TOURISM SERVICES AND MARITIME CONNECTIVITY: THE CASE OF CÁDIZ-HUELVA AND ITS RESIDENT POPULATION'S DEMAND

Alfonso Vargas-Sánchez
University of Huelva (Spain)
Email: vargas@uhu.es
Corresponding author

Juan José Albendín-Moya
University of Huelva (Spain)
Email: albendin@uhu.es

José Ruiz Chico
University of Cádiz (Spain)
Email: jose.ruizchico@uca.es

Sebastián Sotomayor González
University of Cádiz (Spain)
Email: sebastian.sotomayor@gm.uca.es

Extended Abstract

***Purpose of the paper**: This research is part of a project, named 'Espomar', whose aim is the design of a Sustainable and Transboundary Maritime Transport System to connect the Algarve region (in Portugal) and the provinces of Huelva and Cádiz (in Spain). However, the present research limits its scope to the Cádiz-Huelva connection and the potential demand from its resident population.*

The current paper is focused on the project's first activity (i.e. demand study and analysis) and the resident population in Cádiz and Huelva provinces. This paper is thus a synthesis of reports on these two territories, covering the possible creation of a maritime passenger transport line between them.

This study sought to explore the potential demand for a Cádiz-Huelva line (under the existing circumstances when it was performed, which could have been affected by the unexpected covid-19 pandemic and the uncertainty about the new scenario post-coronavirus) as part of the Espomar project's initial phase, which will end with an assessment of the transport line's feasibility and economic impacts. The line's potential users are the resident population in the respective areas and floating population of tourists. The provinces under study are significant tourism destinations, particularly along the coast, where most of the resident population is also concentrated. This part of Espomar project covered both sources of demand, but this paper's scope is limited to the resident community.

This research, of quantitative character, had two types of aims:

**Firstly, to estimate the resident population demand and its temporal distribution (i.e. holiday periods versus the rest of the year).*

**Secondly, to characterise the demand profile through variables such as travel motivation, time preference, type of travel, single ticket price, journey duration and preferred arrival and departure ports.*

The increased importance of maritime connectivity to regional economic integration is widely recognised worldwide because this connectivity can generate economies of scale. The relevant literature includes extremely positive assessments, among which stands out Trace et al. (2009: 2) observation that 'improving connectivity, especially through transport links, is an essential condition for economic growth'. Cross-border maritime links help the authorities to develop more effective policies and regulatory infrastructure for the goods and services trade (Tamura, 2016). In this sense, the referred project has sought to emphasise the benefits to recreational, leisure and tourism services in local communities and the related added value for supply chains. In addition, according to Tamura (2016), maritime connectivity must be based on mutual infrastructure development, which Espomar has included as an assumption in analyses of Cádiz, Huelva and the Algarve.

Sea connectivity can also be a strategic way to apply the principles of self-dependence, self-governance and self-financing and, as a policy, maritime transport supports commitments to regional sustainable development and competitiveness. An example of good practices is found in Cottam et al. (2007: 198), where, with regard to the impact of maritime passenger transport on Croatian tourism development, they report that, 'expansion of domestic and foreign networks, diversification of markets, development of maritime infrastructure, and the integration of maritime transport with national and regional development strategies are some of the key tasks that are currently being undertaken.' The Interreg programme and the Espomar project have updated and specifically incorporated this multi-dimensional approach.

Analysing sea connectivity's potential requires an examination of demand for coastal passenger shipping and its link with tourism transport needs. According to Alexopoulos and Theotokas (2000: 5) the market for these maritime services 'can be considered a derived demand'. Namely, the need for coastal shipping transport can vary according to the demand for basic transport that produces these services. The seasonality effect implied by this perspective constitutes a key argument for considering local communities' recreational, leisure and tourism opportunities as part of any maritime connectivity demand analysis.

However, when the focus is on residents or visitors, Alexopoulos and Theotokas (2000: 5) argue that 'the characteristics of the transport system can … [all other things being equal] affect the level of demand', which supports that characteristics such as itineraries' schedules and other attributes of maritime transport had to be included in the current research.

