesirable transformation of tourist sites and destinations leading to a non optimal exploitation of natural resources.

In recent years, several studies have estimated aesthetic and recreational values inherent in non-market goods. The aesthetic non-market use and non-use values of, e.g., scenic landscapes also constitute important assets in monetary terms. As noted by Bourassa *et al.* (2004), a view is mainly sought for aesthetic reasons, suggesting a strong positive impact on housing values. For example, the findings by Smith *et al.* (1997) show that people place substantial sums on aesthetic characteristics of beaches, whereas, if poor, beach quality may be associated with photos of marine debris. Rinehart and Pompe (1994) demonstrate that beach quality involving the width of the beach also has a price effect on the coastal property. There are numerous published studies on the relationship between views and the housing market going back to 1973 (Bond *et al.*,

¹E.g., Vanslebrouck *et al.* (2005) indicate that landscape features positively influence the demand for tourism and have a positive impact on the price tourists are willing to pay for accommodation.

2002). For instance, Darling (1973) estimated the aesthetic value of the view of public parks, Plattner and Campbell (1978) studied the difference in sales prices between sites that have a water view and those that do not, Gardner *et al.* (1977) examined the choice of housing attributes, including water-related open space. For a recent example on the treatment of open space as urban amenity, see Smith *et al.* (2002).²

Generally the literature on view valuation focuses on the frontage of properties, such as, e.g., Cowell and Dehring (2005), valuing views of lake lots. However, in the current paper, all properties are assumed to have a view being adjacent to the sea. Hence, the purpose of this paper is the evaluation of the proximity to scenic view as a tourist sight, generally a unique natural spectacle.

The primary objective is to explore the economic valuations of the landscape feature scenic view by tourists, which can be often associated with sea view in the context of Italian coastal areas. Besides, the tourists' MWTPs for other relevant attributes is evaluated including further (external) landscape characteristics, location-specific and (internal) accommodation attributes (e.g., entertainment, natural and cultural beauty of the surroundings of the accommodation and the destination offered by the hotel) as well as other important scenery, public services such as the transportation network, historical and natural heritage — linking economic values to non-market valuation by means of hedonic regressions. It is reasonable to expect locations with scenic views to have other desirable attributes for tourists.³ In the spirit of Coase (1960), it is worth mentioning that, historically as well, the beauty of scenic locations attracted people constructing castles, sanctuaries adding historical value to coastal areas also today, such as Amalfi near Naples, and improving the popularity of tourist destinations.

Consequently, this paper also emphasizes isolation of tourists' preferences for all of these features, whereas spatial sample selection, as recently mentioned by, e.g., Boursassa *et al.* (2003) or Goodman and Thibodeau (2003), as well as market delineation, early raised by Straszheim (1975) and Schnare and Struyk (1976), are important issues to be taken into account in order to

²For further literature reviews see, Bourassa *et al.* (2004).

³These considerations should not affect hedonic equilibrium due to unobserved characteristics.



optimize accuracy of hedonic estimates. Heterogeneity of preferences (see, e.g., Chay and Greenstone, 2005) is considered to be a major problem in the estimation of the MWTP for environmental characteristics. If preferences are not homogeneous the estimates of MWTPs may only reflect the preferences of subpopulations placing either a relatively high or low valuation on, e.g., scenic landscape characteristics. In the case of heterogeneity in tastes across tourists, individuals may self-select to resorts based on these unobserved differences. Consequently, the investigation focuses on tourists spending their holidays at the seaside displaying similarities in tastes and income. For instance, Plattner and Campbell (1978) discovered a variation in the view premium of 4 %–12 % different for higher-priced property than lower-priced property. By making decisions on how and where to spend their holidays, tourists are assumed to be of the same target group revealing their tastes and income in some respects, e.g., by preferring beach to city tourism and to stay in a hotel with an all-inclusive service rather than in, e.g., hostels. Based on Freeman (1974), the marginal implicit price function reflects the MWTP function if tourists are identical in preferences and income. The random sample ($N = 70$) of beach hotels includes beach neighbourhood, hotel characteristics and accommodation prices in the peak season. There are several issues to be considered in valuing non-market environmental amenities in Italian coastal areas, as analyzed in the next section on data and sample selection. Afterwards, in the section on the model estimation, the empirical results are presented. Finally, practical implications and new insights on environmental values are discussed, providing new research perspectives.

