

## Can five sun-and-sand Sardinian destinations host longer visits?

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### Abstract

This work studies the determinants of the length of stay for different categories of tourists who visit five destinations in Southern Sardinia. For this purpose, primary data were collected during the summer season 2019. The full sample is analysed first, then the study proceeds with sub-samples comparing seniors with young, women with men, and Italians with foreigners. All estimates are performed using ordinary least squares and zero truncated negative binomial estimators. At the whole-sample level, the results align with the existing literature, with only a few exceptions regarding some destination-specific variables. At the sub-sample level, interesting differences emerge between groups. Therefore, the subsample analysis turns essential to get clearer insights on the determinants of the length of stay, which has important implications for tourism scholars, destination marketing organizations, and local development authorities.

**Keywords:** Length of stay, Market segmentation, Sardinia Island, Zero Truncated Negative Binomial

**Citation:** Massidda, C. and Piras, R. (2023). Can five sun-and-sand Sardinian destinations host longer visits? *European Journal of Tourism Research*, 35, 3509. <https://doi.org/10.54055/ejtr.v35i.3088>.



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## 1. Introduction

Over the last few decades, international tourism flows have faced an intense process of globalisation, together with the appearance of new destinations and a strong diversification of tourists' preferences. These phenomena have raised the competition and asked destinations to innovate their tourism products and look for new markets. Meanwhile, the issue of sustainability has reached the core of the international debate. In such a dynamic context, destinations are looking for new strategies to maximise the economic benefits of tourism without depleting the environment (Barro & Machado, 2010; Gemar *et al.*, 2022). Following this perspective, many destinations, instead of maximising arrivals, could consider keeping constant or even reducing the number of tourists and attracting visitors who prefer longer stays. The main reason is that longer holidays are more sustainable (Gossling *et al.*, 2018) and positively associated with total spending (Thrane & Farstad, 2011). Moreover, with more extended stays, the economic benefits spread over a wider region and involve more activities (Gossling, 2016).

However, international trends confirm a preference for shorter holidays, making it for destinations necessary to attract more and more tourists to maintain their revenues (Aguilar & Diaz, 2019). In this context, identifying factors that can lengthen (or moderate) the stay becomes of particular importance because it allows destinations to diversify their supply, adapt their tourism products to the preferences of tourists, and exploit those factors that push to longer holidays (Martinez-Garcia & Raya, 2008).

It is no coincidence, therefore, that a growing literature studies the determinants of the length of stay (LoS) (for recent surveys, see Atsiz *et al.*, 2022, and Oklevik *et al.*, 2021). A common feature that emerges from the numerous studies is that, while the effect of some variables is consolidated, for many of them, solid empirical regularities are not easy to find (Thrane, 2016). A typical example is distance. For some destinations, this variable has a positive effect on LoS (Yang *et al.*, 2011; Nicolau *et al.*, 2018), while for others, its impact is negative (Bavik *et al.*, 2021). The evidence regarding education is also inconclusive. There are studies in which higher education leads to shorter stays (Santos *et al.*, 2015), whereas others find the opposite (Ferrer-Rosell *et al.*, 2014). Conversely, results seem robust across studies for some determinants, such as income, age, and party size. Generally, higher income and age increase the LoS, while the group size is found to shorten the holiday's length.

This high degree of variability across studies places severe limits on the generalisation of the results and, at the same time, calls for new destination-specific studies to integrate the existing literature. From this point of view, an issue that deserves more attention concerns market segmentation. While some studies focus on a specific market segment (i.e., tourist categories), such as senior tourists (Alen *et al.*, 2014; Campolo *et al.*, 2022), the literature lacks studies on LoS that compare the different categories of tourists to grasp information on their needs and tailor specific products and services (Jeong *et al.*, 2018). This evidence is quite surprising since the body of literature analysing segmentation based on satisfaction, spending, motivation, and the like is large (Jackman & Naitram, 2023). Market segmentation can be based on socio-demographic, behavioural, and psychographic variables. According to Dolnicar (2008), tourists are heterogeneous, and market segmentation helps hotels, travel agencies, tourist attractions, restaurants, and local development agencies to specialise in the specific needs of a particular tourist category. She highlights that, through segmentation, tourist destinations gain several advantages, including reduced competition in the global markets and a marketing strategy focused on that particular market segment.

The present study aims at filling this gap by investigating the determinants of the LoS for different categories of tourists. The full sample is analysed first, then the study proceeds with sub-samples comparing seniors with young, women with men, and Italians with foreigners. For this purpose, primary data were collected for five sun-and-sand tourist destinations in southern Sardinia (Italy), namely

Cagliari, Domus de Maria, Muravera, Pula, and Villasimius. Thus, it is the first time that research on this subject focuses on this specific geographic area, and to the best of our knowledge, it is one of the handfuls of studies on LoS that use Italian data. Noteworthy exceptions are Salmasi *et al.* (2012), Brida *et al.* (2013), Mortazavi & Cialani (2017), and Campolo *et al.* (2022). Salmasi *et al.* (2012) analyse which and to what extent income and price have contributed to reducing the LoS in Italy from 2002 to 2008. Brida *et al.* (2013) examine the determinants that influence the time spent by visitors in the South Tyrol's Museum of Archaeology in Bolzano between June and August 2010. Mortazavi & Cialani (2017) study the factors influencing international tourists' LoS in Venice. Campolo *et al.* (2022) investigate the determinants of LoS of senior Italian tourists in 2019.

The proposed empirical model considers the LoS as the dependent variable and a set of regressors taken from the prevailing literature discussed in the following section and partially linked to the specific characteristics of the analysed area. Among the more traditional variables, the analysis considers income, employment status, age, nationality, expenditure per overnight stay, repeat visit, accommodation type, distance, and travel party. Among the specific variables of the tourist area, there are beach facilities, accessibility, historical interest, and scenery. The empirical model is first estimated for the total sample of tourists and then for the three sub-samples. All estimates are performed using ordinary least squares (OLS) and zero truncated negative binomial (ZTNB) estimators.

Given the paucity of disaggregated analysis, the lack of studies on the chosen destinations, and the originality of the dataset, this paper gives a new contribution to the LoS literature and provides decision-makers with valuable insights and helpful suggestions. By splitting the sample into more homogeneous sub-samples, more precise results about the LoS determinants can be obtained, which bear important implications for tourism scholars, destination marketing organisations, local development authorities, and the like.

The paper is articulated as follows. The next section reviews the relevant literature and sets up our research hypothesis. Then, section 3 describes the methodology. The empirical results are presented and discussed in section 4. Finally, section 5 concludes and highlights the main theoretical and managerial implications.

## **2. Literature review and research hypotheses**

### *2.1 Length of Stay concept and its relevance for sustainable destinations*

The variable LoS corresponds to the number of nights visitors spend at the destination relative to total arrivals. It is one of the significant decisions visitors make during their decision-making process and, simultaneously, a key parameter for destination managers. The main reason LoS is crucial for managing tourist destinations is correlated to this parameter's recognised important social, economic, and environmental implications. Many studies argue that longer holidays are more sustainable for host destinations.

First, more extended stays can decrease overall transport-related emissions and reduce the intensity of the demand for extensive transport infrastructure (Gossling *et al.*, 2018). Moreover, when tourists stay longer, the intensity of the interaction with local communities and commercial activities may be lightened (Oklevik *et al.*, 2019). At the same time, longer stays increase the possibility of creating a close interaction between tourists and the local population. Consequently, mutual empathy can rise, and cultural exchange is enriched.

From an economic point of view, the benefits of longer holidays have more chance to spread throughout the region as tourists have the time to visit more attractions (not only primary but also secondary

attractions) and engage in more activities than those who stay for shorter periods (Barros & Machado, 2010; Oklevik *et al.*, 2019; Martínez-García & Raya, 2008). In this regard, it is also relevant that tourists may need more transportation-related activities to extend their area of interest. Although potentially harmful to the relationship between tourists and residents, this fact has the advantage of stimulating the need for additional services, thus extending the economic benefits of tourism to a broader range of commercial activities. For specific sectors such as hospitality, longer holidays contribute to maintaining high occupation rates, contrasting the negative impact of seasonality, and, above all, reducing operational costs (Barros & Machado, 2010; Peypoch *et al.*, 2012; Gossling *et al.*, 2016). Moreover, there is a consensus that, although average daily spending tends to decrease with longer holidays, total spending is positively correlated with LoS (Thrane & Farstad, 2011).

According to several scholars (see, among others, Dolnicar, 2014; Oklevik *et al.*, 2019; Gossling *et al.*, 2016), the potential overall benefits of more extended stays (environmental, social, and economic) offer an additional perspective for destination management strategies. Instead of maximizing the number of arrivals, managers might prefer attracting tourists more interested in longer holidays. This strategy requires identifying specific segments of the origin markets to isolate those factors influencing tourists in their choice of visit period to adapt the tourism product to the preferred time frame (Martínez-García & Raya, 2008; Gossling *et al.*, 2016).

## 2.2 *The determinants of Length of Stay*

For the reasons discussed above, the interest in the determinants of LoS has been growing among researchers and practitioners. As a result, nowadays, a wide range of studies on LoS determinants is available, covering different types of destinations (mass and sun-and-sand tourism, cultural tourism, sports tourism), different categories of tourists (young, seniors, students), and different methodological approaches (cf. Oklevik *et al.*, 2021, and Atsiz *et al.*, 2022, for recent surveys). The general panorama shows a broad set of variables influencing the LoS. The most frequently used can be classified into five general categories: economic constraints; socio-demographic characteristics of visitors; trip characteristics; the decision-making process; destination characteristics, and tourists' perception. The combination of these different determinants varies across studies depending on the primary purpose of the research, and it is not rare that the same variable shows up with opposite effects. Therefore, the general conclusion is that for many determinants, it is not possible to specify a theoretically informed hypothesis regarding how they can either shorten or prolong tourists' LoS (Thrane, 2016).

