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Summary

During their holidays, tourists produce direct and indirect effects on local residents, which can either be positive or negative. In this paper we investigate how residents of Rimini, a popular Italian seaside resort hosting more than ten million national and foreign overnight stays every year, internalise such effects. We use a stated preference approach and, in particular, a discrete choice modelling technique; within this framework, we are able to test some conjectures about residents' welfare, by measuring their willingness to pay for alternative scenarios regarding the use of the territory. Tourist policies and public investments in the destination affect residents' welfare, and our results might suggest areas of potential synergies and trade-off, leading to important policy implications.

Keywords: Tourism, External Effects, Discrete Choice Modelling

JEL Classification: Q56, L83, C25

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1. Introduction and literature review

Sustainability is a key issue for tourist destinations. Such multi-faceted concept requires at the same time the attainment of economic efficiency, environmental protection and social responsibility. To be socially sustainable, tourism has to be planned and managed by the local community and (the great part of) earnings have to be fairly distributed among the residents.

Desires and aspirations of local residents, and their attitudes towards tourists should be taken more into account by tourism planners (Akis, 1996; Faulkner and Tideswell, 1997). The success of particular tourism development programs mainly depends on local planning and management that should be sensitive both to the social impact of tourism on the host population, and able to increase the benefits derived from tourism by preventing or reducing its negative impact (Faulkner and Tideswell, 1997).

In general, tourism effects on the local population can be either positive or negative (that is, tourism can be friendly or unfriendly - Candela *et* al., 2004 - or, in Dokey's view - 1975 -, residents' attitudes could oscillate between euphoria and antagonism) and in this paper we study how the residents internalise such externalities. This approach might lead to important policy implications: policy makers are aware that tourist demand and residents' needs are often conflicting, and they need precise tools of analysis in order to measure this trade-off and to develop their policies.

This can be done in many respects. One of the most promising approaches, used throughout the paper, is represented by stated preference models: interviews among representative samples of the population are conducted to estimate the willingness to pay (WTP) for (hypothetical) changes in the composition of goods. This methodology perfectly applies to tourism, which is a composite product demanded by individuals with heterogeneous needs and perceptions: in this respect, the "holiday" can be seen as a set of different characteristics which compose a generic good. The possible trade-off with the local population stems from the fact that the most important resource for tourism - the environment or, more in general, the territory – is to be shared with residents.

The destination analysed in this paper, Rimini, is one of the major Italian seaside resorts and mass tourism destinations, with more than ten million overnight stays only in the summer months (Comune di Rimini, 2004). Located on the Adriatic sea, Rimini is also a medium sized city, with about 130,000 inhabitants and an income per capita of more than € 17,000 (higher than the Italian average). Although tourism represents one of the main economic sectors of the city, Rimini is now a mature destination that has been undergoing a strong diversification in the manufacturing sector and, within tourism, investing in business and cultural tourism. To summarise, different types of tourists and different types of residents[1] cohabit in the destination and ask for alternative uses of the (scarce) territory. In this paper, we focus on residents' preferences, while we refer to Brau

[1] Preferences of residents might change accordingly to whether they work or not in the tourism sector.

et al. (2006) for the analysis of tourists preferences;[2] we also compare our results with Brau *et al.* (2006) in order to identify synergies or trade-off in the use of the territory and to discuss some policy implications.

In the last 15 years, the real and perceived socio-economic impact of tourism and the factors affecting attitudes towards tourism in host communities have received significant attention (Alberini *et al.*, 2005; Akis *et al.*, 1996; Faulkner and Tideswell, 1997; Lindberg *et al.*, 1997a, 1997b, 1999; Haralambopoulos and Pizam, 1996; Crotts and Holland, 1993; Zanatta *et al.*, 2005). In the literature, several assumptions have been considered and empirically tested. In particular, tourism impact is disaggregated into three categories: economic, socio-cultural and environmental (ecological/physical) (Bull, 1991; Pearce, 1989a, Ryan, 1991; Williams, 1979).[3] Since tourism generally disrupts social, cultural and environmental local systems, non-economic impacts often tend to be negative as a whole (Liu *et al*, 1987), whilst economic effects are perceived as positive. Since economic impacts are the ones to be measured more easily (Dwyer and Forsyth, 1993), overall benefits of tourism development might be overestimated, thereby producing important policy decisions (Freeman 1993). The intensity and the direction of the overall impact depends on a variety of socio-cultural and economic factors associated to the local destination, included the nature of tourism activities, tourists' personal characteristics, and the pace of tourism development (Haralambopoulos and Pizam, 1996).

Our study analyses residents' preferences by means of the choice modelling, a survey-based technique often used to place a value on a non-marketable or semi-public good. Its use has spread in many research fields (marketing, cultural, health, transport and environmental economics) and in recent years it has also been applied in tourism economics to analyse tourists' preferences with respect to trip attributes, recreational and heritage demand, and to the attractiveness of the destination.[4] Differently from the great majority of the tourism literature, our paper focuses on the preferences of residents and local stake-holders regarding possible and hypothetical modifications in the urban and territorial conformation.

In particular, we aim to detect the effects on residents preferences of changes in the intensity (levels) of six key characteristics (attributes) that identify the use of Rimini's territory. Residents were interviewed in Spring 2006 and asked to indicate their preferred

[2] Note that Brau *et al*. (2006) investigate the preferences of sea and sun tourists, while a future study will be conducted on business tourists.

[3] The most important benefits are of economic nature. They include the generation of jobs and local business opportunities, the increase in the number and types of facilities, of recreational and entertainment opportunities available to residents, and facilitates the spread of new ideas into the community. On the other hand, costs are mainly due to the increase in crime, noise level, pollution, degree of congestion, and to the negative influence on local culture. Pizam and Milman (1984) identified occupational, cultural, demographic impacts, mutation of consumption patterns, transformation of norms, impact on the environment. Similarly, Pearce (1989a) indicated six classes of social and cultural effects, while Travis (1984) listed socio-cultural costs and benefits that may affect tourism destinations.

[4] Among the many papers that in tourism economics recently used this methodology, we mention Apostolakis and Shabbar (2005), Brau and Cao (2006), Breffle and Morey (2000), Crouch and Louviere (2004), Huybers and Bennett (2000), Huybers (2005), Morey *et al*. (2002) and Papatheodorou (2001).

choices among several pairs of hypothetical alternative scenarios differing in the levels of the six attributes. Econometric techniques enable us to estimate the relative weight of each attribute in affecting the residents' choice and allow us to compare their preferences with those of tourists. To the best of our knowledge, this is the first attempt to explicitly use choice modelling to compare tourists' and residents preferences. This will provide more precise tools to local policy makers than the ones previously used.[5]

The remaining of the paper is structured as follows: in Section 2 we briefly review the methodology applied, while in Section 3 the questionnaire is described. Section 4 illustrates the main characteristics of the sample, both in terms of socio-demographic features and in terms of preferences. Section 5 discusses the main econometric results of the choice experiment and compares them with Brau *et al.* (2006) analysis of tourists preferences. Section 6 discusses the main policy implications and sets the agenda for future research.

