

Cruise Tourism Externalities and Residents' Support: A Generalized Ordered Logit Analysis

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Please cite the corresponding journal article:

<http://dx.doi.org/10.5018/economics-ejournal.ja.2012-40>

Abstract This paper investigates residents' preferences towards cruise tourism investment in their home port. The research uses data collected during the peak cruise season in 2011 at Messina, a port of call in Sicily, Italy. A generalized ordered logit analysis is run to analyse what factors influence the residents' preferences towards investment in cruise tourism. Positive and negative externalities produced by this economic activity, as well as socio-demographic and economic determinants are taken into account. Overall, the resource investment choice of residents in Messina was dependent upon: their income dependency on the cruise activity, their own personal cruise experience, family size, the expected increase in welfare (i.e. increase in public and private investment), whether they are affected by urban and rural gentrification and the value placed on community life style and heritage conservation. Nevertheless, residents would tend to decrease investments in cruise activity if they are female, retired or perceive the environment to be deteriorating. Implications for policy makers are drawn from the empirical findings.

Paper submitted to the special issue

[Tourism Externalities](#)

JEL C25; D62; L83

Keywords Cruise port of call; positive and negative externalities; residents' support; generalized ordered logit

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The Autonomous Province of Bolzano supported the authors' research. Projects: "Tourism, growth, development and sustainability. The case of the South Tyrolean region" and "L'impatto del turismo di crociera. Analisi empirica per il caso del Caraibi Colombiano".

1. Introduction

Up to date, the impact of tourism has received much consideration by researchers attempting to investigate the attitude of the host population toward tourism development. Research has focused on rural, coastal and urban areas. However, very little research has been carried out on cruise tourism destinations.

From 1990 to 2011, the cruise industry has experienced an annual growth rate in terms of passengers compound of 7.67% (Cruise Market Watch, 2011). The total worldwide cruise industry is estimated at \$29.34 billion for 2011, a 9.5% increase over 2010. It is the industry with the fastest growth in the last decades where Europe accounts for the \$7.8 billion. As it becomes larger, several impacts can be accounted for. Host communities have to bear with economic, environmental and socio-cultural effects deriving from ships and passengers' presence. The study of economic externalities produced by cruise tourism is still a field in expansion and residents' support for this industry can provide useful policy directions. As noted by several authors, the understanding of host communities' preferences toward tourism is fundamental for its development and sustainability, especially in the long run (e.g. Allen et al. 1988; Lankford and Howard 1994; Ap and Crapton 1998; Gursoy et al. 2002; Andriotis and Vaughan 2003).

The aim of this paper is to analyse local population support to invest in cruise tourism provided with its externalities. Therefore, potential positive and negative externalities produced by this economic activity, as well as socio-demographic and economic determinants are taken into account. The research involved data collection in Messina, a port of call in the island of Sicily (Italy), during the summer peak of the cruise season in 2011. Through a stratified random sample procedure, 1,500 questionnaires were successfully administered face-to-face to residents living at different distance from the port and in different part of the

city. On this basis, an econometric analysis is run to investigate residents' perceptions on positive and negative externalities produced by the cruise activity that influence the degree at which they would invest in the cruise activity.

The paper is structured in the following manner. In the next section, a literature review is provided. In the third section, the relevant methodology is presented. The fourth section presents the main findings and discussion. Concluding remarks are given in the last section.

2. A literature review on externalities

The tourism activity can have either positive or negative impacts that influence residents' perceptions. As several studies identify, externalities can be summarised into three categories: economic, environmental and socio-cultural effects (Murphy 1983; Gunn 1988; Gursoy et al. 2009). Economic externalities can have positive impacts on residents' welfare, such as improvement of the local economy and of standard of living, employment, development and improvement of infrastructure and increased income levels (Liu and Var 1986; Akis et al. 1996; Tosun 2002). As a negative externality an increase in prices of goods, services, land and housing may occur. In terms of environmental impact, on the one hand, tourism may be regarded as an incentive to preserve and protect both natural and artificial systems (Lindsay et al. 2008), on the other hand, the tourism activity may lead to an increase in pollution and waste (Andereck et al. 2005). In the literature, examples of positive socio-cultural externalities are also highlighted. These relate to more and better leisure facilities and cultural exchanges (Liu and Var 1986). However, a negative effect may also be detected in terms of an increase in crime, prostitution, alcohol and drugs (Ap 1992). Methodologically, these studies employ descriptive instruments whereas inference has rarely been adopted.