Below, the role of some of the most used explicative variables belonging to the five categories proposed in the present paper will be discussed. The aim is to outline the prevailing evidence to compare with the present research work and derive the hypotheses to be tested.

### 2.2.1 *Economic constraints*

For the category of economic constraints, the most frequently used variable is income. Generally, income is positively related to the LoS (Fleischer & Pizam, 2002; Gokovali *et al.*, 2007; Peypoch *et al.*, 2012; Salmasi *et al.*, 2012; Wang *et al.*, 2012; Ferrer-Rosell *et al.*, 2014; Grigolon *et al.*, 2014). Only exceptionally an inverse relationship is highlighted. This is the case for the contribution of Soler *et al.* (2018), which focused on the Province of Malaga (Spain). The research authors do not explain this result but only underline that it is "*in general, contrary to the literature, which reports a positive relationship between income and LOS*" (p. 56). It is also exceptional to find no statistical significance for the variable income (see, for example, Santos *et al.*, 2015). Therefore, the first hypothesis proposed is:

**H1.** *There is a positive relationship between tourists' income and the LoS.*

### 2.2.2 Socio-demographic characteristics of visitors

Age, education, gender, and nationality are used to capture socio-demographic characteristics. Most of the literature suggests a positive relationship between age and LoS. Older tourists, especially those over 65, opt for more extended stays than younger tourists (Fleischer & Pizam, 2002; Barros *et al.*, 2008; Santos *et al.*, 2015; Soler *et al.*, 2018). This regularity notwithstanding, it is not rare to find examples with opposite results (Almeida *et al.*, 2021). Concerning age, the literature lacks studies focusing on the differences between senior and young tourists. More often, analyses only focus on the group of seniors (Campolo *et al.*, 2022; Alén *et al.*, 2014; Fleischer & Pizam, 2002).

The role of education is also not definite. As for the former, there are studies in which higher education leads to shorter stays (Gokovaly *et al.*, 2007; Martinez-Garcia & Raya, 2008; Menezes *et al.*, 2008; Santos *et al.*, 2015), whereas in others, the opposite is found (Barros *et al.*, 2010; Barros & Machado, 2010; Ferrer-Rosell *et al.*, 2014; Peypoch *et al.*, 2012).

As for the role of gender on the LoS, the literature does not display solid empirical regularities (Thrane, 2016). There exist studies showing men have more extended visits than women (Barros & Machado, 2010; Thrane, 2015; Peypoch *et al.*, 2012; Meng & Uysal, 2008), and others finding the opposite (Thrane, 2016; Ferrer-Rosell *et al.*, 2014; Salmasi *et al.*, 2012; Santos *et al.*, 2015). Menezes *et al.* (2008), Wang *et al.* (2012), and Alén *et al.* (2014) find no gender effect. Also with respect to gender, there is a gap of evidence on possible different responses of women and men to variation incurred in the LoS determinants.

The impact of nationality is even more difficult to summarise because the role of origin countries dramatically changes depending on the investigated destination., i.e. sun-and-sand, islands, mountains, lakes, and golf destinations. Russians and Germans generally stay longer, while the British tend to have shorter holidays. Some examples are worth mentioning. Russian tourists tend to have longer stays in Turkey (Gokovaly *et al.*, 2007), Germans in Spain (Alegre *et al.*, 2011), German, Scandinavian, and French in Portugal (Barros & Machado, 2010; Barro *et al.*, 2010), Danish, British, Dutch, German, and other Europeans in Norway (Thrane & Farstad, 2012a, 2012b). Conversely, the British tend to have shorter stays in Turkey (Gokovaly *et al.*, 2007), Spain (Martinez-Garcia & Raya, 2008), and Portugal (Barros & Machado, 2010). In this context, surprisingly, the literature lacks studies investigating on possible different responses of domestic and international tourists to the LoS determinants.

From the above discussion, the following hypotheses are proposed:

- H2a.** *There is a positive relationship between age and the LoS;*
- H2b.** *Young and senior tourists show different responses to LoS determinants;*
- H3.** *There is a negative relationship between education and the LoS;*
- H4.** *Women and men show different responses to LoS determinants;*
- H5a.** *Nationality determines the LoS.*
- H5b.** *Domestic and foreign tourists show different responses to LoS determinants.*

### 2.2.3 Trip characteristics

Regarding trip characteristics, the literature very often considers the type of accommodation, distance, and travel party. As for accommodation type, a positive relationship between the cheapest accommodations (tourism apartments, camping sites, country houses/lodges, rented houses, second houses or homes of friends and family) and more extended stays is firmly accepted, with second homes showing the most significant impact (Alegre *et al.*, 2011; Alegre & Pou, 2006; Martinez-Garcia & Raya, 2008; Soler *et al.*, 2018). Conversely, a negative relationship exists between the LoS and staying at hotels (Santos *et al.*, 2015; Mortazavi & Cialani, 2017). The evidence regarding the quality of hotels is still being

determined. Alegre & Pou (2006) find that higher-quality hotels are associated with longer stays, whereas the opposite is found by Ferrer-Rosell *et al.* (2014) and Martinez-Garcia & Raya (2008). Again, the literature provides opposite results when it comes to distance, although the positive sign seems to prevail. Some authors find that long-distance tourists stay longer (Yang *et al.*, 2011; Nicolau *et al.*, 2018). The explanation might be that faraway travelling becomes attractive for tourists willing to visit destinations quite different from their usual residences. Other scholars find the opposite (Bavik *et al.*, 2021), meaning that distance can be a dissuasive variable of destination choice, as the movement from origin to destination requires physical, temporal, and financial effort (Bavik *et al.*, 2021). The travel party is another crucial determinant of the LoS. In this regard, the literature offers different variables to capture the influence of the group dimension. Generally, travelling in a group is found to shorten the holiday (Soler *et al.*, 2020), and the larger the group, the shorter the holiday (Kruger & Saayman, 2014). Less empirical evidence exists on the relationship between the LoS and the composition of groups, such as family, friends, business partners, and other organised groups. For instance, Wang *et al.* (2018) find that families travelling to Macao tend to spend more time with respect to other groups, while Menezes *et al.* (2008) find that the LoS is longer for the group of adults or business partners going to the Azores. Regarding the role of trip characteristics, the following hypotheses can be formulated:

**H6.** *There is a negative relationship between hospitality expensiveness and the LoS;*

**H7.** *There is a positive relationship between distance and the LoS;*

**H8.** *Travelling with families increases the LoS.*

#### 2.2.4 *The decision-making process*

As for the category of variables regarding the decision-making process, tourism expenditure and repeat visits are customarily considered. As written above, the interest in the LoS mainly originates from its positive relationship with total expenditure. Tourists tend to increase their expenditure each additional night, regardless of how long the trip is (Wang *et al.*, 2018; Alegre *et al.*, 2011; Alegre & Pou, 2006; Machado, 2010; Peypoch *et al.*, 2012). Conversely, shorter stays are associated with higher daily per capita expenditures (Alegre *et al.*, 2011; Alegre & Pou, 2006; Thrane & Farstad, 2011, 2012a, 2012b). Repeat visits are among the most frequently considered determinants of the LoS. In this case, the empirical evidence is quite unanimous in finding that having previous experiences and familiarity with the same destination exerts a positive effect on the LoS (Almeida *et al.*, 2021; Mortazavi & Cialani, 2017; Lehto *et al.*, 2004; Alegre & Pou, 2006; Menezes *et al.*, 2008; Barros & Machado, 2010; Alegre *et al.*, 2011; Wang *et al.*, 2012; Wang *et al.*, 2018). Repeat visitors are willing to participate in local social life and activities requiring more extended stays. However, there are destinations where first-time visitors show a more pronounced novelty-seeking attitude, spending longer time exploring new places and events (Xie *et al.*, 2012; Thrane, 2012; de Menezes *et al.*, 2008).

Regarding the role of variables related to the decision-making process, the following hypotheses can be proposed:

**H9.** *There is a negative relationship between daily per capita expenditure and the LoS;*

**H10.** *There is a positive relationship between repeat visits and the LoS.*

#### 2.2.5 *Destination characteristics and tourists' perceptions*

The fifth group of determinants includes destination characteristics and tourists' perceptions. A vast and heterogeneous group of variables can be included in this category with an emphasis that changes according to the destination type. In general, the literature agrees that the destination influences the LoS attributes, actual and perceived (Atsiz, 2022; Alegre & Pou, 2006; Barros *et al.*, 2010; Gokovali *et al.*, 2007; Alen *et al.*, 2014; Peypoch *et al.*, 2012; Yang *et al.*, 2011; Bavik *et al.*, 2021). However, studies often

deal with distinctive characteristics of a specific destination making it challenging to generalise the results and their implications. Some regularities seem to emerge regarding the positive impact of natural and cultural attractions (Peypoch *et al.*, 2012; Barros *et al.*, 2008), historical attributes (Atsis *et al.*, 2022), accessibility and ease of transport (Alén *et al.*, 2014). In the case of sun-and-sand destinations, beaches and beach facilities (Barro *et al.*, 2010; Oklevik *et al.*, 2021; Bavik *et al.*, 2021) are also very important.

