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economies

Tourism Economics

Edited by
Aleksander Panasiuk

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Tourism Economics

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About the Editor

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From 1988–2018, he was an employee of the Faculty of Management and Economics of Services at the University of Szczecin (Poland), vice-dean for student affairs (1999–2005), dean of the Faculty (2005–2008) and head of the Department of Tourism Management (1999–2018).

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Preface to "Tourism Economics"

The issues relating to the functioning of the tourism economy include both the activities of tourism enterprises and spatial units, i.e., tourism destinations, as well as tourism demand, including tourists' purchasing behavior. The aim of the Special Issue of *Economies* is to present the current results of research on the functioning of the tourism market and its individual elements.

The presented studies refer to four groups of issues:

- the foundations of the tourism industry, including general rules and economic mechanisms related to the operation of this industry market;
- the functioning of tourism entrepreneurs, especially in the tourism industry, mainly in the area of accommodation offer;
- the operation of tourist destinations and the available offers in tourist areas;
- the trends in tourist demand, including the purchasing behavior of tourists in tourist destinations.

Particular attention should be paid to studies on tourist destinations and available offers in their areas. These issues constitute a significant extension of market issues because the entities shaping the offer are not only tourist entrepreneurs, but also non-profit entities in the European Union countries as well as local government entities and cooperating units (Panasiuk 2019b). An important element complementing the functioning of the tourism market is the tourism policy, taking into account the position of the state and its organs on this market (Panasiuk and Wszendybył-Skulska 2021) along with the principles of its regulation (Panasiuk 2021).

From the point of view of demand, i.e., the direction to which tourist traffic is headed, a tourist destination is understood as a destination (town, region, country) related to its characteristic functions and properties. From the point of view of economic issues, a tourist destination should be interpreted from the subjective perspective as a unit or set of units of the tourist market, operating in the tourist area, dealing with the creation of conditions for tourism, as well as creating, sharing and promoting the tourist offers in this area. It is the basic unit of the modern tourism market which, thanks to its uniqueness and individuality in creating new, diversified tourist offers based on specific features, can meet its requirements. Thus, a tourist destination is not only a place, but a system of institutions for managing the tourist offers of a place, i.e., an area tourist product, for which competent entities representing the destination are responsible (Panasiuk 2020b).

The offers of a tourist destination (Panasiuk 2017) include partial offers of tourist entrepreneurs who primarily provide the following services: accommodation, catering, transport, organization of tourism, tourist information, entities providing tourist attractions and other products available in its area, as well as the economic activity of public entities and tourist organizations that create a comprehensive tourist offer in the area.

More specifically, the economic issues of tourism should also include market structures, conditions for starting a business, competitiveness, quality of tourist services and changes in market regulations, especially domestic, but also global, e.g., related to tourist traffic. The area which is currently the most problematic is the functioning of the tourism market in the context of the COVID-19 pandemic and the directions of its reconstruction. Attention should also be paid to other crisis phenomena (Panasiuk 2019a) that are already relevant and may soon have a greater impact, such as the climate crisis and migration crises in some regions of the world (social, political, climate). Therefore, the issues of sustainable tourism (Panasiuk 2021a), including overtourism, and social issues, such as tourism-phobia, are also important. The functioning of the tourism market is also influenced by new

technologies, artificial intelligence, robotization (Panasiuk 2015), and thus the creation of alternative ways to spend free time. These subject areas can therefore be addressed in the next issue of the *Economies* Special Issue.

As the guest editor of this Special Issue of Economies, I would like to express my gratitude to the authors who prepared articles in line with the subject of the Special Issue and decided to share their original research results in the journal. I would like to thank the scientific editors supervising the stages of the publishing procedure and the reviewers for their substantive contribution to the creation of this issue. I would like to thank the editors of the journal and the publishing house for the opportunity to cooperate and achieve a joint publishing result.

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Aleksander Panasiuk
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Article

The Influence of Income and Currency Changes on Tourist Inflow to Norwegian Campsites: The Case of Swedish and German Visitors

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Abstract: There are few published articles on the demand for campsites, despite this being an important segment of the tourism industry. The purpose of this study was to gain further understanding of this topic. Using publicly available data over a period of 20 years, income and currency elasticity were estimated for German and Swedish camping tourists by using a natural logarithmic regression model with time series data. The results showed that both income and the exchange rate influenced the number of overnight stays, but the impact was rather small. The income elasticity for Swedish visitors was significant with a value of about 0.5, while it was zero and not significant for German camping tourists. Appreciation of the euro was associated with more visitors from Germany, but the estimated exchange rate elasticity was below 1.0 (and significant). A stronger Swedish currency relative to the Norwegian currency did not appear to have an effect. However, a stronger Swedish exchange rate, measured in euros, had a positive impact on Swedish camping visitors in Norway. The reason might be that more Swedish residents spend holidays abroad, and there is complementarity among the neighboring countries. Such calculations provide useful information for tourist industry planning.