Some scholars find that the tourism activity tends to exert more costs than benefits to local economies (Chase and Alon 2002). Brida and Zapata (2010) categorise cruise tourism

externalities likewise general tourism externalities. Nevertheless, cruise tourism impacts are peculiar to this activity and somehow diverse from those of standard tourism. For example, the economic impact depends on the category of the port: homeport or port of call. A homeport is a destination from which cruise trips begin and end. A port of call is a midway stop. In general, those who supply goods and services to cruise vessel, cruise passengers and crew have the greatest economic benefits. Ports of call may have a different economic impact since greater investment in new infrastructure and relative maintenance costs (i.e. docking facilities and wharf) have to be accomplished.

Among negative environmental externalities Brida and Zapata (2010) mention large amounts of waste, erosion and degradation of vegetation, deprivation of historical and geological sites, which are caused mainly by conduct producing physical and visual impacts. Besides, this activity may produce further negative socio-cultural externalities, since cruise passengers tend to “invade” the destination just for a few hours in a single day. This effect is particularly visible in small locations where cruisers compete for roads with the residents.

From an empirical perspective, residents’ attitude and perception towards cruise tourism have been investigated in the last decade (Gibson and Bentley 2006; Hritz and Cecil 2008; Diedrich 2010; Brida et al. 2011). Gibson and Bentley (2006) examine residents’ perceived social impacts associated with increased levels of cruise tourism in Falmouth in Cornwall (South West of England). Through a descriptive analysis, the results show a predominantly positive view of cruise tourism in the city. In an exploratory qualitative analysis in Key West (Florida), Hritz and Cecil (2008) interviewed seven stakeholders (i.e. business owners, city officials, individuals representing specialised markets, representatives of tourist attractions, and entrepreneurs) about their perception on cruise tourism. Residents reported their fear for the island’ calmness and preservation. Diedrich (2010) assesses both local and tourist perceptions of socio-economic and environmental impacts of different types of tourism

development in Belize. The qualitative analysis does not detect any specific difference in local perception on cruise and overnight tourism. Brida et al. (2011) apply a factor analysis to study residents' attitude and perception towards cruise tourism development in Cartagena de Indias (Colombia). The authors conclude that Cartagena residents perceive that tourism brings to the city much more advantages than disadvantages. Overall, a positive balance between benefits and costs from cruise tourism is detected.

3. Methodology

3.1 The economic model: Host communities as composite stakeholder

Several models have been developed to understand resident's opinion and reaction towards tourism activity impacts. Doxey's Irridex model (1975), for instance, describes as the frustration of residents increases as the number of tourists increases, identifying four main stages: euphoria, apathy, irritation and antagonism. The Tourist Area Life Cycle (TALC), proposed by Butler (1980) analyses tourism activity through several distinctive stages: exploration, involvement, development, consolidation, stagnation and decline, that in some cases can turn into a rejuvenation phase. According to the theory, there is a correlation between residents' attitude and this tourism life cycle phases. Initially, residents may have a positive attitude towards their guests, but as their number increases, local community starts to be concern about long-term effects exerted from tourism. This occurs because tourism produces positive effects either for certain stakeholders or because benefits may be unrealistic. Besides, a concern towards environmental and social costs also may emerge. Ap (1992) suggests adopting the so-called social exchange theory to analyse residents' response to tourism. Relationship between residents and guests is considered as a trade-off between costs and benefits for each party. According to this theoretical framework, individuals' attitude towards tourism, and the level of support for its expansion, is influenced by community

evaluation of resulting outcomes that depend on the final whole balance between costs and benefits.

The relationship between residents and tourism can be analysed by an economic perspective. Specifically, the behaviour of this agent is a matter of trade-offs between positive and negative externalities deriving from economic activities. Bailey and Richardson (2010) define an “ecological economics framework” to analyse economic decision making in tourism. They include constraint factors such as physical, environmental and socio-cultural carrying capacities in classical firm’ optimization problem, that is:

$$\text{Max } \Pi = P \cdot f(l, k) - wl - rk \quad \text{s.t.} \quad Y = f(l, k, \mu, \xi, v) \quad (1)$$

where P is the price, Y the output, l the labor, k the capital, w the wage rate, r the price of capital, μ the physical carrying capacities, ξ the environmental carrying capacities and v the socio-cultural carrying capacities.