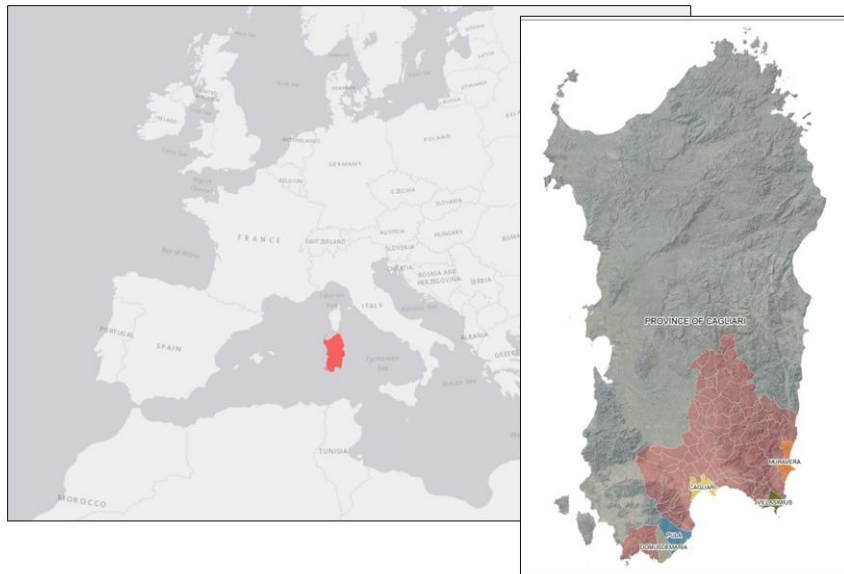
Regarding destination characteristics, the last hypothesis proposed is:

**H11.** *There is a positive relationship between destination-specific characteristics and the LoS.*

### 3. Methodology

#### 3.1 Sampling

The present research aims to study the main determinants of the LoS in five tourism destinations of South Sardinia: Cagliari, Domus de Maria, Pula, Muravera, and Villasimius (Figure 1). The analysis is based on primary data collected through questionnaires distributed among tourists in the summer season from 1 May to 30 September 2019.<sup>1</sup> The survey method follows a proportionate stratified sampling, the strata being nationality (Italians and foreigners), destinations, and months. As it is well-known, this sampling technique is convenient in cases where the reference population has diverse subgroups, and the researcher wants to include all of them in the sample. The questionnaires were collected in the field, mainly at beaches and tourist information centres, and made available in Italian and English. The interviewees were informed about the purpose of the study, and their participation was voluntary. Overall, 641 questionnaires were completed. After cleaning the data from incomplete or otherwise unusable answers, 423 were retained to analyse the determinants of the LoS.



Source: Authors' elaboration from ArcGis online database

**Figure 1.** *Detailed location of the five Sardinian destinations*

#### 3.2 Model specification and descriptive statistics

The theoretical model to be estimated is specified as follows:

$$LoS_i = f(EC_i, SD_i, DM_i, TR_i, DC_i)$$

where  $LoS_i$  is the length of stay of individual  $i$ , and the explanatory variables are classified as economic constraints ( $EC_i$ ), socio-demographic ( $SD_i$ ), decision-making ( $DM_i$ ), trip-related ( $TR_i$ ), and destination characteristics ( $DC_i$ ).  $EC_i$  variables are subsumed by income per year before tax;  $SD_i$  variables include education, age, and six country dummies for France, Germany, the UK, Italy, Russia, and Switzerland; among  $DM_i$  variables, there are daily per capita expenditure and repeated visits; distance, accommodation type, and visits' party represent the  $TR_i$  variables; finally, the four area characteristics are beach facilities, accessibility, historical interest, and scenery.

The dependent variable,  $LoS_i$ , has a mean value of 12.41 days, with a median value of 7, a minimum of 1, and a maximum of 180 (see Table 1 for the descriptive statistics of all the variables used in the analysis). Turning to the explanatory variables,<sup>2</sup> as said above, gross annual income is considered representative of the economic variables. In the questionnaire, respondents were asked to indicate their income bracket among the three proposals. Income below 30 thousand euros is considered low and taken as a reference category in the regressions. Income values between 30 thousand and 60 thousand are classified as medium-income, and values higher than 60 thousand euros are coded as high-income. The percentage distribution of responses reveals the highest concentration in the middle range (38.98%), followed by the high one (29.47%) and the low one (19.03%), while 12.53% did not respond.

The socio-demographic variables included in the model are the level of education and age. Almost half of the interviewees (48.96%) have an upper-secondary school qualification, 31.55% hold a tertiary or post-tertiary school degree, and about 20% have a primary school education level which represents the reference level. Age groups are four: 15-24 (6.5% of the sample), 25-49 (48.72%), 50-64 (32.02%), and over 64 years old (12.76%) considered the reference category. Among the socio-demographic variables, the model admits six-country dummies concerning tourists' main countries of origin, namely France, Germany, the UK, Italy, Russia, and Switzerland.

As for the decision-making process, the analysis includes daily per capita expenditure and repeat visits. The former has a mean of 104 euros, a median of 79, and ranges between zero and 875 euros; the latter measures the number of previous visits to the destination. As shown in Table 1, for 64.23% of tourists, this was the first visit, 6.03% visited the destination once, 6.96% twice, 4.87% three times, 1.86% four times, and 16.01% five or more times.

The variables related to the trip include the distance, the type of accommodation, and the visitors' party. The average distance is 1033 kilometres. As for the accommodation type, more than half of the tourists (53.36%) have chosen a self-catering house, 37.82% hotels (this is the reference category in our empirical analysis), and 8.82% friends or relatives' homes. The variable visitors' party reveals that 66.59% travelled with their family, 32.25% with friends (reference category), and 1.16% with an organised group.

Finally, the destination characteristics are taken from the interviewees' answers regarding the area's main characteristics that determined the destination's choice. In this case, it was possible to indicate more than one characteristic of the destination, and the top four most selected are, in order, scenery (48.72% of the answers), beach facilities (40.14%), accessibility (31.55%), and historical interest (26.91%).



**Table 1. Descriptive statistics**

<b>Dependent variable: length of stay (days)</b>				
Mean	St. dev.	Min	Median	Max
12.41	17.74	1	7	180
<b>Explanatory variables: Economic constraints</b>				%
Income per year before tax:				
Low (<30000€)				19.03
Medium (30000€ - 60000€)				38.98
High (>60000€)				29.47
No answer				12.53
<b>Explanatory variables: Socio-demographic</b>				
Highest educational qualification:				
Primary				19.49
Secondary				48.96
Tertiary and post-tertiary				31.55
Age:				
15 - 24				6.50
25 - 49				48.72
50 - 64				32.02
>64				12.76
Country dummies				
France				6.73
Germany				12.99
UK				4.64
Italy				53.83
Russia				3.48
Switzerland				4.64
Others				13.70
<b>Explanatory variables: Decision-making process</b>				
Daily per capita expenditure:				
Mean	St. dev.	Min	Median	Max
104	96	0	79	875
Repeat visit:				
0				64.23
1				6.03
2				6.96
3				4.87
4				1.86
5 or more				16.01
<b>Explanatory variables: Trip-related</b>				
Distance:				
Mean	St. dev.	Min	Median	Max
1033	1037	388	739	11176
Accommodation:				
Self-catering house				53.36
Hotel				37.82
Friends or relatives' home				8.82
Visitors' party:				
Friends				32.25
Family				66.59
Organised group				1.16
<b>Explanatory variables: Destination characteristics</b>				
Beach facilities				40.14
Accessibility				31.55
Historical interest				26.91
Scenery				48.72

Notes: % over total if not otherwise specified.

### 3.3 Econometric methodology

As far as the econometric methodology is concerned, LoS studies have been conducted by employing many different estimators. Among them, survival (duration), count data, and ordinary least squares (OLS) models are the most frequently used. The debate about which is the most appropriate is still open. Survival models allow more flexible distributional assumptions concerning OLS and have been initially used in biostatistics, engineering, medicine, and, later, in the tourism literature. Nevertheless, these models applied to the LoS have been criticised by Thrane (2016, 2015, 2012a, 2012b) on the ground that they are too complex and only applicable in parametric longitudinal models. In addition, he also points out that the choice of the specific survival/hazard function is in some way arbitrary and that the magnitude of the reported effects is vague (Thrane, 2012, p. 128). Furthermore, it might be challenging to grasp the implications of the estimated coefficients, especially for those not acquainted with more complex statistical methods. Finally, from a theoretical viewpoint, this author claims that the LoS is a decision made beforehand by tourists, so it makes little sense to think of it as a random variable that indicates survival times as it happens in duration models when applied in their original fields of study. All in all, Thrane suggests that duration models add a great deal of unnecessary statistical complexity and that OLS regressions on the logarithmic of the LoS work equally fine. For other authors (i.e., Gemar *et al.*, 2022; Alén *et al.*, 2014; Brida *et al.*, 2013; Salmasi *et al.*, 2012), the most successful alternative is the use of count models such as Poisson models or the more general negative binomial models. Among the latter, since the LoS is a count variable with a skewed to-the-left distribution and with only strictly positive values (Figure 2), the zero truncated negative binomial models (ZTNB) can represent a suitable choice. The ZTNB also has the advantage of accounting for data overdispersion.