Keywords: campsites; demand for camping tourism; time series data; income elasticity; currency elasticity

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1. Introduction and Background

Travel and tourism are important parts of the economy for many countries, and the exchange rate has a considerable impact on cross-border travel. This type of tourism is sensitive to changes in exchange rates, prices, and revenues Stabler et al. (2009). Many researchers have focused on the impacts of variations in currencies on overnight stays at hotels Corgel (2003), but few have explored how these rate fluctuations influence foreign travelers to campsites.

Camping tourism has traditionally been associated with Europe, Australia, and North America, but there is rising interest in Asia Lee (2020). There also seems to be increased attention toward campsites in Europe and North America Ram and Hall (2020). Camping provides flexibility and can easily be combined with other activities, such as fishing and mountain climbing, allowing families to closely interact with nature. Several authors have called for more analysis on camping tourists Rogerson and Rogerson (2020). Therefore, this article aimed to provide a little more insight into this sector.

The purpose of this paper was to further investigate this topic by using data from Norway. Knowledge about these patterns is useful for tourism industry planning in Norway. With a small open economy that has its own floating exchange rate regime, there has been substantial instability in the rate, especially in the last 10 years due to changes in

the price of oil, which is a major driver of the Norwegian economy (see Figure 1). Since 2014, the Norwegian krone has significantly weakened compared to, for example, the euro and Swedish krone.

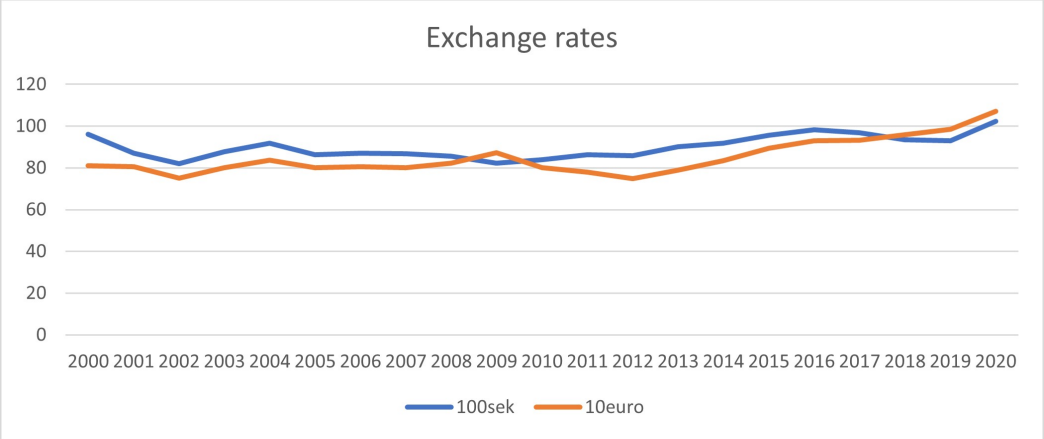


Figure 1. The exchange rates of the Swedish currency and the euro. Source: Norges Bank.

Although overnight stays at campsites are dominated by domestic demand (over 70 percent), foreigners make up an important customer group. Foreign visitors have longer holidays and significantly higher 24 h consumption than domestic visitors Innovation Norway (2019). Visitors are mainly from Germany, the Netherlands, Sweden, and Denmark (see Figure 2). In this report, we limited the analysis to German and Swedish tourists.