By expanding this theoretical framework, the host community can be also regarded as a *composite stakeholder* that is at the same time a producer and a consumer. Hence, residents, will achieve the maximisation of their profit (as producers), but also they will maximize their utility (as consumers), by choosing the combination that maximizes positive externalities and minimize the negative externalities. The composite stakeholder’s acceptance of tourism development is a key factor for the long-term success and sustainability of such an economic activity in a destination. Ultimately, residents have to bear with tourism sector’ externalities producing and consuming at the same time, sharing their territory and resources with tourists. Residents’ latent preferences are determined by their perception toward externalities and contribute to determine the choices that maximize their utility/profits.

3.2 The econometric specification

This economic framework is made operational by applying an econometric analysis. To this aim, a 5-point Likert scale is used to assess residents' opinion about the degree at which they would invest in the cruise activity in Messina. The response options are "very low", "low", "medium", "high" and "very high". Hence, an ordered logit model needs to be implemented, where both the ordinal nature of the dependent variable and the difference between a level and another are treated as a ranking. The model consists of the following latent regression:

$$\begin{aligned} Y^* &= \beta_0 + \beta_1 X_i + \varepsilon \\ Y &= 0 \text{ if } Y^* \leq 0 \\ Y &= 1 \text{ if } 0 < Y^* \leq \mu_1 \\ Y &= 2 \text{ if } \mu_1 < Y^* \leq \mu_2 \\ Y &= 3 \text{ if } \mu_2 < Y^* \leq \mu_3 \\ Y &= 4 \text{ if } \mu_3 < Y^* \leq \mu_4 \end{aligned} \quad (2)$$

where Y^* is not observable, Y are the observed values, or indicators, and have a censoring specification. The μ_s are unknown parameters to be estimated together with β . Since an opinion survey is run, the residents have their own intensity of feelings that depends on a set of factors X and certain unobservable determinants ε . In this case, five options have been given and they choose the indicator that most closely represents their own view on how much to invest in the cruise activity.

Model (1) is then calibrated on probabilities. The assumption is that the residual ε is normally distributed and hence the mean and variance of the residual is normalized to zero and one, leading to the following probabilities:

$$\begin{aligned}
P_1 &= \text{Prob}(y = 0|x) = \phi(-x'\beta) \\
P_2 &= \text{Prob}(y = 1|x) = \phi(\mu_1 - x'\beta) - \phi(-x'\beta) \\
P_3 &= \text{Prob}(y = 2|x) = \phi(\mu_2 - x'\beta) - \phi(\mu_1 - x'\beta) \quad (3) \\
P_4 &= \text{Prob}(y = 3|x) = \phi(\mu_3 - x'\beta) - \phi(\mu_2 - x'\beta) \\
P_5 &= \text{Prob}(y = 4|x) = 1 - \phi(\mu_3 - x'\beta)
\end{aligned}$$

For all the probabilities to be positive the following condition also needs to hold (see Greene, 2003):

$$0 < \mu_1 < \mu_2 < \dots < \mu_{J-1} \quad J = 1, \dots, J \quad (4)$$

The ordered logit specification assumes that the coefficients that express the relationship between the lowest indicator versus all higher indicators of the dependent variable are the same as those that describe the relationship between the next lowest category and all higher categories (and so on). In other words, since it is assumed that the relationship between all pairs of groups is the same, a sole set of coefficients is estimated. Under this condition, the parallel regression holds.

However, it is also possible that different regressions need to be estimated to explain the relationship between each pair of outcome groups. To assess this possibility two separate tests can be implemented. The first test is a likelihood ratio test, where the null hypothesis is that no difference exists in the coefficients between models. The second test is the so-called Brant test where the null hypothesis is that the parallel regression assumption holds. If the condition is violated, then a generalized ordered logit (*gologit*) regression needs to be implemented (see e.g. Williams, 2006). In the empirical literature, odds ratio are commonly reported and are given by the following expression:

$$\text{Odds ratio} = \exp (b) \quad (5)$$

Specifically, in a *gologit*, odds ratio greater than one, associated with positive estimated parameters, indicate that higher values on the explanatory variable make it more likely that the respondent will be in a higher category of *Y* than the current one. On the opposite, an odd ratio less than one, associated with negative estimated parameters, indicates that higher values on the explanatory variable increase the chance of being in the current or a lower category.