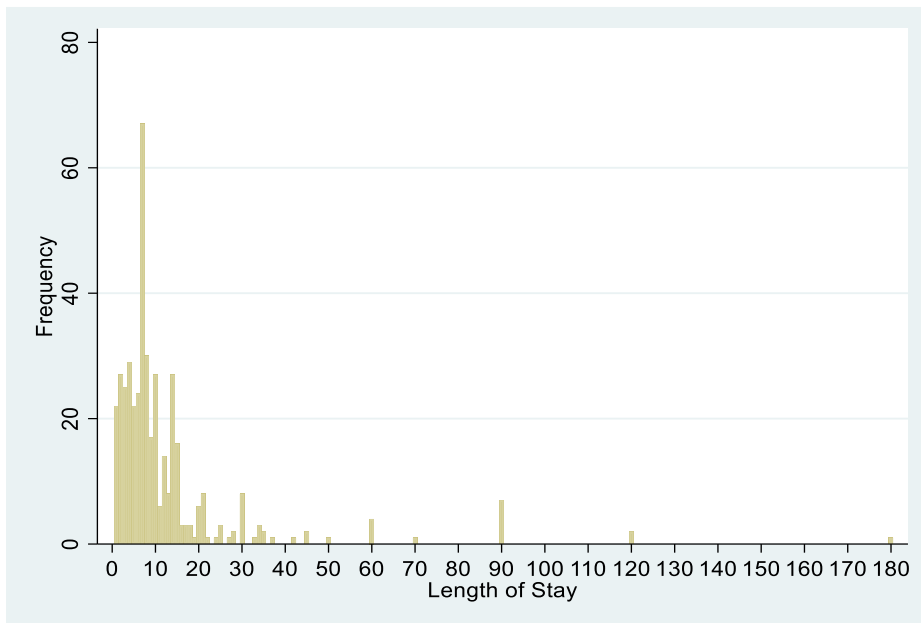


Figure 2. Length of Stay

For all these reasons, the authors' choice has been to perform all estimates with OLS, the simplest estimation method to implement and interpret, and also with ZTNB, which, given the data characteristics, appears to be the more appropriate. More in detail, in the OLS regression, the estimated equation is given by:

$$\ln LoS_i = x'_i \beta + \varepsilon_i$$

while in the ZTNB regression, the equation becomes:

$$LoS_i = e^{(x'_i\beta + \varepsilon_i)}$$

where  $x'_i = (1, x_{2i}, \dots, x_{ki})$  is the vector of  $k$  covariates,  $\beta$  is a vector of coefficients to be estimated, and  $\varepsilon_i$  is a stochastic disturbance term.

In the results section, tables report the default regression coefficients and the incident rate ratios expressed in percentages to make the estimates more easily comparable, particularly concerning categorical variables. The two continuous variables, namely average expenditure per overnight stay and distance, are log-transformed; hence the estimated coefficients are more easily interpreted as elasticities. Standard statistical tests reported in all tables are Adj R<sup>2</sup>, F-test and Log-likelihood for OLS (Pseudo R<sup>2</sup>, Wald test and Log(pseudo)-likelihood for ZTNB). It is also possible to test whether a Poisson or a negative binomial model is more appropriate via the null hypothesis that the log of the dispersion parameter is zero, in which case a Poisson model would be appropriate. The *p-value* of the LR test shown in the tables refers to this. In addition, for the categorical dummy variables, the bottom of each table reports the test (F test for OLS and  $\chi^2$  for ZTNB) for the overall statistical significance. These are tests on the null hypothesis that all coefficients of the given categorical dummy variable are jointly zero. As such, they provide different information about the role of a given independent variable concerning the LoS. The t-test (and associated *p-values*) of the single-level categorical variables indicates whether that level has a different effect than the reference category. Conversely, the tests for the overall statistical significance check whether that variable has a role in the LoS.

### 3.4 Research Strategy

The empirical models are first estimated for the total sample of tourists and then for three sub-samples that separate seniors (50 years and older) from young tourists (younger than 50 years), Italians from foreigners, and women from men. The main scope of the proposed sample disaggregation is to investigate whether any heterogeneous LoS behaviour concerning some tourists' characteristics can be identified. As it is well known, more homogeneous markets with similar characteristics can be isolated by segmenting a market. In turn, this facilitates tourism operators to understand the needs of different tourist categories better and allows them to tailor specific products and services (Jeong *et al.*, 2018). Quite surprisingly, while there is a large body of literature analysing segmentation based on satisfaction, spending, motivation, and the like, empirical studies that investigate segmentation for the LoS still need to be developed (Jackman & Naitram, 2023) <sup>3</sup>.

## 4. Results and discussion

The discussion of the main results starts with the findings related to the total sample of tourists. Then the analysis moves to the sub-sample level. In both complete and sub-sample analysis, OLS and ZTNB produce quite similar estimates, though the ZTNB regressions yield greater statistically significant coefficients. Therefore, the comments on the impact of the explanatory variables on the LoS will prioritise the ZTNB results.

### 4.1 Total tourists

The results for the total sample are reported in Table 2. As regards income, compared with the reference group (low income), there is no difference with medium-income earners, whereas tourists with high income stay 38.7% longer. Therefore, the positive relationship between income and LoS assumed in H<sub>1</sub> can be accepted. This result agrees with previous findings of Gokovali *et al.* (2007), Peypoch *et al.* (2012), Salmasi *et al.* (2012), and Grigolon *et al.* (2014), among others. Concerning age, *ceteris paribus*, the 25-49 and the 50-64 age groups stay about 25% less compared with the reference group of 65 and over (more precisely -25.16% and -24.78%). This result agrees with most of the literature that suggests a positive relationship between age and LoS and leads to accepting H<sub>2a</sub> (Fleischer & Pizam, 2002; Barros *et al.*, 2008; Santos *et al.*, 2015; Soler *et al.*, 2018). This outcome is probably ascribable to the fact that

working-age groups have less time and more family constraints preventing them from spending more time on holidays (Mortazavi & Cialani, 2017). As for education, tourists holding secondary and tertiary education spend less time on holidays than tourists holding primary education. Therefore, also H<sub>3</sub> can be confirmed. As discussed in the literature section, this result is typical since it has been found by Gokovali *et al.* (2007) for Turkey, Martinez-Garcia & Raya (2008) for Spain, and Menezes *et al.* (2008) for the Azores Islands. Focusing on the role of nationality, tourists from the UK and Russia stay considerably longer than other nationalities. Since not all nationalities affect the LoS, our results partially give credit to H<sub>5a</sub>.

**Table 2.** *Total tourists*

VARIABLES	(1a)	(2a)	(1b)	(2b)
	OLS	ZTNB	Fac. Ch. (%) OLS	Fac. Ch. (%) ZTNB
Income per year before tax (ref.: Low)				
Medium	0.10 [0.11]	0.06 [0.11]	10.46	6.06
High	0.37*** [0.12]	0.33*** [0.12]	45.44	38.70
No answer	-0.05 [0.14]	-0.11 [0.12]	-4.66	-10.81
Education (ref.: Primary)				
Secondary	-0.17* [0.10]	-0.28*** [0.10]	-15.29	-24.18
Tertiary	-0.23** [0.11]	-0.30*** [0.11]	-20.22	-25.88
Age (ref.: >64)				
15-24	-0.11 [0.19]	-0.25 [0.18]	-10.32	-22.38
25-49	-0.19 [0.13]	-0.29** [0.12]	-17.61	-25.16
50-64	-0.22 [0.13]	-0.28** [0.12]	-19.65	-24.78
Country dummies				
D_France	-0.11 [0.19]	0.00 [0.16]	-10.25	0.40
D_Germany	0.09 [0.12]	-0.02 [0.11]	9.79	-2.27
D_UK	0.51*** [0.15]	0.43*** [0.16]	66.36	52.97
D_Italy	0.13 [0.14]	0.03 [0.14]	13.65	2.78
D_Russia	1.02*** [0.18]	1.04*** [0.18]	178.57	182.20
D_Switzerland	0.13 [0.16]	0.03 [0.15]	14.16	3.24
Ln(expenditure)	-0.24*** [0.05]	-0.32*** [0.05]	-21.46	-27.40
Repeat visits (ref.: 0 times)				
1 time	0.18 [0.19]	0.38** [0.18]	19.83	45.78
2 times	-0.08 [0.16]	0.09 [0.15]	-7.47	9.23
3 times	-0.01 [0.12]	0.00 [0.12]	-0.81	0.27
4 times	0.55*** [0.16]	0.46*** [0.14]	73.86	59.09
5 times or more	0.65*** [0.13]	0.62*** [0.13]	91.17	86.11
Ln(distance)	-0.11 [0.09]	-0.18* [0.11]	-10.46	-16.84

VARIABLES	(1a)	(2a)	(1b)	(2b)
	OLS	ZTNB	Fac. Ch. (%) OLS	Fac. Ch. (%) ZTNB
Accommodation (ref.: Hotel)				
Self-cat. house	0.27*** [0.08]	0.31*** [0.07]	31.22	36.60
Friends & rel.	0.11 [0.11]	-0.11 [0.11]	11.73	-10.07
Visits' party (ref.: Friends)				
Family	0.30*** [0.08]	0.18** [0.08]	35.59	20.03
Org. group	0.05 [0.35]	-0.23 [0.35]	5.28	-20.45
Area characteristics				
Beach facilit.	0.15* [0.08]	0.13* [0.08]	16.39	13.89
Accessibility	0.35*** [0.09]	0.31*** [0.08]	41.40	36.23
Hist. interest	-0.25*** [0.08]	-0.21*** [0.08]	-22.10	-19.23
Scenery	0.12 [0.08]	0.13* [0.08]	13.15	14.10
Observations	401	401		
Adj R <sup>2</sup> (Pseudo R <sup>2</sup> )	0.44	0.13		
F [Wald] test ( <i>p-values</i> )	0.000	0.000		
Log [pseudo]-lik.	-389.6	-1203.4		
LR test ( <i>p-value</i> )		0.000		
Test on the joint hypothesis that all coefficients equal zero				
Income	0.001	0.001		
Education	0.127	0.011		
Age	0.395	0.116		
Repeat visits	0.000	0.000		
Accommodation	0.002	0.000		
Visits' party	0.002	0.052		

Notes: Robust standard errors in brackets. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . In the OLS regressions, the dependent variable is the logarithm of the number of overnight stays. Columns (1b)-(2b) show the percentage factor changes, namely the percentage differences with respect to the reference group variable. LR test (*p-value*) is the probability of a  $\chi^2$  test on the null hypothesis that the log of the dispersion parameter is zero, in which case a Poisson model would be appropriate. Adj R<sup>2</sup>(Pseudo R<sup>2</sup>) is the adjusted R<sup>2</sup> for the OLS regression and the Pseudo R<sup>2</sup> for the ZTNB regression. F [Wald] test reports the *p-value* of the F test for OLS and the Wald test for the ZTNB regression. Log [pseudo]-lik. is the log-likelihood for the OLS and the log-pseudolikelihood for the ZTNB. The test on the joint hypothesis that all coefficients equal zero (F test for OLS and  $\chi^2$  for ZTNB) tests the overall statistical significance of the categorical dummy variables: for brevity reasons, only *p-values* are reported.