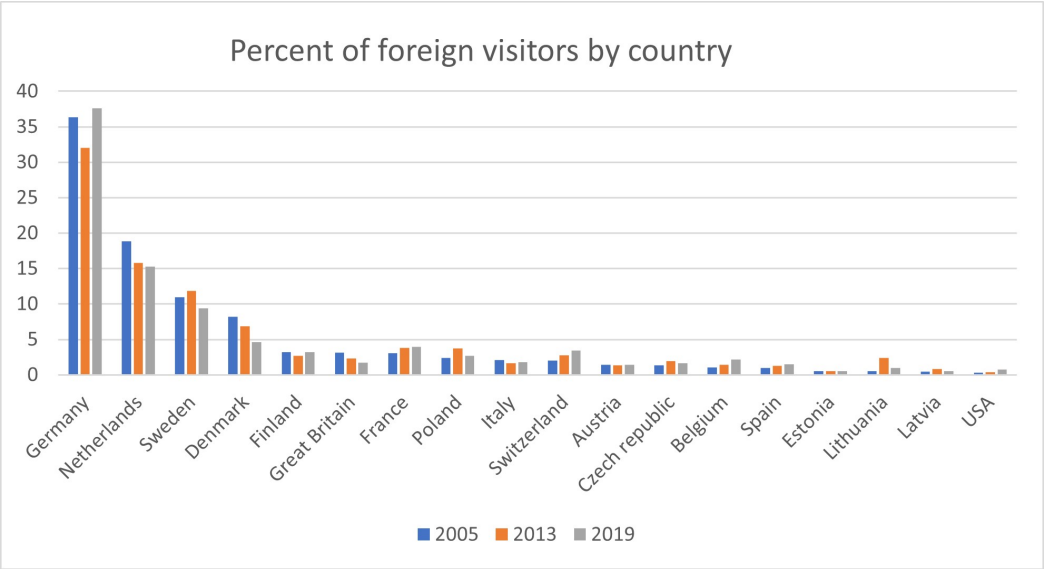
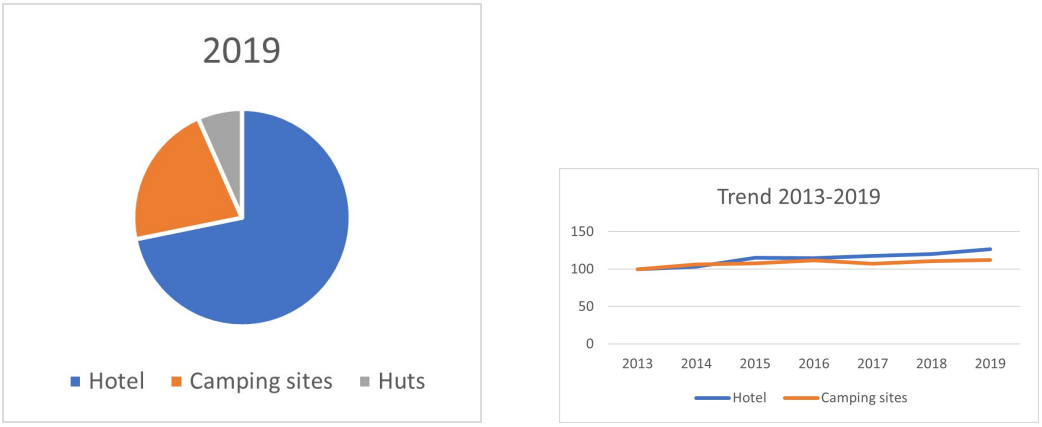


Figure 2. Guest country of origin, percent. Source: Statistics Norway.

Compared to hotels, campsites make up a small proportion of total accommodations (see Figure 3), and even foreign tourists frequently combine camping with stays in hotels. The proportion of people staying in campsites has decreased since 2013.



(**a**) In 2019. (**b**) Trend from 2013.

Figure 3. Picture (**a**) shows which type of accommodation foreign tourists chose in 2019. Picture (**b**) shows the development in overnight stays at camping sites and hotels in the years 2013 to 2019. Source: Statistics Norway.

The use of campsites in Norway is highly seasonal, with most people visiting in the summer months (see Figure 4).

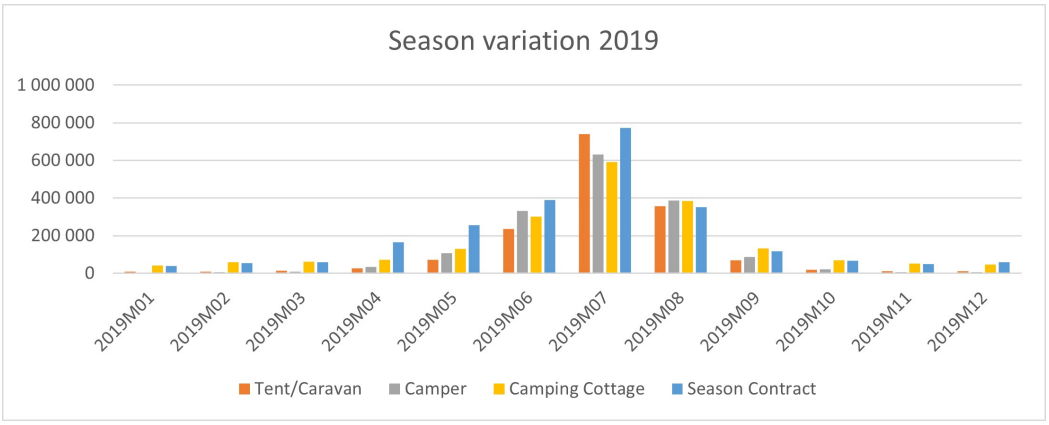


Figure 4. Seasonal composition of stay at campsites. Source: Statistics Norway.