2. The methodology

The choice modelling is a stated-preference approach which investigates individual behaviour and estimates the value of goods (or projects) by asking people to choose among scenarios whose differences are due to systematic combinations of diverse attribute (characteristics) levels.[6] One of its main advantages lies in the possibility to analyse hypothetical situations, where no market exists, and therefore it is particularly indicated to estimate the willingness to pay for non-market, public or semi-public goods. This methodology develops through three main steps (Hanley *et al*., 2001, Mazzanti, 2003): i) identification of the basic characteristics (attributes) of the good or project to be evaluated, which can take different values (levels); ii) each respondent has to decide among alternative hypothetical scenarios characterised by different combinations of the attribute levels; iii) the econometric analysis of their answers allows to estimate the relative importance of different attributes and, if a monetary factor or a price is included as attribute, the willingness to pay for different levels.

Differently from other stated preference approaches, choice modelling typically operates sequences of 8 or more experiment choices per individual (namely, each respondent is presented with 8 or more choice sets), depending on the complexity of the situation (Batsell and Louviere, 1991).[7] Having submitted choice sets, the resultant sequence of choices enables to model the probability of any alternative to be chosen as a function of the considered attributes. Precise information on the respondents' willingness

[5] Recent papers on tourist preferences in Rimini are Comune di Rimini (2004), Scorcu and Vici (2006) and Figini and Troia (2006).

[6] For an overview of the main differences among alternative stated preferences methodologies, with particular respect to contingent evaluation, see Brau (2006) and, more extensively, Bennet and Blaney (2001), Louvière *et al*. (2000), Bateman *et al*. (2002), and Mazzanti (2003).

[7] This repeated sampling approach in choice experiments alleviates some lower informational problems that affect contingent valuation models (Carson, 1991).

to substitute among different attributes can be provided. According to the random utility model, the chosen scenario in each experiment corresponds, *ceteris paribus*, to the combination of attribute levels bringing the highest utility. In other words, the choice made by respondents identifies the combination of attribute levels which maximizes utility in a given choice set.

The theoretical foundation of discrete choice models is Lancaster's hedonic theory (1966, 1971), which states that goods are not demanded *per se*, but for their elementary characteristics. Consumers' utility can therefore be written as a function of the good's attributes. At the same time, choice modelling is consistent with the random utility theory (Thurstone, 1927; McFadden 1974), postulating that consumers' utility is a latent structure that cannot be observed directly. By designing and implementing a valid preference elicitation procedure, preference orderings for a subset of choice options allows to assess a significant proportion of the unobservable consumer utility.

Formally, given a sample of H respondents, with $h=1,2,\ldots\ldots H$, and a set of alternative choices, $j=1,\ldots J$, the random utility specification can be represented as follows (Louviere *et al*., 2000):

$$U_{hj} = V_{hj} + \varepsilon_{hj}, \qquad [1]$$

where the unobservable utility value[8] for the choice alternative j made by consumer h is given by a deterministic and systematic component, V_{hj}, and a random term, ε_{hj}.[9]

Assuming that random terms are independently and identically distributed (IID) according to a Gumbel (extreme value type 1) distribution and with a linear additive specification of the utility function [1], we obtain:

$$U_{hj} = \beta' x_{hj} + \varepsilon_{hj}. \qquad [2]$$

The IID assumption for the error term ε entails the property of independence of irrelevant alternative (IIA - McFadden, 1984).[10] Therefore, if some alternatives are excluded from the choice set, the estimates are still consistent. Hence, provided that IIA holds, in order to mimic the choice process actually undertaken by consumers, econometric analyses do not need to consider simultaneously all real alternatives (which would make experiments or data collecting quite complex and difficult).

[8] This latent indirect utility function is known as conditional indirect utility function, being conditional on the choice of the alternative.

[9] Ben-Akiva and Lerman (1985) link this randomness to the existence of omitted attributes and variables, unobserved taste variations, measurement errors and use of instrumental variables or proxies rather than true variables in the utility function.

[10] That is, the relative probability of an alternative being chosen over another is independent of the availability of additional attributes or alternatives: once a choice has to be taken among two alternatives, the decision is not affected by the existence of other alternatives. Violations of the IIA assumption may arise when some alternatives are qualitatively similar to others or there are heterogeneous preferences among respondents (Bateman *et al*. 2002; Morrison *et al*. 1998). To check this assumption a test developed by Hausman and McFadden (1984) can be used. If IIA is violated, alternative choice models should be used, such as the nested logit model (Louviere *et al*. 2000) or the multinomial probit model (Hausman and Wise, 1978).

In model [2], the probability that an individual h picks alternative i out of J alternatives, can be represented as follows:

$$P[y_h = i] = \frac{\exp(\mu \beta' x_i^h)}{\sum_{j=1}^{J} \exp(\mu \beta' x_j^h)} \quad [3]$$

where y_h is a choice index, representing the choice made by individual h, and μ is a scale parameter that typically assumes value 1 (Ben-Akiva and Lerman, 1985).[11] Moreover, the estimation of equation [2] with a discrete choice conditional logit model, yields β coefficients allowing to evaluate the rate at which respondents are willing to trade-off one attribute to another. This rate of substitution σ is calculated as the ratio between the β coefficients of two attributes, as in [4].

$$\sigma = -\frac{\beta_k}{\beta_s} \quad [4]$$

Ceteris paribus, when attributes are continuous variables, these ratios are marginal effects. When attributes are discrete variables, the substitute ratio σ is computed as "values of level change" (Brau *et al.*, 2006):

$$\sigma = 1 - \frac{\beta^i \Delta x_i}{\beta_s} \quad [5]$$

When the attribute (s) is expressed in monetary terms [12] this trade-off σ is an "implicit price", the amount of money individuals are willing to pay in order to obtain more of the other attribute (k).

These ratios provide important information about public preferences to firms, managers and public authorities, which are willing to evaluate the relative weight of each attribute when a modification in the structure of actual supply is introduced.

Comparison between Choice Experiments (CE) and Contingent Valuation methods (CV)

For many years, contingent valuation (CV) has been employed by economists to value goods and services without a market. This method has achieved prominence despite controversy over its ability to accurately measure economic values (e.g. Hanemann, 1984).[13] In recent decades, other stated preference techniques have been increasingly used, such as choice experiments (CE).

[11] The scale factor μ is inversely proportional to the standard deviation of the error distribution. Assuming μ equal to 1 implies a constant error variance.

[12] These estimates rely on the assumption that the marginal utility of income is constant over the range of implicit income changes involved. This assumption holds only when small level changes are considered (involving a tiny share of total individual income).