Concerning the role of variables related to the decision-making process, namely daily per capita expenditures and repeat visits, both H<sub>9</sub> and H<sub>10</sub> can be accepted. The elasticity of the LoS for daily per capita expenditure is -0.32. This result conforms with previous studies such as, among the more recent ones, Mortazavi & Cialani (2017) and Alegre *et al.* (2011). The number of previous visits shows considerable relevance as a determinant of LoS. According to the results reported in columns (2a) and (2b), the number of previous visits is positively associated with the LoS. This result is particularly true for those who had visited the destination one time before the current trip (45.78%) and those who had visited the destination four times and five times or more (59.09% and 86.11%, respectively). Conversely, no effect is detected for tourists who visited two or three times the destination. Therefore, our results confirm what was discussed above that the familiarity with the destination exerts a positive effect on the LoS (Almeida *et al.*, 2021; Mortazavi & Cialani, 2017; Wang *et al.*, 2018; Alegre *et al.*, 2011; Barros & Machado, 2010).

Moving to the trip-related determinants, distance negatively affects the LoS, though this variable turns out mildly statistically significant at a 10% level only in column (2a). Accordingly, H<sub>7</sub> cannot be accepted. Hence, in this analysis, distance is likely to capture the dissuasive effect of moving from origin to destination because of the required physical, temporal, and financial resources (Bavik *et al.*, 2021).

Conversely, the empirical analysis leads to accepting H6. As a matter of fact, tourists lodging in self-catering houses stay 36.6% longer compared with the reference group (hotel). This finding is shared with other studies (Soler *et al.*, 2018; Alegre *et al.*, 2011; Martinez-Garcia & Raya, 2008). As for the party composition, tourists travelling with their families spend 20.03% more time on holidays than those travelling with friends (Soler *et al.*, 2020). This result leads to accepting H8.

Finally, concerning the area characteristics, beach facilities, accessibility, and scenery contribute to more extended stays, confirming what is stated in H11. Conversely, historical interest contributes to shorter stays leading to refusing H11.

#### 4.2 Senior and young tourists

Table 3 reports the results for senior and young tourists. For obvious reasons, the variable age is excluded from the analysis.<sup>4</sup>

The results of income are comparable to those reported in Table 2. Only high incomes lead to different behaviours compared to low incomes (reference group). High-income senior and young tourists stay 38.44% and 35.23% longer, respectively. These effects are very close to 38.70% found for the whole sample. Therefore, H1 can be confirmed for both young and senior tourists. Unfortunately, the results in Table 3 cannot be easily compared with previous literature, given the paucity of studies focusing on the differences between senior and young tourists. More often, analyses only focus on the group of seniors. Two recent papers (Campolo *et al.*, 2022; Alén *et al.*, 2014) do not include income among the LoS determinants. Conversely, Fleischer & Pizam (2002) work finds a positive relationship between income and the LoS of senior tourists.

Regarding socio-economic characteristics, young tourists' LoS is affected by education (H3 accepted), while senior tourists are not (H3 rejected). Compared with the reference category, young tourists with secondary and tertiary education stay -28.98% and -34.38% shorter, respectively (column 4b). The country dummies reveal that senior tourists from the UK stay longer and that tourists from Russia stay up to 254.07% more if young and 110.6% more if senior. Therefore, H5a is accepted for Russian tourists, both senior and young, and accepted for senior British tourists. The outcome regarding the seniors confirms those of Campolo *et al.* (2022), who find that the average years of schooling do not correlate with the LoS for tourists aged 55-64 (young older in their definition), nor does it for tourists older than 65 (senior older).

**Table 3.** Senior and young tourists

VARIABLES	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)
	OLS (Senior)	ZTNB (Senior)	OLS (Young)	ZTNB (Young)	Fac. Ch. (%) OLS (Senior)	Fac. Ch. (%) ZTNB (Senior)	Fac. Ch. (%) OLS (Young)	Fac. Ch. (%) ZTNB (Young)
Income per year before tax (ref.: Low)								
Medium	-0.04 [0.17]	-0.04 [0.15]	0.21 [0.14]	0.13 [0.13]	-3.66	-4.16	22.82	13.84
High	0.32* [0.19]	0.33* [0.18]	0.39** [0.16]	0.30** [0.14]	38.31	38.44	47.00	35.23
No answer	-0.43* [0.23]	-0.41** [0.19]	0.30* [0.16]	0.16 [0.14]	-34.72	-33.54	34.58	17.85
Education (ref.: Primary)								
Secondary	-0.14 [0.13]	-0.17 [0.11]	-0.22 [0.14]	-0.34*** [0.13]	-13.49	-16.03	-19.74	-28.98

VARIABLES	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)
	OLS (Senior)	ZTNB (Senior)	OLS (Young)	ZTNB (Young)	Fac. Ch. (%) OLS (Senior)	Fac. Ch. (%) ZTNB (Senior)	Fac. Ch. (%) OLS (Young)	Fac. Ch. (%) ZTNB (Young)
Tertiary	-0.04 [0.18]	-0.01 [0.16]	-0.33** [0.16]	-0.42*** [0.14]	-4.16	-0.85	-28.41	-34.38
Country dummies								
D_France	-0.16 [0.28]	-0.04 [0.24]	-0.00 [0.24]	0.03 [0.20]	-14.87	-3.96	-0.11	2.61
D_Germany	0.14 [0.19]	0.04 [0.18]	0.08 [0.17]	-0.06 [0.15]	15.12	4.38	8.34	-5.99
D_UK	0.81*** [0.24]	0.80*** [0.25]	0.27 [0.18]	0.05 [0.17]	124.61	121.94	30.50	5.43
D_Italy	0.13 [0.24]	0.15 [0.25]	0.17 [0.20]	-0.04 [0.16]	13.59	16.52	18.97	-3.49
D_Russia	0.73*** [0.24]	0.74*** [0.23]	1.34*** [0.19]	1.26*** [0.21]	106.96	110.60	281.33	254.07
D_Switzerland	0.28 [0.22]	0.23 [0.22]	0.07 [0.28]	-0.01 [0.26]	32.73	25.93	6.93	-1.25
Ln(expenditure)	-0.34*** [0.08]	-0.42*** [0.07]	-0.24*** [0.06]	-0.28*** [0.06]	-28.51	-34.37	-21.25	-24.38
Repeat visits (ref.: 0 times)								
1 time	-0.15 [0.34]	0.19 [0.31]	0.46** [0.21]	0.55*** [0.18]	-14.31	21.43	57.83	73.52
2 times	-0.17 [0.22]	-0.02 [0.20]	0.13 [0.22]	0.24 [0.20]	-15.56	-2.16	13.90	26.69
3 times	-0.05 [0.25]	-0.02 [0.22]	0.01 [0.13]	-0.00 [0.16]	-4.67	-2.37	1.29	-0.23
4 times	1.04*** [0.16]	0.94*** [0.15]	0.28 [0.26]	0.22 [0.22]	183.60	154.84	31.96	24.64
5 times or more	0.64*** [0.15]	0.55*** [0.13]	0.56** [0.22]	0.67*** [0.18]	89.79	73.81	75.16	96.28
Ln(distance)	-0.13 [0.14]	-0.19 [0.15]	-0.12 [0.12]	-0.24* [0.14]	-12.61	-16.90	-11.46	-20.98
Accommodation (ref.: Hotel)								
Self-cat. house	0.22 [0.14]	0.22* [0.13]	0.27*** [0.10]	0.32*** [0.09]	24.80	25.10	31.55	37.54
Friends & rel.	0.06 [0.20]	-0.11 [0.18]	0.03 [0.15]	-0.13 [0.14]	6.27	-10.29	2.84	11.88
Visits' party/group (ref.: Friends)								
Family	0.62*** [0.13]	0.53*** [0.13]	0.05 [0.10]	-0.05 [0.10]	86.47	69.20	4.94	-4.83
Org. group	-0.14 [0.39]	-0.56 [0.36]	0.63*** [0.15]	0.36*** [0.14]	-13.44	-42.86	88.41	43.57

VARIABLES	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)
	OLS (Senior)	ZTNB (Senior)	OLS (Young)	ZTNB (Young)	Fac. Ch. (%) OLS (Senior)	Fac. Ch. (%) ZTNB (Senior)	Fac. Ch. (%) OLS (Young)	Fac. Ch. (%) ZTNB (Young)
Area characteristics								
Beach facilit.	0.22 [0.16]	0.25* [0.14]	0.09 [0.10]	0.09 [0.09]	25.13	27.96	9.88	8.88
Accessibility	0.28** [0.13]	0.21* [0.11]	0.43*** [0.12]	0.41*** [0.10]	32.61	23.46	53.01	51.20
Hist. interest	-0.38*** [0.12]	-0.35*** [0.12]	-0.22** [0.11]	-0.18* [0.10]	-31.53	-29.79	-19.35	-16.27
Scenery	0.13 [0.14]	0.09 [0.14]	0.15 [0.11]	0.18* [0.09]	13.75	9.50	16.65	19.59
Observations	186	186	215	215				
Adj R <sup>2</sup> (Pseudo R <sup>2</sup> )	0.49	0.13	0.42	0.13				
F (Wald) test	0.000	0.000	0.000	0.000				
Log (pseudo)-lik.	-183.1	-577.0	-184.9	-607.4				
LR test ( <i>p-value</i> )		0.000		0.000				
Test on the joint hypothesis that all coefficients equal zero								
Income	0.005	0.002	0.094	0.178				
Education	0.489	0.221	0.100	0.009				
Repeat visits	0.000	0.000	0.047	0.000				
Accommodation	0.233	0.077	0.023	0.008				
Visits' party	0.000	0.000	0.000	0.000				

Notes: See the footnote of Table 1 for more details.