4. A Mediterranean cruise port of call

Messina, the third largest city in [Sicily](#) (after Palermo and Catania), is the researched case study. Cruise tourism is becoming a significant sector of the local economy. The number of cruise passengers increased from 126,023 in 2000 to 374,441 in 2010 thus making Messina the ninth cruise tourism destination in Italy. The number of cruise ships increased from 165 ships in 2005 to 215 in 2010. Messina is a port of call where passengers spend on average five-six hours visiting the city. Recently, several studies have been carried out to evaluate the expenditure of cruise passengers (Observatory on Tourism on European Islands, 2009). Most of the expenditure is for tours, food and beverages and shopping. The average spending was around 50-70 Euros with an average expenditure for excursions of 20-30 Euros (Del Chiappa and Abbate, 2012).

The questionnaire constructed for this research included items selected on the basis of an in-depth review of the literature and was divided into two sections. The first section focused on socio-demographic information from the interviewees. The second section listed 26 items concerning residents' perceptions toward the economic, environmental and socio-cultural impact generated by the cruise tourism development. A 5-point Likert scale was used (1 = completely agree; 5 = completely disagree) to evaluate their answers. This scale is widely used in empirical studies (e.g. Andereck et al. 2005; Kibicho 2008; Brida et al. 2011).

The questionnaire was then pilot tested with a sample of 30 residents. This was done to verify the validity of its content, the comprehensibility of the questions and the scale used to make the assessments. No concerns were reported in the pilot-tests.

Respondents were selected with a quota random sampling procedure. Based on the official data published by ISTAT about the socio-demographic characteristics of Messina's residents, the quotas were set on age (three class were considered: 16-40, 41-65, over 65) and gender and covered cases characterized by heterogeneous demographics features. Data was collected through face-to-face interviews conducted by 10 trained interviewers directly supervised by the authors. Interviewers were instructed about the streets and area where to administrate the questionnaire. Only people aged 16 or above were asked to take part in the survey. A total of 1,500 complete questionnaires was obtained thus making up a sample which is representative of Messina population at a 1% level.

5. The generalized ordered logit results

Table 1 provides descriptive statistics, mean and standard deviation, of all the variables used to assess the residents' perceptions. The dependent variable measures in what degree residents in Messina would support further investments in the cruise activity; this is an ordinal variable and takes values from one (i.e. a very low support) to five (i.e. a very high support). A set of socio-demographic and economic determinants are included into the specification, namely: gender (*gen*); age and its square (*ages*); whether residents' income (*ycruis*) and that of their close relatives (*yrcreis*), depends on the cruise activity; number of family members (*nfam*); residents' economic sector of occupation (*oc*), that is further disaggregated into the primary (*ocprim*), industry (*ocind*) and services sector (*ocserv*), tourism sector (*octour*), students (*ocstu*), unemployed (*ocump*), retired (*ocret*) and others (*ocoth*, such as housekeepers); whether they took a cruise trip in the past (*cruis*); how far they live from the port (*kmport*) and

from the main tourism attractions (*kmtour*). As far as positive and negative externalities are concerned, several ordinal variables are also considered.

Specifically, a set of determinants relates to positive economics externalities, namely: increase in *welfare* that is expressed in terms of an increase in public investment (w_1), private investment (w_2), jobs creation (w_3) and disposable income (w_4); improve in the *physical capital and services* that includes improvement in public infrastructure (cs_1) and services (cs_2), conservation and valorization of urban and rural areas (cs_3). Positive socio-cultural externalities: *community life* that includes increase in lifestyle (c_1) and quality of life (c_2); *heritage* that relates to enhancement of other cultural and communities knowledge (h_1), increase in the number of cultural and recreational activities (h_2), valorisation of local tradition and authenticity (h_3) and conservation and valorisation of the historic patrimony (h_4).

A further set relates to negative economics and socio-cultural externalities, namely: *crowding-out effects* perceived by the respondents given that resources in relevant projects (ce_2), transportation (ce_3), crime fighting (ce_4) may be allocated to expand cruise activity, besides the reallocation of resources may increase costs of living for the local community (ce_1). *Environment* deterioration contains variables related to an increase in the deterioration of the eco-system (e_1), environment and marine pollution (e_2), in the congestion (e_3) and waste (e_4).