[13] In contingent valuation methods, respondents are asked their maximum willingness to pay or minimum willingness to accept for hypothetical increases or decreases in quality changes of goods (Mitchell and Carson, 1989). However, much controversy surrounds the technique, both in terms of its ability to deliver reliable estimates, and the correct design of CV surveys (Diamond and Hausman, 1994).

Given that both CE and CV have their theoretical basis in the random utility theory (McFadden, 1974), comparisons among CE and CV estimates of the willingness to pay can be done.[14] Many papers have compared the consistency of CV with CE to assess their efficiency and accuracy of the evaluations (Swait and Adamowicz, 2001; Boxall *et al*., 1996; Hanley *et al*., 1998; Mogas *et al*., 2006; Scarpa, 2000; Ryan and Gerard, 2003; Ryan, 2004; among several others) but the debate assessing the superiority of one method over the other is still open. An accurate survey on papers comparing these two methodologies is in Mogas *et al*. (2006).

In general, relative to CV, CE offers some advantages:

i) Both CV and CE can estimate the value of a good as a whole, but the latter method also measures the marginal contribution that each single characteristics adds to individuals' utility (Morrison et al. 1998), thereby providing more information.

ii) By focusing on different attribute changes, CE provides information for the design of multidimensional policies (Hanley *et al*., 2001) and to undertake a cost-benefit analysis of these policies (Bateman *et al*., 2002), thereby being a useful tool from a management or policy perspective.

iii) The disaggregation of the good's value into the value of its characteristics provides estimates that might be exported to other analogous sites (Willis and Garrod, 1995);

iv) CE overcomes the embedding problem, which typically affects CV (Adamowicz *et al*., 1995; Morrison *et al*., 1996; Hanley *et al*., 1998).

v) CE may also overcome the yea-saying problem (Adamowicz, 1995): in CV referendum, in fact, there is evidence that individuals tend to say yes to amount above their true maximum WTP (Ready et al., 1996).

However, if CV and CE are compared in their ease of use, CV results to be easier, cheaper and faster: choice experiments are more difficult and artificial (Scarpa, 2000), even if in everyday life, we frequently face choices between different goods which vary in terms of their attributes (Hanley and McMillan, 2000).

In conclusion, CV and CE have different merits: CV seems best suited to value the overall policy package, whereas CE better values those individual characteristics that constitute actual or hypothetical goods, policies, projects or proposals. Therefore, there is room for both techniques to continue to be complementary used (Hanley et al., 1998).

[14] There is a problem in assessing the validity of estimates obtained from any stated preference technique, given the absence of an unambiguously clear and definitive criterion by which to compare those measures. One process of assessing the validity of value estimates is a convergence test: estimates of one stated preference study are compared with results from other stated preference studies to check whether they produce similar outcomes, or outcomes that vary in a predicted manner (Bateman *et al.*, 2002). In the comparison between CE and CV, however, only identical welfare changes of identical programmes may be estimated when the fully specified utility function is used (Scarpa, 2000). Significant differences occur when elements of the utility functions are omitted from the value estimation procedure (Mogas *et al.*, 2006).

3. The data: survey and interviews

Direct interviews to a representative sample of Rimini population were conducted in months of February, March and April 2006. The questionnaire was designed to gather information about the residents' perception of actual or hypothetical uses of Rimini territory. A particular feature of our project was to be consistent and comparable with a twin study on tourists preferences (Brau *et al*., 2006), since both groups compete for alternative uses of the territory.

The six attributes considered in the resident and in the tourist survey are the following: i) risk of overcrowding (mobility risk); ii) environmental protection of the beach; iii) the quality of the seaside avenue: Rimini's esplanade; iv) different combinations of Rimini's cultural offer; v) the evening and night opening of beach services; vi) the level of taxation needed to finance the proposed scenarios.

There are several reasons why these attributes were selected. First, we had to consider important features of the territory, both in terms of possible interaction with tourists (trade-off and/or synergies) in the use of the territory, and in terms of actual political debate (e.g., the project of a coastal train). Moreover, traffic congestion reduces available spaces for residents and increases time spent to commute and to reach commercial and leisure facilities.

Although the structure and the aim of the survey match with Brau *et al*. (2006) survey on tourists' preferences, we could not submit the very same questionnaire: some adjustments had to be made in the definition of attributes and levels to fit the different perception of residents. We had to think to scenarios composed by key attributes for both groups, and whose levels might signal a potential overlapping with needs and demands of tourists. More precisely, the attribute of mobility risk was specified with regard to the project of a coastal train connecting Rimini seaside suburbs, a project currently under discussion by local authorities and already partially approved and financed. The coastal train would have the effect to facilitate mobility over the seaside area, which is the most subject to traffic jams and also the main tourist resource affected by the risk of overcrowding. Another (necessary) difference regarded the monetary attribute included in the survey: the daily price of accommodation, which was the straightforward attribute placed in the tourist survey, was replaced by a hypothetical local tax that residents have to pay for improvements in the use of the territory.

Other important attributes are the use of the seaside avenue and the beach facilities, since in summer months the seaside area becomes, for residents as well, the centre of Rimini's cultural and recreational life. It is interesting to understand whether the preferences of tourists and residents on the use of the same shared resource differ or not.[15] It is also important to check the preferences of different groups of residents: our prior was that some groups (mainly young people) love crowded and lively places, while others

[15] These two attributes and their respective levels were very similar to the questions asked to tourists in the parallel inquiry (Brau *et al*., 2006).

(mainly elderly people) prefer higher care in the environment, thereby asking for less crowded and more quiet areas.

Finally, sustainability considerations and policies aimed at reducing pollution and protecting natural resources are common features of contemporary policy agendas. Rimini is a mass tourist destination, but also a medium-sized city, and the residents' willingness to pay for a more environmental-friendly city might play a crucial role both in the policy strategy, and in terms of tourism development. This reason motivated the inclusion in the survey of the attributes of environmental protection of the beach and also of product differentiation through (new) cultural activities.