Moving to the trip-related variables, in columns (2a) and (4a), it is possible to see that the negative impact of daily per capita expenditure is confirmed on both senior and young tourists; therefore, H<sub>9</sub> is confirmed for both sub-groups. However, the effect has different strengths between the two groups. In fact, for the seniors, the estimated elasticity (-0.42) doubles the elasticity estimated for the young tourists (-0.28). Campolo *et al.* (2022) find higher elasticities, namely -0.68 and -0.73, for young-older and senior-older, respectively. Regarding the number of previous visits, the results reported in Table 3 confirm that, regardless whether senior or young, those tourists that had visited the destination five times or more stay longer (73.81% more if senior, 96.28% more if young). At the same time, a strong positive impact on the LoS is also detected for the senior tourists who had visited the destination four times (154.84%) and for the young tourists who had been there one time (73.52%). Hence, also H<sub>10</sub> is accepted for both sub-groups. As for the accommodation type, self-catering houses are confirmed as the lodging solution that leads to longer holidays compared with the reference category (hotel). However, young tourists seem to be more sensitive, with an estimated coefficient of 37.54, which is statistically significant at 1% compared with an estimated impact of 25.1% for senior tourists, barely statistically significant at 10%. It follows that H<sub>6</sub> is fully accepted for young tourists and only partially confirmed for seniors. Alén *et al.* (2014) find that senior tourists staying in a tourist apartment and second residence stay longer while being in a hotel or a country house lodge does not affect the LoS. Analogously, Campolo *et al.* (2022) detect a positive effect of being in extra-hotel accommodation for both young older, and senior older tourists. A further difference between the two groups emerges as far as the party group is concerned. Compared with those travelling with friends, senior tourists with their family spend 69.2% more time on holidays, whereas young tourists with an organised group have an



LoS of 43.57% longer. Therefore, H8 is valid only for senior tourists. Finally, the role of distance is almost nil for both groups of tourists leading to the rejection of H7.

The area characteristics confirm a positive role for accessibility (H11 accepted) and a negative role for historical interest for both senior and young tourists (H11 rejected), a feeble positive role of beach facilities for the senior, and scenery for the young (H11 accepted).

Overall, this analysis does not reveal homogeneous responses to LoS determinants between young and senior tourists. Therefore, H2b is accepted.

#### 4.3 Italians and foreigners

As seen in Tables 2 and 3, tourists from Russia and the UK have some peculiarities that make them stay longer compared with other nationalities. In this sub-section, the analysis investigates whether Italians and foreigners respond differently to explanatory variables. Thus, the country dummy variables are excluded from the analysis and separate regressions are provided for these two groups of tourists.<sup>5</sup> Generally, the results obtained in this section are not easily comparable with the previous literature. First of all, as shown in the literature review section, the empirical results on the role of nationality are strongly destination dependent. Moreover, to our knowledge, the literature on the LoS determinants needs to include analogous sub-sample analyses that compare domestic versus international tourists.

Results reported in Table 4 show that differences emerge in income and education: while Italians spend more time at the destination, the higher their income (26.94% for the medium-income earners and 59.17% for the high-income earners), and less time, the higher their educational level (-28.56% for those with secondary education and -33.55% for those holding tertiary education), foreign tourists do not show up with these differences.<sup>6</sup> Therefore, H1 and H3 are accepted for the group of Italian tourists and rejected for foreigners. Age seems relatively unimportant for Italians and foreigners, leading us to reject H2a for both sub-groups.

**Table 4.** *Italian and foreign tourists*

VARIABLES	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)
	OLS (Ita)	ZTNB (Ita)	OLS (foreign)	ZTNB (foreign)	Fac. Ch. (%) OLS (Ita)	Fac. Ch. (%) ZTNB (Ita)	Fac. Ch. (%) OLS (for.)	Fac. Ch. (%) ZTNB (for.)
Income per year before tax (ref.: Low)								
Medium	0.24*	0.24*	-0.05	-0.14	27.22	26.94	-5.16	-13.44
	[0.13]	[0.13]	[0.19]	[0.16]				
High	0.49***	0.46***	0.21	0.19	63.20	59.17	22.88	21.36
	[0.15]	[0.16]	[0.21]	[0.18]				
No answer	0.08	0.00	-0.17	-0.21	8.18	0.22	-15.56	-18.64
	[0.17]	[0.14]	[0.24]	[0.21]				
Education (ref.: Primary)								
Secondary	-0.25**	-0.34***	0.10	0.03	-21.92	-28.56	10.99	3.10
	[0.12]	[0.12]	[0.18]	[0.16]				
Tertiary	-0.41**	-0.41**	0.18	0.09	-33.44	-33.55	19.91	9.80
	[0.16]	[0.16]	[0.17]	[0.16]				
Age (ref.: >64)								
15-24	0.21	-0.03	-0.38	-0.49*	22.83	-2.82	-31.62	-38.57
	[0.26]	[0.23]	[0.31]	[0.25]				
25-49	-0.10	-0.24	-0.26	-0.32	-9.26	-21.56	-22.71	-27.29

Can five sun-and-sand Sardinian destinations host longer visits?

VARIABLES	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)
	OLS (Ita)	ZTNB (Ita)	OLS (foreign)	ZTNB (foreign)	Fac. Ch. (%) OLS (Ita)	Fac. Ch. (%) ZTNB (Ita)	Fac. Ch. (%) OLS (for.)	Fac. Ch. (%) ZTNB (for.)
50-64	[0.17] -0.19 [0.18]	[0.16] -0.28* [0.16]	[0.24] -0.13 [0.24]	[0.22] -0.20 [0.22]	-17.23	-24.05	-12.24	-18.53
Ln(expenditure)	- 0.27*** [0.07]	-0.36*** [0.07]	-0.20*** [0.07]	-0.22*** [0.06]	-23.72	-30.12	-18.02	-19.64
Repeat visits (ref.: 0 times)								
1 time	0.03 [0.25]	0.31 [0.21]	0.47** [0.20]	0.30 [0.19]	3.23	36.08	59.32	34.80
2 times	-0.23 [0.19]	-0.02 [0.18]	0.42* [0.22]	0.29 [0.18]	-20.70	-2.13	52.60	34.16
3 times	-0.15 [0.18]	-0.10 [0.17]	0.62*** [0.23]	0.52*** [0.20]	-13.96	-9.68	85.07	68.31
4 times	0.77*** [0.17]	0.58*** [0.15]	0.85*** [0.29]	0.81*** [0.27]	115.40	77.81	134.02	124.03
5 times or more	0.43** [0.17]	0.43*** [0.16]	0.79*** [0.20]	0.77*** [0.17]	54.15	53.35	120.63	116.17
Ln(distance)	0.23 [0.23]	0.09 [0.22]	0.07 [0.10]	0.15 [0.12]	25.79	9.74	7.50	16.62
Accommodation (ref.: Hotel)								
Self-cat. house	0.39*** [0.11]	0.41*** [0.11]	0.18* [0.11]	0.22** [0.09]	47.60	50.05	20.30	24.28
Friends & rel.	0.19 [0.16]	-0.09 [0.16]	0.15 [0.21]	0.05 [0.19]	20.32	-8.68	15.70	5.32
Visits' party/group (ref.: Friends)								
Family	0.33*** [0.12]	0.15 [0.12]	0.26** [0.12]	0.29*** [0.11]	39.17	15.63	29.61	33.44
Org. group	-0.19 [0.35]	-0.88*** [0.32]	0.13 [0.39]	0.12 [0.36]	-17.02	-58.65	13.47	13.18
Area characteristics								
Beach facilit.	-0.05 [0.13]	-0.06 [0.12]	0.40*** [0.12]	0.37*** [0.10]	-4.95	-5.36	48.67	45.15
Accessibility	0.45*** [0.13]	0.39*** [0.12]	0.38*** [0.13]	0.37*** [0.11]	57.41	47.62	45.73	44.05
Hist. interest	-0.24* [0.13]	-0.24* [0.13]	-0.26** [0.11]	-0.25** [0.10]	-21.51	-21.01	-23.08	-21.87
Scenery	0.20* [0.11]	0.19* [0.11]	-0.06 [0.13]	-0.05 [0.11]	22.14	20.59	-5.79	-4.46
Observations	211	211	190	190				
Adj R <sup>2</sup> (Pseudo R <sup>2</sup> )	0.44	0.13	0.45	0.12				
F (Wald) test	0.000	0.000	0.000	0.000				
Log (pseudo)-lik.	-201.8	-662.4	-183.8	-538.2				

VARIABLES	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)
	OLS (Ita)	ZTNB (Ita)	OLS (foreign)	ZTNB (foreign)	Fac. Ch. (%) OLS (Ita)	Fac. Ch. (%) ZTNB (Ita)	Fac. Ch. (%) OLS (for.)	Fac. Ch. (%) ZTNB (for.)
LR test ( <i>p-value</i> )		0.000		0.000				
Test on the joint hypothesis that all coefficients equal zero								
Income	0.013	0.010	0.122	0.006				
Education	0.027	0.010	0.529	0.753				
Age	0.300	0.265	0.423	0.142				
Repeat visits	0.000	0.002	0.000	0.000				
Accommodation	0.001	0.000	0.219	0.072				
Visits' party	0.008	0.002	0.094	0.024				

Notes: See the footnote of Table 1 for more details.