Data sources and choice of variables

Based on the assumption of similarity of tourists' tastes, the independent variable in the hedonic regression is represented by the half-board accommodation cost for 2–5 star hotels during the peak season in August. As in this month the market is saturated and bargaining possibilities are minimal, accommodation prices offered should reflect the prices actually paid by tourists, approximating the equilibrium prices in the spirit of Rosen (1974). The relatively high demand in August might be boosted by the fact that in this period most Italian firms are closed for holidays, considering that Italian accounted for approximately

$\frac{1}{4}$ of tourist arrivals and $\frac{1}{2}$ of tourist presences in Italy in 2004 (ISTAT, 2005). Since success in isolating preferences for scenic views depends, e.g., on whether tourists perceive them to exist, information on scenic views as well as on other historical, infrastructural and environmental characteristics is obtained by the coastal atlas, *Atlante delle Coste d'Italia*, designating important sights for beach tourists. Resort and hotel descriptions along with the accommodation prices reflecting market prices (e.g., Freeman, 2003) are gained by hotel descriptions published by major Italian tour operator catalogues in 2006 (Alpitour and MarItalia).

Prior to data collection, tourism in Italy is analyzed along with market segmentation. Although the degree of regional inequality in Italy is among the highest across all the EU countries (Di Liberto *et al.*, 2005), it may have no effect on prices and public services of tourist resorts in Italy. Indeed, accommodation prices do not seem to be influenced to a great extent by regional differences in earning power, as a simple correlation between accommodation prices and the consumer price index based on the data on earning power (ISTAT, 2006) demonstrates (with a correlation coefficient of about -0.19). Similar to Maddison and Bigano (2003) segmenting the Italian market into Sardinia, Sicily, northern, southern and central Italy, dummy variables are created for northern (Veneto), southern (Calabria, Basilicata, Puglia, Molise and Campania) and central Italy (Abruzzo, Umbria, Marche, Tuscany, Lazio, Emilia-Romagna, Lombardy and Piemonte). Geographically, Sicily and Sardinia are not considered, in order to account for potential geographic self-selection problems (Brau and Cao, 2006). On the basis of personal communication with Italian travel agencies, variables, such as the vicinity to tourist harbours, main landings and the nearest larger city, representing the size of the nearest city, may be also somewhat indicative for water quality. It should be taken into account that most studies (e.g., Kirschner and Moore, 1989) include view as a dummy variable if the value is within a number of meters of water and zero otherwise. However, as mentioned, in the current paper all randomly chosen hotels near the sea have a view. The difference lies in the fact that in this study the vicinity to scenic views representing tourist attractions is explored, whereby a dummy variable takes on the value 0.5 if the hotel is between 2.5 and 5 km distant from a scenic view, 1.0 if the hotel is up to 2.5 km distant from the scenic view, and 0 otherwise.



Often Italian coastlines have railways along them (e.g., near the city of Rimini). Hence, in addition to other infrastructural variables, the proximity to motorways and railway lines is considered. Most variables, such as the vicinity to a particular historical sight or tourist attraction, infrastructural criteria (as the center of the resort), other resort and environmental characteristics are characterized by dummy variables taking on the value 1.0 if the hotel distance to the particular characteristic in question is smaller than 2.5 km; and 0.5 km if the distance is between 2.5 and 5 km, and 0 otherwise. The vicinity to the beach is expressed in meters. For further variable definitions see appendix.

Model and empirical results

The hedonic model pioneered by Griliches (1971) and developed up by Rosen (1974) and, in the context of air pollution, by Freeman (1974), is a commonly used technique to estimate the economic value of non-market goods. After Brown and Rosen (1982) emphasizing the strong assumption embedded in the two-stage estimation suggested by Rosen (1974), a broad source of literature extensively applied the hedonic model, whereas research also dealt with solving the econometric issues, such as the identification problem (see, e.g., Heckman *et al.*, 2003).