Table 1: Definition of attributes and their levels

Attribute 1 – Risk of reduced mobility and traffic jams
Level 1 (high risk – **status quo**): during the whole year, but particularly during summer months, roads and the transport system reach their carrying capacity, not allowing full mobility of people.
Level 2 (low risk): the coastal train allows full mobility of people and relieves the traffic system below its carrying capacity.
Attribute 2 – Environmental impact of bathing establishments and other beach services
Level 1 (minimum impact): The environmental impact of bathing establishments and other beach services, bars and restaurants is low (rare and small concrete buildings).
Level 2 (medium impact): there is a fair number of concrete buildings for essential services (first aid, emergency rescue, bars).
Level 3 (high but temporary impact): there is a high number of temporary buildings (e.g., in wood) for beach services, that can be removed during winter months.
Level 4 (high and permanent impact – **status quo**): there is a high number of permanent buildings (in concrete) for bathing establishments and other beach services.
Attribute 3 – The summer use of the seaside avenue
Level 1 (pedestrian area): the seaside avenue is for pedestrian use, with ample areas for bicycles and with decentralised parking lots.
Level 2 (no limited traffic zone – **status quo**): the seaside avenue is open to circulation, with parking lots close to the beach and no pedestrian areas.
Attribute 4 – The cultural offer
Level 1 (**status quo**): the city offers a few museums and a good level of heritage conservation.
Level 2 (resident scenario): Cultural investment is focused in low-tourist season, particularly on the needs of residents.
Level 3 (tourist scenario): Cultural investment is focused in summer months, particularly on the needs of tourists.
Level 4 (cultural scenario) Cultural investment is not focused in any particular season, but aims to increasing the cultural heritage of the city.
Attribute 5 – Evening and night use of beach facilities
Level 1 (beach services open during the day – **status quo**): at night, limited access to the beach; bathing establishments and other beach services are closed to the public.
Level 2 (beach services open also during the evenings): evening and night opening hours of bathing establishments and other beach facilities, with cultural events and shows.
Attribute 6 – Level of taxation needed to finance the projects
Level 1 (**status quo**) – no tax levied.
Level 2 (low taxation) - € 4 per month levied.
Level 3 (medium taxation) - € 8 per month levied.
Level 4 (high taxation) - € 12 per month levied.

The attributes and their levels, which define the alternatives scenarios, are listed and described in Table 1.

The identification of the six attributes and their levels was the result of frequent research meetings; a pilot test was carried out in the weeks preceding the survey and proved very useful to check the comprehension of the attributes, the clear perception of the difference in levels, and the relevance to residents of alternative scenarios. The pilot test confirmed as well that the structure of the survey was such to raise some expectation about the use of the information provided for decision making purposes. In fact, if the respondents view the process as entirely hypothetical or useless, then their responses do not convey any economic sense (Carson, 2000).

This is particularly important for the monetary variable included in the survey: the amount of taxes levied to finance the investment. In the choice of the levels, we had to balance four features: i) the levels should be in line with the projects involved, once alternative (and realistic) sources of financing (sponsorship, private co-financing, state intervention) were considered; ii) they should be expressed in an easy metric;[16] iii) they should lie within the limits of people's willingness to pay; iv) finally, we had to overcome the fact that in Italy neither the local administrations have the possibility to raise taxes (taxes are mainly transfers from the state), nor it is possible to raise dedicated taxes to finance local projects.

The full factorial of all the possible combinations of attribute levels would yield, in our case, 512 scenarios.[17] However, it is almost impossible, due to time and attention constraints, to ask respondents to choose among all the possible combinations. A orthogonal fractional factorial design was used in order to reduce the number of profiles at a convenient size and to maintain the reliability of results; 32 alternatives out of the full set of 512 scenarios were identified. Pair-wise comparisons were created using a *shifted design* strategy (Louviere *et al.*, 2000). The interviews were hence split into four groups whose respondents had to answer to different sets of 8 choice cards[18] with different pairs of hypothetical alternative scenarios.[19] In each group, the cards submitted were the same but presented every time with a different sequence, in order to avoid any question order bias. We did explicitly consider a "status quo" alternative, asking the respondents in a follow-up question whether they prefer it over the two alternatives.[20]

[16] Monthly taxes were chosen since most of the households earn monthly salaries and their budget decisions are taken on a monthly basis. Daily taxes would overestimate the willingness to pay while yearly taxes would underestimate it.

[17] The attributes and levels form a universe of $(4^3 \times 2^3)$ alternatives, namely 512 different scenarios.

[18] The pilot test showed that respondents could cope with up to eight choice pairs each. In fact, violations related to instability of preferences can arise from learning and fatigue effects (Hanley et al. 2002).

[19] In order to make clear and homogeneous the comprehension of attributes and to facilitate the individual decision process, the oral explanation of these attributes and levels was accompanied by the presentation of drawings and photos describing each scenario.

[20] The explicit definition of the status quo allows for a more coherent evaluation of the proposed scenarios (Brau, 2006). In our case, only 7% of the stated preferences were not confirmed after the comparison with the status quo.

Overall, the survey was divided into four sections; the first one collected the main coordinates of the interview (date, location and length); the second part inquired on the socio-economic and demographic characteristics of the respondent and his/her household; the third section was the choice experiment and asked to choose among eight pairs of alternative scenarios, while the fourth section brought together some other information about the test comprehension. In particular, the interviewer annotated the degree of comprehension, interest and facility both in answering questions and in choosing the alternatives. Problems of poor identification of alternative scenarios were not relevant: the reported level of comprehension was high (98% of the sample understood the questionnaire) and the differences in the attributes levels were clearly perceived. Interviews took on average 26 minutes.

4. Residents' demographic and social characteristics

The questionnaire was submitted to a representative sample of 606 residents, stratified for gender (52,3% females and 47,7% males), age, education, professional status and economic activity. This last coordinate is crucial, since respondents' attitude is likely to be driven by the existence of any business connection, direct or indirect, with the tourism sector. Interviews were conducted at different hours of the day in different public places of Rimini (streets, commercial malls, public offices, bars and restaurants) in the period February – April 2006.

Table 2 – Demographic and socio-economic characteristics of the sample

Age class	%
< 30	16,5
30 – 39	21,6
40 – 49	18,2
50 – 59	13,4
≥ 60	30,4

Income class (Euros)	%
< 10,000	14,5
10,000 – 14,999	18,3
15,000 – 19,999	21,6
20,000 – 24,999	18,6
25,000 – 39,999	11,1
≥ 40,000	4,0
N.A.	11,9

Occupational / professional status	%
Entrepreneur	6,9
Professional	9,4
Craftsman	4,5
Manager	2,3
Dealer	11.9
Employee / white collar	18,0
Worker / blue collar	9,2
Other	3,7
House working	7,3
Student	3,8
Retired	20,5
Unemployed	2.5

Gender	%
Males	52,3
Females	47,7

Table 2 suggests that the sample was also representative with respect to income, the most difficult variable to investigate. The distribution of net personal income is as expected, and the percentage of non respondent – 11,9% is quite low. With respect to educational attainment, 24,3% of the sample owns a University degree, 37% a secondary school diploma, and 38,3% a primary degree, in line with the population characteristics. The occupational and professional status of respondents are also described in Table 2.