As regards daily per capita expenditure, there are no appreciable differences between Italians and foreigners. Although Italians seem more sensitive to expenditure, with an estimated elasticity of -0.36 compared with -0.22 for foreigners, Italians and foreigners display a statistically significant negative relationship with the LoS, confirming H<sub>9</sub> for both sub-groups. The number of previous visits affects Italians and foreigners (H<sub>10</sub> accepted). Having visited the destination four times or five times or more is crucial in determining the LoS. Furthermore, for foreign tourists, the positive impact is detected for those who had visited the destination three times and, in the OLS regression alone, even those who had visited twice or only one time in the past.

Distance influences the LoS neither for Italians nor for foreigners (H<sub>7</sub> discarded). The accommodation type has a similar role, though with a different magnitude: compared with the reference group (hotel), Italian tourists lodging in self-catering houses stay 50.05% longer while foreign tourists stay 24.28% longer (H<sub>6</sub> validated). As for visitors' party, the results of the OLS regressions reported in columns (1a) and (1b) suggest that Italian tourists travelling with their families stay 39.17% more at the destination, while the results of the ZTNB regression in columns (2a) and (2b) imply that this group stays 58.65% less than the reference category (travelling with friends). Conversely, the LoS of foreign tourists is affected only if they travel with their families: 29.61% and 33.44% in the OLS and ZTNB, respectively. This variable operates asymmetrically for the two sub-groups; hence H<sub>8</sub> can be accepted only for foreigners.

Amongst the area characteristics, a positive role for accessibility (H<sub>11</sub> corroborated) and a negative role for historical interests are found for Italians and foreigners (H<sub>11</sub> rejected). In addition, the former seems driven by the scenery, while the beach facilities definitively attract the latter (H<sub>11</sub> accepted).

Considering all together, the analysis shows that domestic and foreign tourists can give different responses to LoS determinants. Therefore, H<sub>5b</sub> is accepted.

#### 4.4 Women and men

The disaggregated analysis's final step consists in looking at the two groups of women and men, even though the dummy gender in the regressions for total tourists did not show any statistical significance. Nevertheless, the uncovering of any possible differentiated behaviour between women and men with respect to the variables determining the LoS turns out very interesting for the present analysis. The results shown in Table 5 provide evidence in this direction.<sup>7</sup> As with the role of nationality, these results are not easily comparable with the previous literature that lacks analogous sub-sample analyses.

**Table 5.** *Women and men tourists*

	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)
	OLS (women)	ZTNB (women)	OLS (men)	ZTNB (men)	Fac. Ch. (%) OLS (women)	Fac. Ch. (%) ZTNB (women)	Fac. Ch. (%) OLS (men)	Fac. Ch. (%) ZTNB (men)
Income per year before tax (ref.: Low)								
Medium	0.09 [0.14]	0.13 [0.13]	0.28 [0.18]	0.13 [0.16]	9.73	14.17	32.14	13.46
High	0.43*** [0.16]	0.43*** [0.16]	0.32 [0.20]	0.19 [0.18]	54.14	53.17	38.15	20.55
No answer	0.04 [0.15]	-0.03 [0.12]	-0.07 [0.27]	-0.13 [0.24]	4.59	-3.14	-6.79	-12.45
Education (ref.: Primary)								
Secondary	-0.17 [0.13]	-0.25** [0.11]	-0.13 [0.14]	-0.20 [0.14]	-15.80	-22.27	-12.49	-18.02
Tertiary	-0.23 [0.15]	-0.29** [0.13]	-0.19 [0.16]	-0.21 [0.15]	-20.62	-24.88	-16.90	-18.58
Age (ref.: >64)								
15-24	0.04 [0.22]	-0.16 [0.18]	-0.27 [0.31]	-0.26 [0.30]	3.67	-14.93	-23.87	-23.09
25-49	-0.13 [0.19]	-0.32** [0.16]	-0.24 [0.20]	-0.25 [0.17]	-12.44	-27.74	-21.58	-21.78
50-64	-0.14 [0.19]	-0.26 [0.17]	-0.27 [0.21]	-0.26 [0.18]	-13.23	-23.15	-23.28	-22.74
Country dummies								
D_France	0.01 [0.26]	0.26 [0.20]	-0.26 [0.29]	-0.27 [0.25]	0.96	29.52	-23.21	-24.02
D_Germany	0.23 [0.16]	0.08 [0.15]	-0.09 [0.21]	-0.17 [0.17]	25.41	8.46	-8.16	-15.77
D_UK	0.32* [0.19]	0.26 [0.20]	0.75*** [0.24]	0.65*** [0.23]	38.28	29.32	111.66	90.78
D_Italy	0.25 [0.17]	0.20 [0.17]	-0.04 [0.24]	-0.18 [0.20]	28.17	22.59	-4.33	-16.06
D_Russia	0.95*** [0.25]	0.99*** [0.22]	1.13*** [0.34]	1.20*** [0.28]	159.26	167.79	210.53	232.22
D_Switzerland	0.22 [0.27]	0.20 [0.24]	0.03 [0.24]	-0.08 [0.21]	24.01	22.63	3.11	-7.53
Ln(expenditure)	-0.32*** [0.07]	-0.38*** [0.05]	-0.17** [0.08]	-0.24*** [0.07]	-27.03	-31.45	-15.38	-21.69
Repeat visits (ref.: 0 times)								
1 time	0.09 [0.27]	0.28 [0.22]	0.30 [0.30]	0.54** [0.25]	8.96	32.33	34.79	71.71
2 times	-0.07 [0.19]	-0.03 [0.18]	-0.02 [0.27]	0.24 [0.23]	-6.54	-3.04	-1.86	26.75
3 times	-0.10	-0.10	-0.08	-0.00	-9.90	-9.59	-7.36	-0.38

	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)
	OLS (women)	ZTNB (women)	OLS (men)	ZTNB (men)	Fac. Ch. (%) OLS (women)	Fac. Ch. (%) ZTNB (women)	Fac. Ch. (%) OLS (men)	Fac. Ch. (%) ZTNB (men)
4 times	[0.18] 0.42*	[0.17] 0.33**	[0.21] 0.74***	[0.19] 0.70***	51.84	39.71	110.21	100.81
5 times or more	[0.23] 0.42**	[0.16] 0.32**	[0.28] 1.01***	[0.25] 1.01***	52.42	37.30	175.08	175.53
Ln(distance)	[0.18] -0.02	[0.16] -0.08	[0.21] -0.25*	[0.17] -0.35**	-1.78	-7.41	-21.95	-29.19
Accommodation (ref.: Hotel)								
Self-cat. house	[0.09] 0.30***	[0.08] 0.40***	[0.14] 0.22	[0.13] 0.25*	35.11	48.91	24.67	27.76
Friends & rel.	[0.16] 0.02	[0.16] -0.14	[0.22] 0.19	[0.19] -0.08	1.52	-13.18	20.39	-8.04
Visits' party/group (ref.: Friends)								
Family	[0.11] 0.38***	[0.10] 0.28***	[0.15] 0.18	[0.13] 0.07	46.39	32.95	19.60	7.02
Org. group	[0.62] -0.74	[0.86] -1.22	[0.28] 0.49*	[0.27] 0.12	-52.20	-70.47	63.12	12.84
Area characteristics								
Beach facilit.	[0.13] 0.13	[0.11] 0.16	[0.12] 0.07	[0.11] 0.02	13.84	16.82	7.52	2.36
Accessibility	[0.12] 0.40***	[0.11] 0.34***	[0.15] 0.41***	[0.12] 0.39***	49.08	41.10	51.17	47.77
Hist. interest	[0.11] -0.28**	[0.11] -0.22**	[0.13] -0.24*	[0.11] -0.21*	-24.26	-20.07	-21.52	-18.82
Scenery	[0.12] 0.13	[0.11] 0.18*	[0.13] 0.12	[0.12] 0.07	14.20	20.12	12.88	7.03
Observations	226	226	175	175				
Adj R <sup>2</sup> (Pseudo R <sup>2</sup> )	0.48	0.15	0.38	0.12				
F (Wald) test	0.00	0.00	0.00	0.00				
Log (pseudo)-lik.	-199.8	-663.4	-174.8	-524.1				
LR test ( <i>p-value</i> )		0.000		0.000				
Test on the joint hypothesis that all coefficients equal zero								
Income	0.019	0.013	0.157	0.404				
Education	0.294	0.050	0.500	0.289				
Age	0.752	0.248	0.637	0.450				
Repeat visits	0.075	0.065	0.000	0.000				
Accommodation	0.004	0.000	0.264	0.057				
Visits' party	0.001	0.005	0.190	0.842				

Notes: See the footnote of Table 1 for more details.

Compared with the reference category (low income), no differences emerged between the medium and the high-income men. However, a statistically different behaviour appears for high-income women,

who stay 53.17% longer. Hence H<sub>1</sub> is supported for women but not for men. Education and age are other characteristics that operate differently for women and men since neither of these variables affects the latter. In the case of women, the duration increases when the educational level is higher and when the age ranges between 25 and 49 years. Therefore, H<sub>2a</sub> and H<sub>3</sub> uphold only for women. Tourists from Russia stay longer regardless of being women or men (H<sub>5a</sub> accepted for both groups), whereas being British affects the LoS only for men (H<sub>5a</sub> accepted only for men).

The elasticity of the LoS with respect to daily per capita expenditure is negative and slightly higher for women (-0.38) than for men (-0.24). The number of previous visits, four times and five times or more, confirms its essential role in keeping women and men tourists longer at the destination. Hence, H<sub>9</sub> and H<sub>10</sub> are corroborated for women and men alike.