Generally, the hedonic model was applied to relate environmental attributes to the housing market. This paper suggests that resorts with more favorable environmental characteristics should display accommodation price differentials.

Before all the variables are entered into the regression analysis, it is first verified that they are not too highly correlated. Surprisingly, variables do not exhibit extremely high correlations. Variables such as the proximity to agritourism and caves are somewhat positively correlated with scenic view, as the correlation coefficient of about 0.5 reveals. A similar degree of linear correlation with scenic view show variables standing for the vicinity to sanctuary, ruins and points of natural interests — with a correlation coefficient of around .4. The strongest negative association between the adjacency to a scenic view and a motorway is given by a correlation coefficient of around -0.9 . These correlations suggest that natural and monumental sights are generally located in the vicinity of scenic views, whereas less aesthetic characteristics, such as motorways, are negatively correlated with aesthetic features.

First, the non-significant variables are entered together with the significant, multiplied by dummy variables (0;1) created for central, southern and northern Italy. Then, the regression was estimated again, with just the remaining significant independent variables included in the model. The following Table 1 exhibits the final results of the general log-lin form of hedonic regression with the absolute t-statistics in parentheses. To account for potential heteroscedasticity, White (1980)-heteroscedasticity-consistent estimates are used. Most t-statistics are significant beyond the 99 % and 95 % level, respectively.

The explanatory power of 0.67 is satisfying, as the sample is quite homogeneous (e.g., Wang 2002). The variable of primary interest is the proximity to a scenic view, showing that if the hotel is located in the vicinity of a scenic view up to 2.5 km, tourists are willing to pay about 18 % more for accommodating in central Italy, which is considerable. For accommodating in a hotel located 2.5–5 km distant from the scenic view, they are still willing to pay a premium of about 9 %. Interestingly, the beach distance given in meters is not significant. Contrary to expectations, the proximity to the geographic tourist resort center (central₁), which is independent of the resort size, has no significant impact on the accommodation price. However, in northern Italy, tourists are disposed to increase their accommodation expenditures by about 19% for staying not more than 2.5 km distant from a sanctuary, presumably standing for the ‘core of the tourist resort’. In addition to other cultural, historical values and its aesthetic value per se, a sanctuary may also incorporate aesthetic landscape values, given that sanctuaries were often constructed in scenic places as their positive correlation with scenic view suggests. Similar to Bourassa *et al.* (2004) on the study of view impacts on the residential property market, the results suggest that although scenic views have a strong positive impact on accommodation values, such views are not the only type of aesthetic externality that is priced in tourism. On the other hand, most of the collected variables representing tourist attractions, as tourist harbour, cave, diving center, ruins etc. have not found to impact significantly tourists’ MWTPs. Presumably, ‘apparent’ aesthetic landscape features (e.g., scenic views, sanctuaries, nature) strongly influence the MWTPs of tourists for accommodation.

Moreover, in northern Italy, the vicinity to an agritourism up to 2.5 km increases the accommodation prices by about 22 %, being indicative for tourists’ preferences for sustainability. Tourists are willing to pay for accommodating

in the adjacency to points of natural interests (as natural parks) significantly more (by around 11 %). It is to be mentioned that often nearby natural parks water quality is protected, as well. For instance, in the vicinity of the Parco Nazionale dell'Arcipelago Toscano and Parco Nazionale della Maddalena the marine area is protected, too.