Table 2 provides results obtained by running the *gologit* model. This specification is, in fact, empirically better than the ordered logit specification as found from both the Brant test, where the null hypothesis is rejected at the 5% level of significance, and the log-likelihood ratio test, where the null hypothesis is rejected at the 10% level of significance. Besides, the coefficients obtained for each group show some differences in terms of magnitude, signs and their statistical significance. In this case, one assumes that the effect of the explanatory variables on the dependent variable varies across the range of Y .

From the results it emerges that female, older residents and respondents, with relatives whose income depends on cruise, are more likely to prefer a low, or very low, level of investment in the cruise sector. While, residents whose income directly depends on the cruise activity are more likely to prefer a higher level of investment in this economic activity. As far as residents' economic sector is concerned, students and unemployed would prefer to invest in higher levels of cruise activity in Messina, while retired are more likely to invest resources at either a low or very low degree. This outcome seems consistent with the fact that local youth tend to regard this economy activity as a growth and jobs creation opportunity. Besides, the higher is the number of family members the more likely is to prefer a level of investment from high to very high; the same result is reached if the resident had a cruise trip in the past. On the opposite, residents who live far away from the port would invest a lower amount of resources.

From an economic perspective, respondents are more likely to choose a medium or high level of investment if they think that this can bring an increase in public infrastructure and private investment. Besides, they seem to believe that this economic activity will not significantly contribute to create so many jobs opportunities and to increase disposable income thus explaining why they reported preferring up to a medium and low level of investment in cruise activity when those two aspects are considered. Considering community life externalities, it emerges those residents who believe the cruise activity positively changes actual standard of life and their quality of life would invest from a high level to a very high level, respectively, in this economic activity. Same result is reached when considering an increase in the number of cultural and recreational activities.

Residents do not seem to believe that an increase in investment in the cruise activity can improve infrastructures such as roads, communication and water provision and they would rather invest at a relative low degree. However, they would invest at a high and a very high

level, respectively, if there were an improvement in the public services, and in the rural and urban gentrification.

In terms of crowding-out effects, respondents will be in the actual category, that is very high or a lower category for an increase in the costs of living for the local community, whereas they would invest at a low to a higher degree even though an increase in micro-criminality may occur. This result may suggest that residents may renounce at a marginal degree of safety to gain some positive externality from a higher level of investment in the cruise activity.

Respondents are more aware of the negative externalities produced by the cruise activity on the environment, and particularly they would reduce the investment in this economic activity if this leads to the deterioration of the eco-system as well as an increase in waste. Nevertheless, they would invest at a very high level in the cruise activity if this could allow people to experience a more crowded and hence “vibrant” environment in public and recreational areas.

5. Conclusions

This study has analysed residents’ preferences, considered as a composite stakeholder, towards cruise tourism development, expressed in terms of their own intensity of feelings on what level to invest in this economic activity. The case study is Messina, a Mediterranean port of call in the island of Sicily (Italy). To this aim, a sample of 1,500 face-to-face interviews was gathered during the summer 2011. Empirically, a generalized ordered logit analysis has been run to investigate what socio-demographic and economic determinants, as well as potential positive and negative externalities, influence residents’ perception on how much resources they would allocate to the cruise activity.

The empirical findings have revealed that, on the one hand, residents in Messina are more likely to invest at a very high degree in the cruise activity if: their income depends on this economic activity; they belong to family with a high number of components; they had a cruise

experience in the past; they believe that it would be an increase in their quality of life, in the number of cultural and recreational activities, a rural and urban gentrification and an increase in the congestion in public and recreational areas. On the other hand, they would reduce the investment in the cruise activity if: they are female; they are older; if they are not dependent on cruise tourism but only have relatives whose income depends on this economic activity; if they live far away from the port; if a further cruise tourism development may lead to an increase in the deterioration of the eco-system and waste.

Overall, the findings of the present study show that local community expresses positive perceptions and feelings towards cruise tourism development in this Mediterranean port of call. Nevertheless, residents also moderately felt some concerns about the negative impact that cruise activity may exert on the environment (i.e. more pollution and waste). Besides, significant differences in residents' perceptions towards cruise tourism investment are based on their economic activity, place of residence and cruise past experience.