Lopes and Dredge (2017) also reveal a range of local conditions and structural characteristics that create barriers and opportunities for generating different types of values linked to shore excursions that maritime connections such as the explored in this study could generate.

Furthermore, Santos et al. (2019) focus the necessity to deliver bridging between maritime transport and inshore tourism activities (public/private) as critical factor to guarantee the contribution to sustainability of destinations, linking maritime operators with the local business and infrastructures.

Finally, as a base parameter that remains current, Trace et al. (2009: 32) suggest that, 'before setting a definite timeline for implementing policy measures designed to enhance regional maritime connectivity, the interrelatedness of such measure[s] have to be thoroughly understood'.

***Methodology**: Primary data were gathered in both Spanish provinces (Huelva and Cádiz) to ensure statistical representativeness.*

To achieve the abovementioned aims, initial exploratory research based on secondary sources was conducted to understand the factors that influence consumer behaviour in the areas under study. The review of papers published on residents' perceptions and attitudes in both geographical areas, including its influence on the competitiveness of the destinations and

targeting win-win relations between the port and the inland territory´s activities (Vargas-Sánchez & Riquel-Ligero, 2020; Vargas-Sánchez et al., 2015; Vargas-Sánchez et al., 2014; Vargas-Sánchez et al., 2011; Perna et al., 2018), together with some reports issued by consultancy companies about the maritime connection between them, were used as sources for variables identification and questionnaire design. Nevertheless, to this respect, it is relevant to bear in mind that the framework established by Espomar project's aims decisively conditioned the content of this research, of a descriptive nature and focused on residents' opinions.
The population was defined from which the data would be collected. The study universe or target population was limited to individuals living in areas within municipalities at a distance by road of no more than half an hour from both areas' sea coast. Within these parameters, residents over the age of 18 were considered potential informants.
The sample size has the characteristics displayed in Table 1 (appendix). A sample of 400 residents was considered the optimal size. Due to budget and time constraints, the number of separate surveys to be conducted had to be reduced since initially that the maximum level of error allowed was expected to be lower. Although the findings were based on data collected in person-to-person surveys conducted with the two samples of 400 residents, an online survey was also carried out in both provinces at the same time as the in-person survey to provide further corroboration of the results from a larger number of observations.
The total sample's elements were distributed to achieve proportional sampling by municipalities. The distribution was based on their number of inhabitants and distribution by gender and age.
The measurement instrument was structured as shown in Table 2 (appendix).
The person-to person survey was carried out, in January-February 2018, in various strategic locations of the selected municipalities to obtain the diverse profiles required.

***Main Findings**: Although residents show a predisposition to travelling at any time of the year, the responses collected suggest that this service should be offered in the summer months. Departures should be limited in winter – if offered at all – to weekends or dates coinciding with specific events and festivities.*
A synthesis of other qualitative variables contemplated in the present study are listed in Table 3 (appendix), with a comparison of the results obtained in both provinces.
A viability analysis of a maritime passenger transport line between Cádiz and Huelva necessarily has to include research on potential demand among the resident population. This evaluation had to be both quantitative, including the seasonal distribution of demand, and qualitative, characterising potential clients' profile. To obtain the required data to make estimations, a series of calculations were made following the sequence below:
**Phase 1: Based on quantifications of the reference population, the existing potential market (i.e. number of residents) was estimated by considering both the percentage of this population travelling between the two destinations and the percentage willing to do this by boat.*
**Phase 2: Based on this potential market, intention to travel was calculated by applying first the annual frequency (i.e. number of times) with which individuals travel between the two destinations and a correction factor related to the crossing of price and duration.*
**Phase 3: To estimate the final demand, a correction factor was applied to the results obtained in the previous phase for intention to travel in order to get a closer estimate of residents' actual purchase behaviour (i.e. travelling by boat, in this case) because prior research has shown that not everyone who expresses an intention to travel will actually do so.*
Table 4 (in the appendix) summarises all the calculations and their results, which allowed conclusions to be drawn about the different consumer behaviours expected in both border