The distribution of respondents' characteristics was therefore consistent with our sampling plan and representative of the whole population of Rimini. As already mentioned, it was also important to check the economic activity distribution, since the attitude of respondents is expected to vary significantly depending on whether or not their activity is linked to tourism. Among active workers, 1,2% work in the primary sector, 14,4% in manufacturing, 7% in building, 22,4 % in trade, 14,1% in tourism and 40,8% in other services. However, this datum is likely to underestimate the economic importance of tourism. To include indirect as well as direct effects of (and links to) tourism we asked respondents to what extent their business is linked to tourism. 21,9% of the survey answered that at least 80% of their business is driven by tourism demand and another 17,2 % estimated that tourism generates between 40 and 79% of their business. 9,5% of the sample estimated that tourism generates between 20 and 39% of their business while about half of the sample (51,5%) considered not to be (or very little) linked to tourism demand.[21]

It is trivial to say that tourism might produce positive and negative effects on residents and on the city; in fact, only 15,9% of the sample thought that tourism have no effects on general life conditions, while 66,6% guessed that life conditions improve, and only 17,5% thought that tourism brings a general worsening. Table 3 summarises the main positive and negative impacts of tourism on the city welfare. Not surprisingly, and in accordance with previous researches on tourism impacts, economic effects (higher income levels, job opportunities, etc.) overcome those social and environmental effects frequently perceived as negative (increases of noise level, crime rates, etc.): 50,7% of the sample thought that tourism has an overall positive economic impact, whilst 10,2% of the sample mainly saw the negative impact on traffic and mobility.[22]

Other interesting characteristics that might affect the choice experiment are home property (75,9% of the sample) and the suburb of residence: 57,8% of the sample live in the city centre, while 36,1% in the seaside neighbourhoods and only 6,1% in other suburbs. On the one hand, this distribution is not representative of the exact spatial distribution of

[21] There are two main reasons why data on economic activity are likely to underestimate the importance of tourism. First, many activities in a city like Rimini might primarily serve tourists (let us think about a shopkeeper situated close to the beach); second, property renting might be an important source of income which does not stem from the respondent's main economic activity. In this respect, 15% of the sample declared that has an apartment to rent, of which 2,5% rents only to tourists, 6,1% rents also to tourists while 6.4% does not rent at all to tourist.

[22] Among people whose business was related to tourism, 78,5% thought that it has a positive effect, 8,2% no effect and 13,3% a negative effect. Among people whose business was not related to tourism this distribution changed to 59,2% (positive effect), 18% (no effect) and 22,8% (negative effect).

residents; on the other hand, this is more relevant for our work, since externalities with tourists are more likely to occur in the city centre or nearby the sea. Finally, another characteristics which is likely to interact with stated preferences is the transport vehicle normally used to commute in the city: 45,7% of the sample used the car while another 11,7% the motorcycle or the scooter. Only 23,1%, 12,7% and 6.6% of the sample used environmental-friendly transport vehicles, bicycle, foot and public transport respectively.

Table 3 – Positive and negative effects of tourism

Type of effect	%	
No effect on general life conditions		**15,9**
Positive effects on general life conditions		**66,6**
- Economic improvement	50,7	
- Environmental and health services improvement	0,4	
- Recreational, cultural and sport activities improvement	15,5	
Negative effects on general life conditions		**17,5**
- Less efficiency of public services	2,0	
- Increase in the level of pollution	1,0	
- More criminality and less security	2,5	
- Worsening of traffic and mobility	10,2	
- Other	1,8	

5. Econometric results

At the end of the choice experiment, respondents were asked to self-evaluate the importance of each of the six attributes in their stated choice. In this way, both a comparison between stated and elicited preferences, and an overview of the motivations underneath the choice were allowed. Two comments on the results, presented in Table 4, are needed. First, the distribution of self-evaluations does not change across the main socio-economic and demographic characteristics of the sample. Second, we also asked respondents to judge the importance of the same attributes in case they had to choose with a different pair of eyes: the eyes of a tourist in Rimini for a holiday. This exercise can provide a first insight into the main differences between residents and tourists' perceptions, and would also be useful for the econometric analysis.

Two partially surprising results emerge: firstly, for all the non monetary attributes the distribution of attributes' importance does not depend on whether respondents are in their own shoes or in tourists' shoes; this can either be interpreted as assonance of interests with tourism or as inability to see things differently; secondly, a considerable difference is in the attitude with respect to taxes: since they are levied on residents, (hypothetical) tourists are not sensitive to taxes, thereby underestimating the potential indirect effect on prices.

Table 4– Importance of the attributes: self-evaluation and evaluation if the respondents were in Rimini as tourists

Attributes	Importance of the attributes (self-evaluation)			Importance of the attributes (residents in tourists' shoes)		
	High importance	Medium importance	Low importance	High importance	Medium importance	Low importance
Mobility risk	46,0	17,7	36,3	50,5	13,4	36,1
Beach preservation	20,3	65,7	14,0	18,5	69,4	12,1
Quality of coastal road	90,6	7,6	1.8	94,5	3,8	1,6
Cultural life	66,0	29,2	4,8	67,9	28,8	3,3
Night beach	77,9	14,0	8,1	83,5	12,3	4,2
Tax levied	6,1	59,9	34,0	5,9	52,0	42,1

Table 5 presents the results of a conditional logit model estimated for the whole sample and for two sub-samples based on residents' job activities. As usual, in this type of analysis, all the attribute levels were elaborated as dummy variables, with the exception of the tax levied, which took four different quantitative values corresponding to four distinct tax rates. The 0-values for the dummy variables were set up on the status quo (high mobility risk, low environmental protection of the beach, seaside avenue open to traffic, present cultural offer, beach services close at night and no extra-tax levied). Therefore, each hypothetical scenario was planned to "improve" the quality of the city, and therefore we would expect positive signs for all the coefficients, except taxes.

The maximum likelihood estimates show that for the whole sample all the coefficients were statistically significant, with the exception of those related to the environmental protection of the beach.[23] Similar results emerge from the analysis of different sub-samples: neither different aged people, nor different income classes pay attention to the preservation of the beach (Table 6). Even residents whose activity is based on tourism seem not to be influenced in their choice by the level of beach preservation (Table 5). This might be due to the fact that, on the one hand, these levels are not perceived so different from the present situation, which has high permanent impact (perhaps because the seaside is mainly lived during the summer); on the other hand, it is probably true that the typical Rimini's skyline, shaped by huge bathing establishments and high anthropic presence in its seaside resource, is perceived as a milestone of the city landscape: a change would not be pleased. All the other coefficients were significant and with the expected sign.

The vast majority of choice experiments use the main effect design only, explicitly or implicitly assuming that interactions among attributes are not significant. However, if interactions are significant, such omission leads to sub-optimal results (Hensher *et al.*, 2005). In the Appendix, we extend our model by including higher-order interaction terms, in order to verify whether preferences for the level of one attribute depend on the level of other attributes. In our econometric analysis, the only interaction statistically significant

[23] The temporary preservation of the beach's coefficient has a negative sign, only significant at the 10% level.

confirms that residents whose business is appreciably linked to tourism flows do not appreciate a pedestrianisation of the seaside avenue.