Distance is negatively related to the dependent variable, but it is statistically significant only for men (H<sub>7</sub> rejected). Regarding the accommodation type, both groups of tourists stay longer if lodging in a self-catering house rather than in a hotel, and this effect is stronger in both magnitudes (48.91% versus 27.76%) and statistical significance (1% versus 10%) for women rather than men (H<sub>6</sub> confirmed). Another difference emerges for the variable visitors' party since women stay longer (32.95%) when travelling with the family, whereas men do the same when travelling with an organised group (63.12%). Notice that for women, the difference compared with the reference group is highly statistically significant, whereas for men is significant at only 10%. In any case, H<sub>8</sub> holds only for women.

Area characteristics do not display appreciable differences. For both groups of tourists, accessibility extends the LoS (H<sub>11</sub> confirmed), while historical interest shortens it (H<sub>11</sub> rejected).

Summing up the results, there are differences in the responses that women and men give to LoS determinants. Therefore, H<sub>4</sub> is accepted.

## 5. Conclusions and implications

This paper proposes a study regarding the determinants of the LoS in five tourist sun-and-sand destinations in southern Sardinia. First, OLS and ZTNB regressions are performed for the whole sample. The findings highlight that the LoS positively depends on income, age, repeat visits, accommodation in a self-catering house, travelling with families rather than with friends, and some destination characteristics (beach facilities, accessibility, and scenery). Nationality also matters, with tourists from the UK and Russia typically showing a more extended stay. Conversely, LoS negatively depends on education, daily per capita expenditure, and distance.

Next, the authors develop a disaggregated analysis by splitting the sample into sub-samples to investigate whether any different response of the LoS to the explanatory variables could be detected. The findings corroborate this statement.

The impact of income differentials is very similar for senior versus young tourists, while the educational level does not affect senior tourists. However, it is statistically significant for young tourists whose lower educational levels correlate with longer LoS. In addition, senior tourists take longer holidays when travelling with their families, whereas young tourists stay longer when travelling in organised groups.

The main differences between Italian and foreign tourists show up as follows: income and educational level differences matter only for Italians; a moderate difference in behaviour is detected regarding age since Italian tourists in the 50-64 range and foreign tourists in the 15-24 range stay longer than the older (65 years and more) range; Italians travelling with friends take longer holidays than travelling with

groups, conversely foreigners travelling with their families stay longer than when travelling with friends; foreigner tourists are attracted by beach facilities.

Regarding the differences between women and men, while there appears to be no appreciable difference in the average LoS between the two groups, some differences emerge concerning estimated coefficients. For instance, distance has a negative sign only for men; income, educational level, and age differences matter only for women; women stay longer if they travel with their families; UK men stay longer.

### *5.1 Theoretical implications*

This study can confirm that for many determinants, it is impossible to specify a theoretically informed hypothesis regarding how they can either shorten or prolong tourists' LoS. This conclusion not only does concern the comparison between destinations but also the comparison between groups of individuals with different characteristics. If it is difficult to find stable patterns in LoS criteria, the reason is that LoS is shaped from a combination of features that are typical of a specific tourist area. Therefore, understanding LoS is a matter of understanding which idiosyncratic factors have a significant role. This result implies that studies on LoS should favour a destination-specific approach, both in the definition of the theoretical framework and in the search for specific data.

However, the specificity of the LoS determinants does not mean that research on specific tourist areas is useless for different destinations. Rich empirical information always helps strategic choices and provides valuable elements for developing informed ad hoc studies.

### *5.2 Managerial implications*

The main findings of the present contribution have important managerial implications for decision-makers involved in the five destinations' management and for all similar destinations interested in extending the LoS of their visitors. Valuable suggestions arise for providing tailored tourism packages for distinct groups of tourists and marketing and promotion purposes. The main findings confirm that "the 'one-fit-all' solution from the global duration model could be misleading" (Yang & Zhang, 2015, p. 22). They also confirm that a better understanding of how the different tourist categories respond to LoS determinants dramatically increases decision-makers possibility to tailor specific tourist products to maximise profits. The differentiated impacts of tourists allow tourism scholars, destination marketing organisations, and local development authorities to develop market segmentation plans to attract the most fitted tourists, namely those who most likely will bring more significant benefits than others.

For example, to encourage senior and young tourists to stay longer, destinations could target the former with package discounts for families and the latter with package discounts for groups. In particular, the seniors' market can be potentially very fruitful for destinations aiming at extending the LoS. From this perspective, two considerations are worth mentioning. The first is that on average senior tourists spend 14.15 nights compared with 11.00 nights for young ones. The second is that, for many countries, population projections point towards an increase in the share of the older population. It follows that, in the next years, LoS will probably increase proportionally more for seniors than young tourists. Hence, under a market segmentation strategy, senior tourists are a crucial target upon which the tourism destinations can build marketing strategies to attract them to increase benefits.

Considering the tourists' nationality, the present study's results also bring important managerial implications. The main findings may help destinations to tailor different marketing strategies for targeting Italian and foreign tourists depending on their age and whether they travel with their families or friends. Given that current data say that Italians stay longer (14.60 and 9.69 nights for Italians and

foreigners, respectively), it would be interesting to understand which of the two groups could offer a more significant margin to extend the LoS in the future.

Gender differences can also give precious information for tailoring tourism packages. In this case, women with high income, older than 65, and who travel with family represent the category that offers the greatest chance of extending the LoS.

Some other managerial implications may follow indirectly from our results. In order to stimulate longer stays, it is necessary to involve larger territories and diversify the tourist product with a broader range of services. An efficient internal transport system and a communication/information strategy spread throughout the territory are essential to achieve these goals. But most of all, a collaboration between many stakeholders involved is needed. Policymakers, firms, and residents must cooperate to shape a sustainable destination and share long-term economic benefits. To this end, a Destination Management Organization could properly guide and coordinate the stakeholders toward a common goal of sustainable tourism development.

### *5.3 Limitations and future research avenues*

This paper is not free of limitations. The first is intrinsically related to the type of study proposed. A better knowledge of the LoS determinants means understanding which destination-specific factors have a significant role. This fact implies that the main findings cannot be indiscriminately extended to other contexts. The second limitation concerns general data reliability, which typically regards survey-based analyses. These studies are based on the respondents' willingness to provide accurate information on a series of questions relating to the main characteristics of their holiday and the destination visited. However, this criterion is only sometimes met. Respondents may not have sufficient information to respond to specific aspects raised by the questionnaire or may be induced to respond impulsively when they have to express ranges of judgement. Furthermore, they might not remember some aspects to be quantified, such as tourism expenditure and distance travelled, or be reticent on monetary issues, such as their available income.

In the future, the generalization of the results on the LoS determinants should be improved by replicating the same questionnaire in different regions or countries. Moreover, future research on the LoS should focus on length optimization rather than length maximization. Under this perspective, besides looking at the LoS determinants, investigating the total impact of the LoS on the sustainability of a destination is an essential issue. At this moment, the debate on the economic, environmental and social benefits of longer holidays is still open and deserves further attention.

**Acknowledgements:** The authors acknowledge “Fondazione di Sardegna and Autonomous Region of Sardinia” for providing research funding. They also thank the Editor, an anonymous Referee, and Nicola Tedesco for helpful comments on a previous version of the paper. All remaining errors are the authors' responsibility.

### **Endnotes:**

<sup>1</sup> These five destinations were involved in the project “Destinations' Performance Measurement and the Role of Public Policies”, with the primary goal of monitoring a set of indicators of long-term sustainability and evaluating the role of public policies. At this scope, the European Tourism Indicator System (ETIS toolkit) provided by the European Commission was considered to design the research strategy and questionnaire content. The full questionnaire is available from the authors upon request.

<sup>2</sup> In a preliminary analysis, the study included in the model also other categorical variables for gender (woman/man), nationality (Italians/foreigners), the purpose of the visit (10 different alternative answers), destination satisfaction (10 points liker scale), travel mode (airplane/ferryboat), and occupational status (employed/unemployed/retired/student). None of them, however, turned out statistically significant; thus, they



are excluded from the model. As regards the purpose of the visit, destination satisfaction, travel mode, and occupational status, the reason was most likely because the answers were highly concentrated on single items: more than 90% travelled for holidays; the highest three levels of destination satisfaction collected 94% of total answers; about 80% travelled by airplane; almost 80% were employed. The other two variables, sex (woman 52%, man 48%) and nationality (Italians 55%, and foreigners 45%), were more equally distributed. Nevertheless, they did not prove relevant in explaining the LoS behavior for the whole sample of tourists. However, as discussed in the main text, they are used them to split the sample into sub-samples and study the differentiated role of the other explanatory variables to the LoS in these sub-samples.

<sup>3</sup> Two recent exceptions are Jackman & Nairtram (2023) and Alén *et al.* (2014). The former study tourists' LoS behaviour in Barbados and finds a great deal of heterogeneity in the impact of explanatory variables across segments. The latter focus on the LoS of senior Spanish tourists and, among others, detect a positive role of age, 'VFR' motivation, and the 'climate' attribute of the destination.

<sup>4</sup> On average, senior tourists spend 14.15 nights compared with 11.00 nights for young tourists. These figures confirm what the literature mentioned above has found regarding the propensity of senior tourists to stay longer on holiday, be it for greater availability of time or better financial conditions.

<sup>5</sup> The LoS for Italian tourists (14.60 nights) is higher compared with foreigners (9.69).

<sup>6</sup> However, this is not to say that income does not matter for foreign tourists, given that the joint hypothesis that all coefficients on income equal zero (see the bottom of Table 3) is firmly rejected.

<sup>7</sup> In our sample, there are no differences in the LoS between women (12.63 nights) and men (12.11 nights).

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Received: 29/11/2022

Accepted: 07/02/2023

Coordinating editor: Marko Perić