The factors that influence the demand for foreign tourism are Stabler et al. (2009):

1. Income of the origin country;
2. Relative price of the destination;
3. Relative price of competitor destinations;
4. Exchange rates between origin and destination;
5. Other variables (transport costs, special events, attraction of destination, etc.).

In this paper, the focus was on the first four variables. According to standard economic theory, higher income leads to increased demand. A relatively high price in the visiting country or higher exchange rate makes it less attractive to travelers. If there is no such issue in competing destinations, a substitution effect may occur. However, there might also be complementarity since many tourists visit several countries at the same time. The aim of this article was to estimate these effects for German and Swedish visitors who stay at Norwegian campsites.

We estimated possible relationships by applying logarithmic regression and using publicly available time series data. It was of interest to see how changes in the exchange rate influenced the inflow of tourists given the option of alternative destinations. Swedish visitors would consider not only the relationship between the effective exchange rate between Norway and Sweden, but also the value relative to other countries.

Foreign tourists visiting Norway must contend with high prices of services and goods compared with most other countries Dybedal et al. (2003). However, this effect has diminished over the last several years due to the depreciation of the currency and its substantial short-term fluctuation. The question is: What impact has this had on the foreign demand for trips to Norwegian camps? Since visitors calculate the costs measured in their own currency, changes in rates will have a direct impact on their budgets.

The decision to travel is made before one goes on holiday Stabler et al. (2009). In the analysis of the tourist market, one must take this into account. Therefore, it is more accurate to use the exchange rate at the time of the decision and not at the time of travel. There is much discussion in the literature about the length of this time lag. An examination of bookings at Norwegian hotels showed that the average difference between booking and arrival was about four months.

2. Literature Review

2.1. International Tourism and Income

Previous research suggested that income, prices, and the currency rate have a considerable effect on tourist inflow, but there is significant variation in the degree of influence between variables. Many factors can explain this. According to Peng et al. (2015), there is a large spread in the income elasticity depending on the destination, country of origin, season, and type of holiday. Income in the origin country seems to be a dominant variable in explaining the level of international tourism. Sanchez-Rivero and Pulido-Fernández (2020) suggested that the average income elasticity of visitors crossing international borders is substantially higher than 1.0 (their estimate was just over 2.0). If this is the case, an increase of one percent will cause the demand for tourist travel to rise far beyond one percent. Economic theory refers to this as a luxury good. There may be wide gaps for the same destination depending on the country of origin, as well as large differences within the same country of origin depending on the destination. Due to a lower income level, income elasticity tends to be higher for visitors from countries with low GDP per capita compared to countries with high GDP per capita. There is limited holiday time, and the choice of destination can be sensitive to changes in some important variables. Crouch (1996) reported an income elasticity of 1.5 for international tourism. Recent research reports suggest that income elasticity is between 1.0 and 2.0, but with significant variations Kumar and Kumar (2020); Ongan et al. (2017); Sanchez-Rivero and Pulido-Fernández (2020); however, Jensen (1998) pointed out that the income elasticity of foreign visitors is considerably higher than that of domestic tourist visitors.

2.2. International Tourism and Prices Inclusive of Exchange Rates

The pricing mechanism applies to international tourism. If it becomes more expensive to visit a country, then fewer will travel there. Previous surveys reported a large gap in this effect, depending on the case studied Peng et al. (2015). Peng et al. (2015) found an overall average price elasticity of -1.3 Peng et al. (2015), while Kumar and Kumar (2020) suggested a significantly lower value (around -0.8).

The exchange rate might be a key factor in the demand for tourism. Garín-Muñoza and Montero-Martín (2007) estimated the exchange rate elasticity (of a stronger domestic currency) for international travelers to the Belearic Islands to be -0.76 for the same year and -1.65 for a one-year lag. A limitation of this research was the use of annual data. Hence, they did not capture fluctuations during the year.