Table 5 – Estimation of conditional logit model: whole sample, tourism-based and non-tourism based local workers

Attributes and levels	Complete sample		Tourism-based job		Non-tourism-based job	
Low mobility risk	0.305	***	0.296	***	0.354	***
	(0.033)		(0.048)		(0.078)	
High preservation of beach environment	-0.052		-0.099		-0.065	
	(0.058)		(0.086)		(0.135)	
Medium preservation of beach environment	0.080		0.082		0.065	
	(0.066)		(0.096)		(0.158)	
Low (but temporary) preservation of beach environment	-0.100	*	-0.112		-0.273	*
	(0.058)		(0.084)		(0.148)	
Pedestrian coastal road	0.653	***	0.713	***	0.509	***
	(0.034)		(0.049)		(0.079)	
Cultural scenario based on winter months	0.623	***	0.568	***	0.659	***
	(0.058)		(0.085)		(0.139)	
Cultural scenario based on summer months	0.206	***	0.108		0.212	
	(0.065)		(0.094)		(0.156)	
Cultural scenario all year long	0.447	***	0.473	***	0.367	***
	(0.055)		(0.080)		(0.130)	
Night opening of beach	0.665	***	0.713	***	0.762	***
	(0.033)		(0.048)		(0.079)	
Monthly tax levied	-0.032	***	-0.023	***	-0.032	***
	(0.005)		(0.023)		(0.011)	
Alternative specific constant	-0.056	*	-0.040		-0.039	
	(0.033)		(0.047)		(0.078)	
Log likelihood	-2806.72		-1335.86		-497.158	
Pseudo R^2	0.165		0.181		0.170	
Nr. Of observations	9696		4704		1728	

Note. *: significant at the 10% level; **: significant at the 5% level; ***: significant at the 1% level.

The β coefficients estimated under the conditional logit model can be used to estimate the rate at which respondents are willing to trade-off one attribute to another, as equations [4] and [5] suggest. By normalizing with respect to the coefficient of one attribute level, a comparison among attributes can be done. For instance, if we set the parameter level of low mobility risk equal to one, we find the value of 2.18 for the night opening of beach services. The higher the ratio, the higher the relative weight of the attribute in the scenario. This means that the level of mobility risk (supposing it could be measurable and achievable at different steps, for example through a reduction in the number of stations of the coastal train) a person is willing to accept in order to ensure free access to beach services during the evening and the night is -2.18.

Residents attach by far a great value to the possibility to stay on the beach even during the night, where shows and events could be organized, and to the pedestrian use of Rimini's esplanade. While these findings show a potential synergy with tourists, in their willingness to have "a sea-side with a human face", the coefficients of the cultural attribute show a potential trade-off. In fact, residents would prefer a more lively cultural scene

mainly in winter months and, only as second best, all year long. More cultural events during summer months would be accepted only as a third best. Clearly, residents suffer a city cultural offer too biased towards summer months when, probably, cultural events are difficult to consume due to both tourists overcrowding and the to fact that many residents are away for their own holidays. Eventually, the importance of low mobility risk achieved by the coastal train was positively evaluated, but its importance was estimated to be half of that given to the pedestrian use of the seaside avenue.

Table 6 – Estimation of conditional logit model: different age sub-samples; low-income and high-income sub-samples

Attributes and levels	the Young (<30)		The Adults (30-59)		The Elderly (≥60)		Low-income (≤18000)		High-income (>18000)	
Low mobility risk	0.336	***	0.299	***	0.321	***	0.326	***	0.283	***
	(0.082)		(0.045)		(0.061)		(0.047)		(0.047)	
High preservation of beach environment	-0.197		-0.058		0.064		-0.089		-0.025	
	(0.146)		(0.080)		(0.106)		(0.083)		(0.082)	
Medium preservation of beach environment	-0.081		0.108		0.145		0.053		0.091	
	(0.165)		(0.091)		(0.121)		(0.095)		(0.093)	
Low (but temporary) preservation of beach environment	-0.256	*	-0.095		0.004		-0.151	*	-0.057	
	(0.140)		(0.081)		(0.107)		(0.082)		(0.083)	
Pedestrian coastal road	0.584	***	0.635	***	0.745	***	0.791	***	0.521	***
	(0.083)		(0.046)		(0.062)		(0.049)		(0.047)	
Cultural scenario based on winter months	0.864	***	0.559	***	0.589	***	0.716	***	0.554	***
	(0.150)		(0.080)		(0.108)		(0.085)		(0.082)	
Cultural scenario based on summer months	0.285	*	0.148	*	0.242	**	0.264	***	0.161	*
	(0.162)		(0.090)		(0.119)		(0.092)		(0.092)	
Cultural scenario all year long	0.699	***	0.400	***	0.414	***	0.429	***	0.462	***
	(0.140)		(0.076)		(0.099)		(0.078)		(0.079)	
Night opening of beach	0.678	***	0.702	***	0.609	***	0.737	***	0.601	***
	(0.083)		(0.045)		(0.061)		(0.048)		(0.047)	
Monthly tax levied	-0.022	**	-0.031	***	-0.042	***	-0.037	***	-0.028	***
	(0.012)		(0.007)		(0.009)		(0.007)		(0.007)	
Alternative specific constant	0.081		-0.044		-0.149	**	-0.063		-0.049	
	(0.081)		(0.045)		(0.060)		(0.046)		(0.046)	
Log likelihood	-453.82		-1491.38		-848.362		-1415.14		-1381.10	
Pseudo R^2	0.1816		0.1647		0.1685		0.1975		0.1352	
Nr. Of observations	1600		5152		2944		5088		4608	

Note. *: significant at the 10% level; **: significant at the 5% level; ***: significant at the 1% level.

When the attribute being sacrificed is monetary, the estimated trade-off are "implicit prices", the amount of money respondents are willing to pay in order to receive a change in the considered attribute. The estimate of implicit prices, reported in Table 7, are made on a *ceteris paribus* hypothesis, namely for an increase in the attribute of interest, given that everything else is held constant. These "prices" allow to study the composition of potential alternative allocations of resources. In line with results presented in Table 5 about relative weights, a comparison of implicit prices for attributes allows to rank their relative importance for each group of respondents.[24]

[24] Note that we are dealing with discrete (and not marginal) level variations and that estimates are based on the assumption that the marginal utility of income is constant. See note 12.

Although respondents were sensitive to price differences within the experiment, the weight given to the price attribute was apparently very low and the real tax that residents were actually willing to pay for closing the seaside avenue oscillates between the high values of 15 and 32 Euro per month, depending on the group of residents (Table 7). This result compares with tourists' behaviour, whose willingness to pay for pedestrianisation of the seaside avenue is large too (Brau *et al.*, 2006).