The empirical outcomes can be used as a guide in planning the future of this cruise tourism destination. In particular, they remind destination managers and policy makers the importance in involving the local community before tourism actions are taken and the need to truly understand and monitor over time how resident perceive the impacts of cruise tourism development. In other words, they should consider residents and stakeholders' expectations in their decision making. Further, in an effort to increase the favorableness of residents' attitudes toward tourism, policy makers should run internal marketing and communication activities delivering tailored messages and describing the positive balancing between the positive and negative impacts of tourism (Perdue, Long and Allen, 1990; Brida et al., 2011). In doing this, local institutions should involve also impartial source of information (e.g. university, research centers) in order to increase the trustworthiness that local community could give to the

delivered messages and avoid that they could be perceived as “politically-minded” (Lindberg and Johnson, 1997).

References

- Akis, S., N. Peristanis, and J. Warner (1996). "Residents' attitudes to tourism development: the case of Cyprus." *Tourism Management*, 17, 481-494.
- Allen, L R., P.T. Long, R.R. Perdue, and S. Kieselbach., (1988). The impact of tourism development on residents' perceptions of community life. *Journal of Travel Research*. 27, 16-21.
- Andereck, K.L., R.C. Knopf, and A. Vogt (2005). Residents' perceptions of community tourism impacts. *Annals of Tourism Research*, 32, 1056-1076.
- Andriotis, K., and R.D. Vaughan (2003). Urban residents' attitudes toward tourism development: The case of Crete. *Journal of Travel Research*, 42, 172-185.
- Ap, J. (1992). Residents' perceptions on tourism impacts. *Annals of Tourism Research*. 19 (4), 665-690.
- Ap, J., and J.L. Crompton, (1998). Developing and testing a tourism impact scale. *Journal of Travel Research*, 37, 120-130.
- Bailey, E., and R. Richardson (2010). A new economic framework for tourism decision making. *Tourism and Hospitality Research*, 10(4), 367-376.
- Brida, J.G., and S. Zapata Aguirre (2010). Cruise tourism: Economic, socio-cultural and environmental impacts. *International Journal of Leisure and Tourism Marketing*, 1(3), 205-226.

- Brida, J.G., Riaño, E., and S. Zapata Aguirre, (2011). Resident's attitudes and perceptions towards cruise tourism development: a case study of Cartagena de Indias (Colombia). *Tourism and Hospitality Research*, 11(3), 187-202.
- Butler, R.W. (1980). The Concept of a Tourism Area Cycle of Evolution: Implications for Management Resources. *The Canadian Geographer*, 24(1), 5-16.
- Chase G., and I. Alon (2002). Evaluating the economic impact of cruise tourism: a case study of Barbados. *Anatolia: An International Journal of Tourism and Hospitality Research*, 13(1): 5-18.
- Cruise Market Watch, (2011) <http://www.cruisemarketwatch.com>.
- Del Chiappa, G., and T. Abbate (2012). Resident's perceptions and attitude toward the cruise tourism development: insights from an Italian tourism destination. Forthcoming in U. Collesei, J.C., Andreani (Eds), *Proceedings of International Conference Marketing Trends, Marketing Trends Association, Paris-Venice*.
- Diedrich, A. (2010). Cruise ship tourism in Belize: The implications of developing cruise ship tourism in an ecotourism destination. *Ocean and Coastal Management*, 53, 234-244.
- Doxey, G.V. (1975). A Causation Theory of Visitor-Resident Irritants, Methodology and Research Inferences. The Impact of Tourism. Sixth annual conference proceedings of the Travel Research Association, San Diego, 195-198.
- Gibson, P., and M. Bentley (2006). A Study of Impacts-Cruise Tourism and the South West of England. *Journal of Travel and Tourism Marketing*, Vol. 20(3/4).
- Greene, W. (2003). *Econometric analysis*. Upper Saddle River, New Jersey: Prentice Hall.
- Gunn, C. A. (1988). *Tourism planning*. New York: Taylor and Francis.
- Gursoy, D., C.G. Chi, and P.K. Dyer (2009). An examination of locals' attitudes. *Annals of Tourism Research*, 36, 723-726.