Surprisingly, the railway line has a significant negative impact on the demand for accommodations in coastal regions of Italy, by around 26 % in central, 35 % in northern and around 10 % in southern Italy, respectively. In contrast, tourist resorts are more building-intensive in northern Italy than in southern areas with smaller infrastructural densities. Central Italy (e.g., Rimini) is famous for entertainment opportunities (Il Sole 24 Ore, 2006). Hence, it is not surprising that in particular in southern Italy, people are willing to pay additional sums (of around 17 % of the accommodation price) for traditional entertainments

TABLA I. REGRESSIONS ANALYSES

	Constant and Coefficients
Constant	4.649 (126.9)
Points of natural interest*central Italy	0.113 (2.1)
Scenic view*central Italy	0.176 (2.3)
Sanctuary*northern Italy	0.191 (2.6)
Hotel entertainment*southern Italy	0.171 (3.1)
Railway* central Italy	- 0.265 (4.5)
Railway* northern Italy	- 0.351 (6.6)
Railway* southern Italy	- 0.097 (1.9)
Agritourism* northern Italy	0.224 (5.8)
R-squared	0.67
Adj. R-squared	0.62
F-statistic	14.65
Sample	70
Included Observations	68
Dependent variable	Log (Accommodation price)
Jarque-Bera Statistics	1.68

offered by the hotel, such as piano concerts, cultural and dancing events, discotheques, amphitheatres, etc.

Implications for the tourism sector

These results highlight the importance of non-crowded sustainable tourism and the value of aesthetic landscape features, as scenic views.

Interestingly, scenic views and natural resources display a significant impact on the MWTPs of tourists for accommodation, in particular in regions characterized by a relatively small number of natural resources and scenic views, pointing out the importance of keeping the tourist destinations clean and not too crowded. Moreover, entertainment offered by the hotel constitutes a mark-up in the accommodation price, but only in regions which are not known for regional entertainments. It is to be mentioned that these 'entertainments' generally describe the regional cultural characteristics of places such as amphitheatres in the south of Italy. However, apart from entertainment, tourists appreciate tranquility, as the negative effect of the vicinity of the railway line displays. Attention has to be paid to the fact that tourists are willing to pay additional amounts of money for avoiding the vicinity to railway lines. Traffic planners should consider that the hotels' vicinity to railways (highly correlated with other transportation infrastructure) depreciates coastal tourist locations. Interestingly, the results also suggest that beach tourists prefer to stay in the vicinity to important sights (as the variable sanctuary suggests in addition to aesthetic and cultural values), proximate to nature, in particular near scientific views. As also shown by the positive influence of agritourism, the importance of a natural, sustainable and non-crowded tourism are relevant for the tourism industry, whereby entertainments offered should not be neglected in the hotel offerings in line with nature and tranquillity.

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APPENDIX

A 1) DEFINITION OF VARIABLES



Agritourism	The dummy variable takes on the value 1 for the hotel's proximity to an agritourism (an enterprise offering and regional, home-made products, such as meals) < 2.5 km, 0.5 if between 2.5 and 5 km; otherwise 0.
Animation	0.5 stands for animation offered by the hotel only to children and 1 for animation to children and adults; otherwise 0.
August price	Half-board accommodation price in € in August per person per night
Children	1 stands for special children's attraction, other-wise 0.
Cave	1 stands for the hotel's proximity to cave < 2.5 km, 0.5 if between 2.5 and 5 km; otherwise 0.
Central	1, if the hotel is situated in the resort center; 0.5 for the distance to the resort center up to 100 meters and 0 up to 2km, respectively; and -0.5 otherwise.
Central italy	1 if the coastal area is part of a central region of Italy; and 0 otherwise.
City	Size of the nearest coastal city according to the coastal atlas signs, whereby 1 stands for the largest city (e.g., Otranto), 2 and 1.5 for a medium-sized city (such as Vieste and Carole, respectively) and 3 for the smallest place, such as Manfredonia.
Entertainment hotel	1 for entertainments offered by the hotel (as music, piano bar, theatres, amphitheatres and discotheques); otherwise 0
Diving center	1 for the hotel's proximity to a diving center < 2.5 km, 0.5 if between 2.5 and 5 km; otherwise 0.
G beach rocks	1 for a rocky coast; and 0 otherwise.
Garden & or park hotel	1 stands for a garden within the hotel, 0.5 for a park surrounding the hotel; 1 for a wood surrounding the hotel, 2 for the hotel location within a protected national park; and 0 otherwise.
K purchasing power	Regional consumer price index according to ISTAT in 2006.
K beach mixed	1 stands for a mixed (sandy and rocky) beach; and 0 otherwise.
Place	1 stands for place (località) according to the coastal atlas, and 0 otherwise.
Main landing	1 stands for the hotel's proximity to a main landing < 2.5 km, 0.5 if between 2.5 and 5 km; otherwise 0.