Table 7 – Implicit prices (Euro per month)

Level changes	**Whole sample**	**Non Tourism based job**	**Tourism based job**	**The young**	**The Adults**	**The elderly**	**Low income**	**High income**
Risk of overcrowding	9.47	13.10	11.03	14.65	9.59	7.73	8.81	10.14
Variation in beach impact from high permanent to minimal impact	-1.62	-4.37	-2.03	-8.59	-1.87	1.54	-2.41	-0.91
Variation in beach impact from high permanent to medium impact	2.49	3.63	2.01	-3.51	3.46	3.50	1.44	3.24
Variation in beach impact from high permanent to high temporary impact	-3.11	-4.94	-8.50	-11.14	-3.04	0.09	-4.09	-2.02
Promenade for pedestrians	20.29	31.50	15.86	25.44	20.38	17.93	21.39	18.61
Cultural public investment only during the winter	19.33	25.10	20.54	37.63	17.94	14.17	19.36	19.81
Cultural public investment only during the summer	6.39	4.76	6.62	12.42	4.74	5.83	7.13	5.74
Yearly cultural public investment	13.88	20.89	11.43	30.46	12.84	9.96	11.60	16.53
Beach open by night	20.66	31.49	23.74	29.53	22.54	14.65	19.92	21.49

We expected that residents perceptions towards the socio-economic impact of tourism would be, *ceteris paribus*, a function of their direct economic dependency on the tourism industry (Haralamopoulos and Pizam, 1996).[25] Non surprisingly, residents whose activities are based on tourism are less willing to pay for a pedestrian seaside avenue. In fact, tourism activities in Rimini are mostly located along a parallel avenue, provided with a large pavement; the opening of a larger and pedestrian area nearby, with shows and tourist attractions could threaten many firms' turnover. As discussed above, this result is robust, as it is highlighted when second-order interactions are included in the model (see Appendix).

People aged over 60 are less willing to pay for the opening of the beach during the night, probably because they are more inclined to visit the beach during the day. On the other side, people with the highest willingness to pay for the organization of events on the beach during the night and for the pedestrianisation of the seaside avenue are residents

[25] One might expect that residents who had a direct business relation with tourism would have more positive perceptions towards tourism than those who had no direct business relation with the sector (Haralambopoulos and Pizam, 1996).

whose activity is not directly affected by local tourism. These people are probably direct users of tourist services, and for that reason are more willing to pay for this sort of public investment.

Substitution rates and implicit prices provide important pieces of information to policy makers. In addition to the information on the "price" residents are willing to pay for any level of the considered attributes, policy makers learn the relative importance of each attribute in the residents utility structure. This would allow local authorities to modify the tourist product (through multiple and simultaneous changes in the attribute levels) in order to make it consistent with residents' structure of preferences.

A different combination of levels for these attributes could improve the empathy between tourists and residents. To make this point clearer, a simulation in which policy makers could create possible alternative scenarios is presented in Table 8. We chose four scenarios differing in the level of five attributes (excluded the levied tax): the current situation (status quo), an environment friendly scenario, a mass-tourism scenario, and a resident friendly scenario. We infer from the econometric exercise the probability that residents "vote" for one of these scenarios,[26] thus leading to interesting implications for political parties in the eve of local elections.

Table 8 – Simulation of choice probabilities

Attributes	**Status quo**	**Environment friendly scenario**	**Mass-tourist scenario**	**Resident scenario**
Promenade	vehicles	pedestrians	pedestrians	pedestrians
Overcrowding	high risk	low risk	high risk	high risk
Environment (beach) preservation	low permanent	high	low temporary	medium
Cultural supply	limited investment	yearly investment	summer investment	winter investment
Beach by night	close	close	open	open
Choice probabilities				
Complete sample	4.37%	16.93%	33.89%	44.81%
Tourism based job	4.34%	17.32%	31.76%	46.57%
Non-tourism based job	4.73%	15.14%	30.65%	49.48%
The young	4.07%	16.86%	35.08%	43.99%
The adults	4.63%	16.57%	32.50%	46.30%
The elderly	3.89%	18.20%	34.68%	43.24%
Low income	4.37%	16.93%	33.89%	44.81%
High income	3.37%	14.48%	35.63%	46.52%

[26] The probability that an individual picks each scenario out of the four alternatives is computed by inserting in equation [3] the coefficient estimated in Tables 5 and 6.

Surprisingly, although choice probabilities are different among groups of residents, the ranking of these alternative scenarios is unanimously accepted: the worst scenario is the status quo (analogously to the outcome of tourists preference structure - Brau, 2006), whilst the most preferred scenario is the tourist product respectful of residents' habit. Moreover, residents do not pay much attention to an environment friendly tourism product.

Nevertheless, it must be recalled that this simulation, which considers more than two alternatives at the same time, is based on the IIA assumption, which allows for creating hypothetical products by different combinations of attribute levels.

Analogously, by exploiting the estimates obtained in the twin study on tourists' preferences (Brau *et al.*, 2006), we build four scenarios based on four attributes (excluding the monetary and the ecological attributes) in order to compare the probability that a representative tourist in Rimini chooses each scenario with the analogous probability for the representative resident. This simulation allows the identification of differences in the distribution of tourists' and residents' preferences among alternative scenarios, and the identification of the preferred scenarios for residents and for tourists. This simulation provides useful information for policy makers aiming at proposing social welfare enhancing tourism projects.[27]

Table 9 – Comparison between residents and tourists' best scenarios

Attributes	**Status quo**	**Environment friendly scenario**	**Mass-tourist scenario**	**Resident scenario**
Promenade	vehicles	pedestrians	pedestrians	pedestrians
Overcrowding	high risk	low risk	high risk	high risk
Environment (beach) preservation	low permanent	high	low temporary	medium
Cultural supply	limited investment	limited investment	limited investment	limited investment
Beach by night	close	close	open	open
Choice probabilities				
Residents	8.09%	20.03%	27.39%	44.49%
Tourists	10.20%	15.96%	40.53%	33.31%

In our exercise, what clearly emerges (Table 9) are different rankings of alternative scenarios: whereas the status quo is unanimously considered the worst scenario, the best alternative for tourists is the "Mass-tourist scenario", which represents the second best for

[27] It must be recalled that the twin study on tourists slightly differs in the definition and in the levels of the cultural attribute. This might slightly affect the estimated probabilities.

residents. Vice versa, the local community prefers the "Resident scenario" which characterizes the second choice of tourists. Neither residents nor tourists are really interested in an environmental friendly scenario, probably because it is not in the nature of a mass-tourism destination.