- Gursoy, D.J., C. Jurowski, and M. Uysal (2002). Resident Attitudes: A Structural Modeling Approach. *Annals of Tourism Research*, 29(1):79-105.
- Hritz, N., and A. Cecil (2008). Investigating the sustainability of cruise tourism: A case Study of Key West. *Journal of Sustainable Tourism*, 16(2), 168-181.
- Lankford, S.V., and D.R. Howard (1994). Developing a tourism impact scale. *Annals of Tourism Research*, 77(4), 121-139.
- Lindsay K., J. Craig, and M. Low (2008). Tourism and conservation: The effects of track proximity on avian reproductive success and nest selection in an open sanctuary. *Tourism Management*, 29, 730-739.
- Liu, J.C., and T. Var (1986). Resident attitudes toward tourism impacts in Hawaii. *Annals of Tourism Research*, 13(2), 193-214.
- Murphy, P.E. (1983). Perceptions and Attitudes of Decision-making Groups in Tourism Centers. *Journal of Travel Research*, 21, 8-12.
- Tosun, C. (2002). Host perceptions of impacts: A Comparative Tourism Study. *Annals of Tourism Research*, 29(1), 231-253.
- Perdue, R.R., P.T. Long, and L. Allen (1990). Resident support for tourism development. *Annals of Tourism Research*, 17(4), 586-599.
- Lindberg, K., and R.L. Johnson, (1997). Modeling resident attitudes toward tourism. *Annals of Tourism Research*, 24(2), 402-424.
- Williams, R. (2006). Generalized Ordered Logit/ Partial Proportional Odds Models for Ordinal Dependent Variables. *The Stata Journal* 6(1): 58-82. A pre-publication version is available at <http://www.nd.edu/~rwilliam/gologit2/gologit2.pdf>.

Table 1 Descriptive Statistics

Variables	Mean	Std. Dev.
Dependent variable: support to cruise activity in Messina	3.4410	1.2019
Independent variables:		
Welfare		
w1 Increase in public investment and infrastructure	3.1399	1.2215
w2 Increase in private investment and infrastructure	3.2622	1.1239
w3 Increase jobs opportunities	3.3331	1.2343
Community life		
c1Cruise activity changes actual standard of life	2.2303	1.2495
c2 Increase in disposable income	2.9557	1.1505
c3 Increase quality of life	2.9773	1.1132
Heritage		
h1Enhancement of other cultural and communities knowledge	3.5648	1.1377
h2 Increase in the number of cultural and recreational activities	3.2249	1.0803
h3 Valorisation of local tradition and authenticity	3.4833	1.1278
h4 Conservation and valorisation of the historic patrimony	3.2974	1.1531
Physical capital and services		
cs1 Infrastructure improvement (roads, communication, water pipes, etc).	2.7579	1.2414
cs2 Public services improvements	2.8417	1.1964
cs3 Urban and rural gentrification	3.0328	1.1668
Crowding-out effects		
ce1 Increase costs of living for the local community	2.6667	1.2253
ce2 Cruise activity development has a crowding out effects on other relevant projects	3.2701	1.1989
ce3 Increase traffic and road accidents	2.4464	1.1853
c24 Increase micro-criminality	2.5251	1.2384
Environmental		
e1 Increase deterioration of the eco system (sand erosion, damages to flora and fauna)	2.5612	1.2278
e2 Increase environment and marine pollution	2.8662	1.2614
e3 Increase congestion in public and recreational areas	2.6337	1.2129
e4 Increase waste	2.7955	1.3287
Age = resident's age;	38.7383	23.3259
Ages = the square of resident's age		
Ycroc: dummy, acquires value one if resident's income depends on cruise activity; otherwise zero		
Nfam = number family's components	3.5991	1.3258
Occupation = 8 separate dummies variables are created: ocprim = if the resident belongs to the primary sector (otherwise zero); ocind = if the resident belongs to the industry sector (otherwise zero); ocserv = if the resident belongs to the services sector (otherwise zero); octur = if the resident belongs to the tourism sector (otherwise zero); ocstu = if the resident is a student (otherwise zero); ocret = if the resident is retired (otherwise zero); ocump = if the resident is unemployed (otherwise zero); ocoth = if the resident does not belong to the working force (otherwise zero).		
Croc: dummy that acquires the value one if resident took a cruise trip; otherwise zero		
Kmport: how many km the resident lives from the port	6.9750	11.8871
Kmtour: how many km the resident lives from the most important tourism attractions	7.7745	23.0370