Other researchers have reported that a one percent depreciation of the national currency increased the foreign tourist inflow by six percent in Turkey (Agiomirgianakis et al. 2014, 2015) and five percent in Iceland Rannversdóttir and Jóhannsdóttir (2019). There is a wide range of currency elasticities depending on the country of origin and the destination.

In a study of Norwegian hotels, Aalen et al. (2019) estimated the exchange rate elasticity to be around -1.0. In the study of Xie and Tveterås (2020), the elasticity was as high as -6.5 for Chinese tourists and only -0.4 for Japanese tourists. For German visitors, the

estimate was −1.5. Due to the depreciation of the Norwegian currency, Chinese travelers perceive prices to be attractive compared to competing places, and this has resulted in a sharp increase in visitors. However, there is no corresponding effect for Japanese visitors. Although the differences were not as large, Ongan et al. (2017) also reported significant differences depending on the country of origin of European tourists who visited the United States. Vojtko et al. (2018) reported that the foreign tourist response to a one percent appreciation of the national currency varied between 0.22 and 3.26 percent in the Czech Republic and Croatia. Many visitors respond to a higher national currency value by decreasing the lengths of their stay and using less expensive accommodation Fleischer and Rivlin (2009). This effect is more prevalent in high-cost countries. Steller (2017) reported an exchange rate elasticity (of a stronger foreign currency) of 0.74 with a lag of 3–5 months for foreigners visiting Switzerland.

2.3. Neighboring Countries

Neighboring countries might compete for the same visitors, or there might be complementarity. Kadir and Abd Karim (2009) reported complementarity among Malaysia, Thailand, and the Philippines for British and American tourist flow. Tourists tend to visit all three countries on the same trip, similar to a travel package.

Patsouratis et al. (2005) investigated tourism competition among Mediterranean countries. Greece, Portugal, and Spain offer quite similar products (beaches, sun, sea, etc.), and thus, they are competing tourist destinations. Greece and Spain are major competitors for British visitors. Increased prices in Spain will increase the demand for visiting Greece. Since it is more expensive to stay in Spain, many travelers will replace Spain with Greece. Añaña et al. (2018) identified significant competition between destinations, where the price level is just one of many factors that influence the choices that travelers make.

2.4. The Demand for Campsites

The international literature includes many articles on camping tourism Ram and Hall (2020); Rogerson and Rogerson (2020); however, few researchers have specifically explored the demand elasticity (income and price) for overnight stays at campsites. There are some studies on the demand for recreation Rosenberger and Stanley (2010). Although it is connected, it is not the same as overnight stays at campsites.

Substitution occurs among different kinds of accommodations. Some countries have experienced reduced camping frequencies over the last decade Marin-Pantelescu (2015). Many customers whose income increases prefer a higher standard of accommodation and might replace campsites with huts and hotels. Therefore, the income elasticity of campsites might be lower than that of hotels. Researchers such as Barnes (1996) and Crawford (2007) reported an inelastic income elasticity Barnes (1996); Crawford (2007). Higher income has a marginal impact on the demand. Due to the substitution effect, Brox and Kumar (1997) suggested a negative income elasticity. The demand for a commodity that is regarded as inferior will fall when income increases. On the other hand, campsites can improve their standards to retain more guests and make these locations more attractive by improving quality and comfort. For this purpose, one needs to invest in infrastructure Grzinic et al. (2010). Overnight stays at camping sites are sensitive to price changes. Beaman et al. (1991) reported a price elasticity of around −1.0 for staying at campsites.

3. Hypothesis

Based on economic theory and previous research, we postulated the following hypotheses:

Hypothesis 1 (H1). *A decrease in the rate of the Norwegian currency leads to more foreign camping tourists in Norway;*

Hypothesis 2 (H2). *The exchange rate of the euro is related to the inflow of Swedish camping tourists in Norway;*

Hypothesis 3 (H3). *The exchange rate of the Swedish currency is connected to German camping tourists in Norway;*

Hypothesis 4 (H4). *There is a connection between income level in the origin country and overnight stays at campsites in Norway.*

The analysis was based on visitors from Sweden and Germany. A fall in the rate of the Norwegian exchange rate means that Norwegians have to pay more for the euro and Swedish krone. This makes it less expensive for Swedes and Germans to visit Norway. Our assumption (H1) was that this leads to greater tourist inflow to campsites in Norway. We assumed that Norway competes with neighboring countries to attract tourists and that German tourists often decide to head north, but are unsure whether to holiday in Norway or Sweden. If it is less expensive in Sweden due to the fluctuation of the exchange rates, more Germans may prefer to stay in Sweden instead of Norway (H3). A fall in the euro means that it will be less expensive for Swedes to stay in neighboring countries such as Finland and Denmark (the Danish currency is connected to the euro) instead of Norway (H2). On the other hand, a stronger Swedish currency can lead to an increase in Swedes traveling abroad. Therefore, one must account for the possibility of complementarity.