6. Discussion

During their holidays, tourists produce direct and indirect effects on local residents. These tourism externalities on the local community can either be positive or negative and in this paper we investigated how residents internalize them. Our case study is Rimini, a popular Italian seaside resort with more than ten million national and foreign overnight stays every summer. We used a stated preference approach and, in particular, a discrete choice modelling technique. Within this framework, we were able to test some conjectures about residents' welfare, by measuring their willingness to pay for alternative scenarios regarding the use of the territory. Such approach enables to identify potential synergies or trade-off with tourists.

The main results are here summarised: first, residents have strong preferences over the 24-hour a day use of beach services, the pedestrianisation of the seaside avenue and a cultural policy focused outside the tourist season. They are less interested in decreasing mobility risks through the project of a coastal train, while they like the present anthropic nature of Rimini's seaside. However, a deeper analysis of resident sub-samples highlights how residents whose jobs are mainly based on tourist flows are less willing to pay for the pedestrianisation of the seaside avenue, since this might divert tourists attention for their activities and tighten local competition.

Second, a comparison of our results with those of the "twin" research on tourists (Brau *et al.*, 2006) allows to highlight that there is room for potential and strong synergies in the use of the territory. Both tourists and residents have strong preferences towards beach services open at night and towards the quality of the promenade. Both groups like the present (strong) environmental impact of bathing establishments and fairly "like" overcrowding, so the mobility risk is not at the top of their preferences.

However, there is an important dimension of potential trade-off lying in the model of cultural policy that they want for Rimini. Both groups are willing to pay for an improvement in the cultural policy, but tourists want it during the summer, while residents ask for more cultural events during winter months.

Moreover, we were able to analyse how tourism policy and public investments in the destination might affect residents' welfare. In this respect, the forthcoming project of building a coastal train seemed not to be a top priority in the residents' preferences. The policy implications are straightforward, since the project of transforming the seaside

avenue in a pedestrian area is much more simpler and much less expensive than building a new railway.

Our exercise allows a rough simulation of what might happen were such policies implemented. Consider the implicit prices of Table 7 and assume that the policy maker were able to charge all residents with an extra tax equal to their willingness to pay; for the pedestrianisation of the promenade, residents are willing to pay up to € 20,47 per month; if taxpayers in Rimini are around 100,000, these numbers would lead to an extra revenue of up to € 24 million that could be used both to finance the project and to compensate losers from its implementation. However, residents might easily decide to pass the extra tax burden on tourists, since they are also willing to pay for the pedestrianisation of the promenade (see *Brau et* al., 2006). Consider that overnight stays are, only in Rimini' hotels in the summer months, around 6 million; tourists would be charged with an extra price of four Euro per day. Clearly, these are just rough estimates, but the expert reader and the policy maker can browse the figures of Table 7 to evaluate the cost-benefit structure of several different assumptions (i.e., a lower extra tax or a smaller tax base) with respect to the projects involved.

To the best of our knowledge, ours was the first attempt to check for any synergy and trade-off between tourists and residents preferences by using the choice experiment technique. In the case of a mature destination such as Rimini, which recently made a great effort to diversify mainly towards business and cultural tourism, further research calls for another choice experiment, this time aimed to uncover preferences of "out of season" tourists.

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APPENDIX

The majority of choice modelling studies only estimates the main effects, assuming that the preference for the level of one attribute is independent of the level of other characteristics. However, the inclusion of interactions allow models to have higher explanation power **(**Ortúzar *et al.*, 2000 and Hensher *et al.*, 2005). Moreover, given the relationship between respondents' welfare and the attribute levels, second-order interaction terms can help explain the convergence or divergence of welfare measures obtained through different stated preference methods such as CE and CV (Mogas *et al.*, 2006; Scarpa, 2000).

For these reasons, in this appendix we included in the model some interactions between attributes. In particular, we estimated two different models (the first is more general and the second more parsimonious) which included interactions among the five considered attributes (excluded the levied tax) and three personal characteristics: residents home location (nearby the sea or inland), level of education, and main job activity.

The only statistical significant interaction (with the expected sign) is the one linking the pedestrianisation of the seaside promenade with residents' economic activity. Those who are more involved in tourism activities are, in fact, less willing to pay for this sort of public investment, given that their main business (with the exceptions of bathing establishments) are located on a parallel avenue to the seaside promenade.

Attributes and levels	**Model 1**		**Model 2**	
Low mobility risk	0. 289	***	0. 287	***
	(0.043)		(0.043)	
High preservation of beach environment	-0.050		-0.052	
	(0.074)		(0.063)	
Medium preservation of beach environment	0.080		0.080	
	(0.066)		(0.066)	
Low (but temporary) preservation of beach environment	-0.955		-0.952	
	(0.058)		(0.058)	
Pedestrian coastal road	0.692	***	0.686	***
	(0.044)		(0.037)	
Cultural scenario based on winter months	0.614	***	0.605	***
	(0.081)		(0.065)	
Cultural scenario based on summer months	0.209	**	0.209	***
	(0.091)		(0.065)	
Cultural scenario all year long	0.469	***	0.424	***
	(0.077)		(0.060)	
Night opening of beach	0.635	***	0.630	***
	(0.043)		(0.043)	
Monthly tax levied	-0.032	***	-0.032	***
	(0.005)		(0.005)	
Alternative specific constant	-0.058	*	-0.057	*
	(0.033)		(0.033)	
Interactions:				
Residents nearby the sea and low mobility risk	0. 021		0. 026	
	(0.070)		(0.068)	
Residents nearby the sea and high preservation of beach environment	0.028			
	(0.097)			
Residents nearby the sea and pedestrian coastal road	-0.014			
	(0.071)			

Residents nearby the sea and cultural scenario all year long	-0.100 (0.114)			
Residents nearby the sea and cultural scenario based on winter months	-0.054 (0.123)			
Residents nearby the sea and cultural scenario based on summer months	-0.038 (0.137)			
Residents nearby the sea and night opening of beach	0.029 (0.070)		0.037 (0.068)	
Tourism based business and low mobility risk	0.057 (0.087)		0.057 (0.087)	
Tourism based business and high preservation of beach environment	-0.009 (0.117)		-0.004 (0.115)	
Tourism based business and pedestrian coastal road	-0.180 (0.088)	**	-0.182 (0.087)	**
Tourism based business and cultural scenario all year long	-0.102 (0.143)			
Tourism based business and cultural scenario based on winter months	0.016 (0.154)			
Tourism based business and cultural scenario based on summer months	-0.022 (0.173)			
Tourism based business and night opening of beach	0.118 (0.088)		0.122 (0.087)	
Graduates and high preservation of beach environment	-0. 046 (0.107)			
Graduates and cultural scenario all year long	0.143 (0.129)		0.103 (0.103)	
Graduates and cultural scenario based on winter months	0.123 (0.136)		0.090 (0.112)	
Graduates and cultural scenario based on summer months	0.064 (0.153)			
Log likelihood	-2800.10		-2801.23	
Pseudo R^2	0.1667		0.1664	
Nr. Of observations	9696		9696	

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