A 1) DEFINITION OF VARIABLES
(continuation)

Memorial	I stands for the hotel's proximity to a memorial < 2.5 km, 0.5 if between 2.5 and 5 km; otherwise 0.
Motorway I	I stands for the hotel's proximity to a motorway < 2.5 km, 0.5 if between 2.5 and 5 km; otherwise 0.
Nord	I if the coastal area is part of a northern region of Italy; and 0 otherwise.
Phare	I stands for the hotel's proximity to a phare < 2.5 km, 0.5 if between 2.5 and 5 km; otherwise 0
Points natural interest	I stands for the hotel's proximity to a point of natural interest (generally a protected national park) < 2.5 km, 0.5 if between 2.5 and 5 km; otherwise 0
Primary route	I stands for the hotel's proximity to a primary route < 2.5 km, 0.5 if between 2.5 and 5 km; otherwise 0
Railway	I stands for the hotel's proximity to a railway line < 2.5 km, 0.5 if between 2.5 and 5 km; otherwise 0
Regional connecting 4	I stands for the hotel's proximity to a regional connecting route (4 lanes) < 2.5 km, 0.5 if between 2.5 and 5 km; otherwise 0
Regional connecting 2	I stands for the hotel's proximity to a regional connecting route (2 lanes) < 2.5 km, 0.5 if between 2.5 and 5 km; otherwise 0
Ruins archeol area	I stands for the hotel's proximity to ruins < 2.5 km, 0.5 if between 2.5 and 5 km; otherwise 0
Sanctuary	I stands for the hotel's proximity to a sanctuary < 2.5 km, 0.5 if between 2.5 and 5 km; otherwise 0
Sand beach	I stands for a sandy beach; and 0 otherwise.
Scenic view	I stands for the hotel's proximity to a scenic view < 2.5 km, 0.5 if between 2.5 and 5 km; otherwise 0
Swimming pool	I if the accommodation price includes the use of a swimming pool; and 0 otherwise.
Beach hoteo wned	I if the beach is hotel-owned; and 0 otherwise
Star	Star rating of the hotel
Southern italy	I if the coastal area is part of a southern region of Italy; and 0 otherwise.
Touristic harbour	I stands for the hotel's proximity to a tourist harbour < 2.5 km, 0.5 if between 2.5 and 5 km; otherwise 0

A 2) DESCRIPTIVE STATISTICS

	Mean	Max	Min	N
Agritourism	0.657143	1	0	70
Animation	0.335714	1	0	70
August price	107	188	56	56
Children	0.378571	1	0	70
Cave	0.242857	1	0	70
Central	0.491176	1	-0.5	68
Central italy	0.450704	1	0	71
City	1.064.286	4	0	70
Entertainment hotel	0.348529	1	0	68
Diving center	0.45	1	0	70
G beach rocks	0.171429	1	0	70
Garden and or park hotel	0.715714	2	0	70
K purchasing power	7	10	2	71
K beach mixed	0.114286	1	0	70
Place	0.857143	1	0	70
Main landing	0.25	1	0	70
Memorial	0.114286	1	0	70
Motorway	0.157143	1	0	70
Nord	0.098592	1	0	71
Phare	0.514286	1	0	70
Points natural interest	0.544286	1	0	70
Primary route	0.392857	1	0	70
Railway	0.457143	1	0	70
Regional connecting 4	0.214286	1	0	70
Regional connecting 2	0.771429	1	0	70
Ruins archeol area	0.407143	1	0	70
Sanctuary	0.442857	1	0	70
Sand beach	0.757143	1	0	70
Scenic view	0.514286	1	0	70
Swimming pool	0.858571	1	0	70
Beach hotel owned	0.842857	1	0	70
Star	4	5	2	70
Southern italy	0.450704	1	0	71
Tourist harbour	0.792857	1	0	70