It is not clear how an increase in income affects demand for overnight stays at campsites (H4), and the research results are mixed. Some researchers suggested that demand is unaffected by income Crawford (2007), and others proposed that income elasticity is negative (inferior commodity) Brox and Kumar (1997). It is also possible that it is a common good with an income elasticity equal to 1.0 or greater for visiting tourists. Several researchers have pointed out that the income elasticity of foreign tourism is high (see Agiomirgianakis et al. (2014)). This may also apply to camping tourists.

4. Methodology

4.1. Data

The data on overnight stays at campsites were provided by Statistics Norway (SSB). In the dataset from SSB, it was possible to analyze countries of origin and visits by month and year. The Norwegian central bank (Norges Bank) provides an ongoing overview of exchange rates, and we took advantage of this information in our analysis. Figures for the consumer price index (CPI) and gross domestic product (GDP) were from data published by the World Bank. The sample period was from 2000 to 2019. In this study, the focus was on only two visiting countries, Sweden and Germany. Sweden is a neighbor of Norway, and the country has its own currency (SEK). Germany is the most important visiting country (see Figure 2).

4.2. The Models

Based on the analysis of Stabler et al. (2009), the assumption was that the use of campsites in Norway (V) depends on the exchange rate, GDP, and season.

$$\mathrm{V} = f(\text{Exchange Rate, GDP, seasons}) \tag{1}$$

Some researchers have analyzed the effect of changes in the exchange rate by using effective exchange rates, which refers to nominal values adjusted for differences in inflation rates among countries Lee et al. (1996). Especially in the long run, it is more accurate to take into account changes in the consumer price index in different countries Stabler et al. (2009); Syriopoulos (1996). In this study, the effective exchange rate (EER) was used:

$$\mathrm{EER}_i = \frac{\mathrm{CPI}_i}{\mathrm{CPI}_j \cdot \mathrm{ER}_{ji}} = \frac{\mathrm{CPI}_i}{\mathrm{CPI}_j} \cdot \frac{1}{\mathrm{ER}_{ij}} = \frac{\mathrm{CPI}_i}{\mathrm{CPI}_j} \cdot \mathrm{ER}_{ji} \tag{2}$$

The logarithmic transformation of EER_i is:

$$\ln(EER_i) = \ln(CPI_i) - \ln(CPI_j) + \ln(ER_{ji}) \quad (3)$$

where CPI is the consumer price index, ER is the nominal exchange rate, i denotes country i, j denotes country j, and ER_{ji} is the nominal exchange rate for country j relative to country i.

The effective exchange for the country of origin is the consumption price of the origin country divided by the consumption price at the destination, and this price level is multiplied by the exchange rate between the destination country and country of origin. This can be written as the rate between the consumption price at the origin and destination countries multiplied by the exchange rate between origin and destination countries. Tourist inflow is a dynamic process. To capture the dynamic structure of the dependent variable, it is quite common to use autoregressive distributed lag models (ADLs) with lagged dependent and explanatory variables, as in Song et al. (2003); Brooks (2019). In this study, there was a lag of one and two months for overnight stays.

For hotels, German tourists book their visits more than 150 days in advance, while Swedes book their stays less than 100 days before their arrival in Norway Innovation Norway (2019). This effect is at least as likely to apply to overnight stays at campsites. Similar to Aalen et al. (2019), this study used an average of 4–6 months as the time lag before entry for the value of the exchange rate. In line with the international literature Sanchez-Rivero and Pulido-Fernández (2020), the chosen model is presented in logarithmic form:

$$\begin{aligned} \ln(V_{it}) &= \alpha_0 + \alpha_1 \ln(GDP_{it}) + \alpha_2 \ln(EER_{i,t-lag}) + \alpha_3 \ln(EER_{ij,t-lag}) \\ &+ \Sigma_{k=2}^{12}\delta_k M_{kt} + \beta_1 \ln(V_{i,t-1}) + \beta_2 \ln(V_{i,t-2}) + \lambda YEAR2013 + \epsilon_{it} \end{aligned} \quad (4)$$

V_{it} is the overnight stay in Norway by visitors from country i ($i = 1$: Sweden, 2: Germany) in month t. GDP_{it} is gross domestic product for country i in month t (GDP is interpolated linearly from a yearly to a monthly basis). $EER_{i,t-lag}$ is the effective exchange rate between the country of origin and Norway. $EER_{ij,t-lag}$ is the effective exchange rate between the country of origin and an alternative destination (country). k is a dummy variable for month number k, where January was the reference group in this regression. Due to a change in registration in 2013, the data for 2013 were not comparable to the data for the previous year. This was addressed by using the dummy variable Year 2013. In Equation (5), t is the month of arrival (from 2000 to 2019).