Table 2 Generalized ordered logit results

Variables	Very low vs (low, medium, high, very high)	(Very low, low) vs (medium, high, very high)	(Very low, low, medium) vs (high, very high)	(Very low, low, medium, high) vs (very high)
Welfare				
w1 increase in public infrastructure	1.138 (0.201)	1.242 (0.090)***	1.159 (0.079)**	0.941 (0.088)
w2 Increase in private investment	1.138 (0.201)	1.100 (0.091)	1.197 (0.084)**	1.072 (0.096)
w3 Increase jobs opportunities	1.1016 (0.163)	0.998 (0.075)	0.864 (0.066)**	0.943 (0.084)
w4 Increase in disposable income	0.949 (0.144)	0.833 (0.692)**	0.946 (0.063)	0.929 (0.079)
Physical capital and services				
cs1 Infrastructure improvement (roads, communication, water pipes, etc).	0.975 (0.163)	0.8610 (0.067)**	0.874 (0.064)*	1.020 (0.112)
cs2 Public services improvements	1.264 (0.174)*	1.130 (0.101)	1.180 (0.088)**	1.072 (0.115)
cs3 Urban and rural gentrification	0.913 (0.126)	1.012 (0.088)	1.039 (0.076)	1.315 (0.135)**
Community life				
c1 Cruise activity changes actual standard of life	0.908 (0.121)	0.986 (0.073)	1.127 (0.066)**	1.060 (0.080)
c2 Increase quality of life	1.048 (0.171)	1.205 (0.109)**	1.151 (0.082)**	1.241 (0.116)**
Heritage				
h1 Enhancement of other cultural and communities knowledge				
h2 Increase in the number of cultural and recreational activities	1.127 (0.194)	1.095 (0.090)	1.128 (0.080)*	1.303 (0.126)**
h3 Valorisation of local tradition and authenticity				
h4 Conservation and valorisation of the historic patrimony				
Crowding-out effects				
ce1 Increase costs of living for the local community	0.991 (0.142)	1.027 (0.065)	1.052 (0.057)	0.842 (0.063)**

ce2	Cruise activity development has a crowing out effects on other relevant projects				
ce3	Increase traffic and road accidents	0.958 (0.171)	1.157 (0.101)*	1.059 (0.078)	1.133 (0.117)
c24	Increase micro-criminality				
Environmental					
e1	Increase deterioration of the eco system (sand erosion, damages to flora and fauna)	0.950 (0.132)	0.951 (0.083)	0.872 (0.065)*	0.753 (0.080)**
e2	Increase environment and marine pollution				
e3	Increase congestion in public and recreational areas	1.281 (0.195)	1.120 (0.092)	1.171 (0.082)**	1.245 (0.118)**
e4	Increase waste	0.765 (0.098)**	0.738 (0.053)***	0.736 (0.047)***	0.821 (0.072)**
Gen (Ref. Male)					
		0.936 (0.220)	0.755 (0.111)*	1.087 (0.131)	1.104 (0.171)
Age					
Ages		0.999 (0.0003)*	1.000 (0.0001)	1.000 (0.00003)	0.999 (0.0002)
Ycruis		1.1334 (0.842)	2.115 (0.814)**	1.769 (0.580)*	2.477 (0.844)**
Rycruis		0.692 (0.278)	0.646 (0.144)**	1.028 (0.177)	1.318 (0.278)
Occupation (ref. Primary sector)					
Ocind		-			
Ocserv					
Octou					
Ocstu		2.857 (1.516)**	1.221 (0.372)	1.709 (0.426) **	1.325 (0.435)
Ocret		1.668 (0.834)	0.6236 (1.181)*	0.904 (0.226)	0.914 (0.294)
Ocamp		4.274 (2.655)**	1.098 (0.368)	0.945 (0.257)	0.875 (0.320)
Ocoth					
Nfam		1.116 (0.105)	1.061 (0.065)	1.157 (0.058)***	1.149 (0.073)**
Cruis		1.673 (0.503)*	1.836 (0.293)***	2.044 (0.255)***	1.789 (0.280)***
Kmport		0.983 (0.008)**	0.993 (0.116)	0.997 (0.011)	0.986 (0.013)
Kmtour					

Notes: standard errors in parenthesis; *, **, *** 10%, 5% and 1% level of significance. In bold only statistically significance coefficients.

Please note:

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