areas. Specifically, differences in residents' behaviours in the two areas in question are made apparent by the following findings:
**While the percentage of the respective populations willing to travel by boat is similar and very high (over 90%) in both provinces, Cadiz residents show a significantly lower percentage of people travelling to Huelva than vice versa.*
**Likewise, the frequency with which Cádiz residents travel to Huelva province is significantly lower than what Huelva residents report regarding trips to the neighbouring province.*
**In Huelva province residents are more sensitive to the factor compose by the crossing of price and duration than Cádiz residents are. The same occurs regarding the second correction factor linked to intention to travel and comfort depending on wind and sea conditions, although in this case the difference is much smaller.*
**While Huelva residents' demand would have a relatively stable distribution throughout the year, Cádiz residents' demand is significantly concentrated in the holiday period.*
As the above results show, the distribution of demand between both periods is almost the opposite in the two areas. Huelva residents' estimated daily demand is even slightly higher outside the summer vacation period. Conversely, the residents in Cádiz show an extremely clear preference for travelling to Huelva for summer holidays, which undoubtedly will be an important factor to take into account when the possibility of commercially exploiting this line is considered. Nonetheless, this demand must be adjusted to reflect the extent that weather conditions other than wind speed and the configuration of the transport services offered may fall short of consumers' expectations and thus could make the boat trip less attractive.
The greater aggregated demand during the holiday period in combination with the predominant leisure motivation and appeal of potential tourism packages suggests that the summer months as the most suitable time of year for any future implementation of the planned maritime line. Those who organise the plan's execution must also consider the competition from land transport (see the consumer profiles summarised in Table 3, in the appendix) and carefully select the right departure and arrival ports. The latter locations (ports) must consider tourism flows since the viability of this maritime connection will depend on its ability to attract tourists as an additional, and essential, source of demand.

***Practical implications**: The proposed maritime line needs to be defined and marketed as part of leisure activities, particularly during vacation periods.*
The proposed passenger shipping line between the provinces of Cádiz and Huelva is part of a strategic effort to improve cohesion within the Andalusia region. This study's results support the conclusion that this project could successfully avoid most of the limitations identified in the literature review. Nevertheless, the two major restrictions on the transport line's feasibility remain the large investment needed to start the ferry service, which was not considered in the present analysis, and the greater and immediate direct private financial benefits expected from other means of transport, particularly road vehicles. On the contrary, this project requires neither changes in laws, customs or practices nor large investments in upgrading infrastructure or actual port facilities to allow passengers to board and disembark from ferries in Cádiz and Huelva ports. In addition, regional, national and European stakeholders already have a comprehensive understanding of policies and measures designed to enhance regional maritime connectivity.
Finally, due to the approach of this research, mainly focused on the gathering of primary data on the demand side in two specific areas to support the whole Espomar project and back future public policies and decisions, the applied research prevails over the basic/pure search of theoretical implications on the consumer (resident) behaviour related to a particular maritime connection. The paper lacks this latter kind of orientation, which can be considered a limitation,

although, at the same time, it is an opportunity for further discussions and future publications aimed in this way, nowadays (in the post-pandemic scenario) even more necessary due to the possible change in perspectives and decision criteria of the consumers when facing travel decisions.

***Originality/value**: Espomar is an innovative example of applied research on maritime connectivity and tourism development. The regions involved share a set of ports situated in close geographical vicinity, which could reinforce territorial contiguity far beyond the current road transport. The project seeks to examine the ports' capacity for still unexplored potential maritime transport lines. Espomar focuses on exploiting opportunities – but only in passenger shipping – to develop short sea ferry operations.*
The neighbouring provinces of Huelva and Cádiz lack sea links even though these destinations share the South Atlantic coast of Spain. To the best of our knowledge, this is the first study focused on their resident populations to assess the potential demand for this sea service.