We further assumed that the exchange rate in Sweden can influence the tourist inflow from Germany and vice versa. Therefore, the variable $\ln(EER_{ij})$ was included in the model.

The model for Sweden and Germany can be formulated based on Equation (5). The model for Sweden (Country 1) is:

$$\begin{aligned} \ln(V_{1t}) &= \alpha_0 + \alpha_1 \ln(GDP_{1t}) + \alpha_2 \ln(EER_{SEK,NOK,t\text{-}lag}) + \alpha_3 \ln(EER_{SEK,euro,t\text{-}lag}) \\ &+ \Sigma_{k=2}^{12}\delta_k M_{kt} + \beta_1 \ln(V_{1,t-1}) + \beta_2 \ln(V_{1,t-2}) + \lambda YEAR2013 + \epsilon_{1t} \end{aligned} \quad (5)$$

and the model for Germany (Country 2) is:

$$\begin{aligned} \ln(V_{2t}) &= \alpha_0 + \alpha_1 \ln(GDP_{2t}) + \alpha_2 \ln(EER_{euro,NOK,t\text{-}lag}) + \alpha_3 \ln(EER_{euro,SEK,t\text{-}lag}) \\ &+ \Sigma_{k=2}^{12}\delta_k M_{kt} + \beta_1 \ln(V_{2,t-1}) + \beta_2 \ln(V_{2,t-2}) + \lambda YEAR2013 + \epsilon_{2t} \end{aligned} \quad (6)$$

The ADL models were estimated using ordinary least squares (OLS), which leads to consistent estimators under classical OLS assumptions. A move from a static to dynamic model will often result in the removal of residual autocorrelation. To account for autocorrelation, our model is presented with lagged dependent variables for two periods. If there is still autocorrelation in the residuals of the model after including lags, then the OLS estimators will not be consistent Brooks (2019). We tested for autocorrelation by using the Breusch–Godfrey test Brooks (2019).

We further tested for heteroscedasticity using the Breusch–Pagan test Wooldridge (2020). In the presence of heteroscedasticity, the standard errors may be wrong, and hence, any inference made could be misleading. We therefore used heteroscedasticity-consistent robust standard errors in the case of significant heteroscedasticity.

We checked for multicollinearity using bivariate correlations and variance inflation factor (VIF) indices. If VIF indices are above 10, then we often conclude that multicollinearity is a "problem" for the estimated regression coefficients. However, a VIF above 10 does not mean that the standard errors of the estimated regression coefficients are too large. Therefore, the size of the VIF is of limited use Wooldridge (2020).

5. Findings

Table 1 shows all the results. The lagged dependent variable of the demand for overnight stays at campsites was significant for both Sweden and Germany for lag $t-1$ and lag $t-2$. There was no significant autocorrelation for the presented model for Germany or Sweden, with p-values from the Breusch–Godfrey test equal to 0.087 and 0.979, respectively. The Breusch–Pagan test revealed significant heteroscedasticity for Germany and Sweden, with p-values of 0.0025 and 0.000, respectively, and robust estimation was applied.

For the model of Germany, the independent variable $\ln\left(\mathrm{EER}_{euro,NOK,t\text{-lag}}\right)$ was included, but the variable $\ln\left(\mathrm{EER}_{SEK,euro,t\text{-lag}}\right)$ was excluded. These two variables were relatively strongly correlated in our data (r = 0.79 with p-value = 0.0000), and with both variables included in the ADL model, neither was significant, presumably due to multicollinearity. Figure 5 illustrates the strong relationship between these two variables over time. The omission of the variable $\ln\left(\mathrm{EER}_{SEK,euro,t\text{-lag}}\right)$ due to multicollinearity is also explained in Note 2 in Table 1.