***Type of paper**: Empirical research*

***Keywords**: Sea Connectivity, Cádiz, Huelva, Resident Demand, Resident Behaviour.*

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Appendix

Table 1: Sample definition

Characteristics [a]	***Huelva Province***	***Cádiz Province***
Total population	*519,596*	*1.239,435*
Population over 18 years old	*410,461*	*970,734*
Residents of legal age (>18 years old) in selected municipalities [b]	*351,926*	*560,304*
Optimal sample size	*400*	*400*
Margin of error	*0.05*	*0.05*
Level of confidence	*95.5%*	*95.5%*
Variance	*0.25*	*0.25*
Fieldwork [c]	*January–February 2018*	*January–February 2018*

Notes: a Simple random sample. b Those at a drive not exceeding half an hour from the sea coast; c Survey method was in-person interviews on the street.

Source: Authors

Table 2: Questionnaire structure*

Sections	***Variables***
1. Trips	*Frequency; main motivation; time period; number of people*
2. Willingness to travel by boat	*Predisposition; frequency; main motivation; time period*
3. Conditions (by relative importance)	*Distance to departure harbour; weather; price; travel time; distance from harbour of arrival*
4. Distance to/from front door	*Time to harbour of departure/time from harbour of arrival*
5. Price	*Maximum price of single ticket*

6. Travel time	*Maximum time for basic transport service; maximum time for recreational-tourist service*
7. Destination	*Preferred harbour; attraction of tourist package including boat transfer; more attractive tourist products*
8. Respondent profile	*Gender; age; municipality of residence; education; employment status*

*Notes: * Questions were usually closed and single choice (i.e. dichotomous and polynomial); responses were given on non-comparative scales, both nominal and numerical.*

Source: Authors

Table 3: Profiles of future Huelva-Cádiz/Cádiz-Huelva maritime line

Variable	***Huelva***	***Cádiz***
Motivation (a)	*Leisure*	*Leisure*
Time preference (single)	*In morning*	*In morning*
Type of travel	*Families and/or groups*	*Families and/or groups*
Single ticket price (basic transport service)	*No more than €30 (similar to buses*)*	*No more than €30 (similar to buses*)*
Duration of crossing (basic transport service)	*2 hours maximum*	*2 hours maximum*
Duration of crossing (recreational-tourist service)	*3 hours maximum*	*3 hours maximum*
Preferred departure port	*Huelva (Muelle de Levante)*	*Cádiz*
Preferred arrival port	*Cádiz***	*Huelva*
Appeal of potential tour packages created around boat trip	*Very high*	*Very high*

Notes:
(a) The sun-beach, gastronomy-wine and culture-landscape highlight as main motivations.
** €20–22; **The connection with Sanlúcar de Barrameda (province of Cádiz) could also be explored, particularly from Matalascañas (province of Huelva), for which there has been a project since 2006.*

Source: Authors

Table 4: Process followed in estimating demand (number of people)

Phases	***Huelva***	***Cádiz***	***Total***
1. Reference population	*351,926*	*560,304*	*912,230*
1.1 Percentage travelling to destination	*x 0.61*	*x 0.4675*	*–*
1.2 Percentage willing to travel by boat	*x 0.901*	*x 0.9775*	*–*
2. Potential market	*= 193,422*	*= 256,048*	*449,470*
2.1 Annual frequency	*x 2.71*	*x 2.03*	*–*
2.2 Correction factor (price and duration)	*x 0.3214*	*x 0.4925*	*–*
3.Travel intention	*= 168.470*	*= 255.990*	*424,460*
3.1 Correction factor (intention and comfort)	*x 0.6179**	*x 0.6533**	*–*
4. Total estimated demand (annual)	*= 104,100[a]*	*= 167,237[b]*	*271,337*
4.1.1. Total estimated demand (holiday period)	*24,142[c]*	*103,532[d]*	*127,674*
4.1.2. Estimated daily demand (holiday period, 100 days)	*241*	*1,035*	*1,276*
4.2.1. Total estimated demand (rest of year)	*79,958[e]*	*63,705[f]*	*143,663*
4.2.2. Estimated daily demand (rest of year, 260 days)	*307*	*245*	*552*

*Notes: * Average for entire year calculated ex-post; a 34.873 x 0.6923 + 133.597 x 0.5985; b 149.549 x 0.6923 + 106.441 x 0.5985; c 34.873 x 0.6923; d 149.549 x 0.6923; e 133.597 x 0.5985; f 106.441 x 0.5985.*

Source: Authors

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