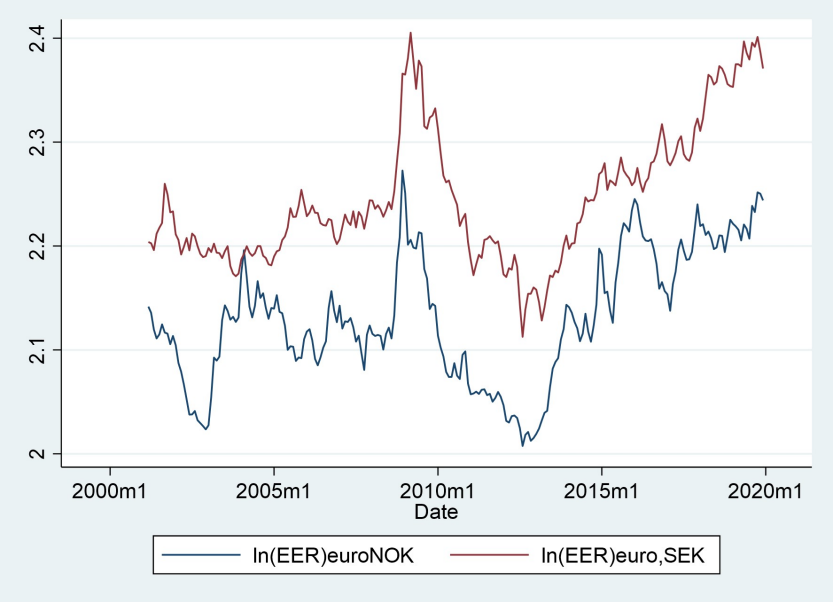


Figure 5. The logarithm of the nominal exchange rate for Germany relative to Norway and Germany relative to Sweden. Source: Norges Bank.

Moreover, most of the monthly dummy variables were significantly positive, but the effect for Germany was stronger than that for Sweden.

Table 1. Estimated ADL models (Equation (5) and (6)). OLS estimates with robust T-values. Dependent variable: inflow from Sweden or Germany.

	Sweden	**Sweden**	**Germany**	**Germany**
	OLS Estimates	**Robust T-Values (1)**	**OLS Estimates**	**Robust T-Values (1)**
Constant	3.50	1.43	0.42	0.22
ln(GDP)	0.57	2.06 **	0.17	0.38
M_2	0.22	3.07 **	0.32	3.28 **
M_3	0.26	3.55 **	0.72	8.66 **
M_4	0.42	6.06 **	0.84	8.50 **
M_5	0.84	12.85 **	2.30	16.05 **
M_6	1.75	21.95 **	3.16	13.03 **
M_7	2.02	15.45 **	2.49	7.34 **
M_8	0.92	5.29 **	1.88	5.12 **
M_9	0.24	1.27	−0.02	−0.06
M_{10}	0.07	0.44	−1.10	−3.56 **
M_{11}	0.04	0.40	−1.04	−4.15 **
M_{12}	0.10	1.46	0.22	1.63
Year2013	−0.22	−5.37 **	−0.20	−2.34 *
$\ln(V_{1,t-1})$	0.60	8.81 **	0.46	4.70 **
$\ln(V_{2,t-1})$	−0.12	−1.52	0.16	2.20 *
$\ln\left(EER_{SEK,NOK,t\text{-lag}}\right)$	−0.34	−1.00		
$\ln\left(EER_{SEK,euro,t\text{-lag}}\right)$ (2)	0.52	1.98 *		
$\ln\left(EER_{euro,NOK,t\text{-lag}}\right)$			0.82	2.26 *
	$N = 220, R^2 = 0.98$, Adj $R^2 = 0.97$. Breusch–Godfrey LM test for autocorrelation. Prob $> \chi^2 = 0.0870$		$N = 220$, $R^2 = 0.98$, Adj $R^2 = 0.98$. Breusch–Godfrey LM test for autocorrelation. Prob $> \chi^2 = 0.9798$	
	Breusch–Pagan test for heteroscedasticity. Prob $> \chi^2 = 0.0025$		Breusch–Pagan test for heteroscedasticity. Prob $> \chi^2 = 0.0000$	
	Mean VIF = 9.80		Mean VIF = 15.60	

Notes: (1) Two sided *t*-test: (**) significant at the 1% level, (*) significant at the 5% level. (2) This variable was not included for Germany in the version presented here.

Using ln-linear demand models, the estimated coefficients showed the elasticities. The exchange rate elasticity for the inflow of German visitors was statistically significant with a value of 0.82. If the Norwegian exchange rate depreciates by one percent, German tourists will increase by 0.82 percent. For Sweden, the exchange rate elasticity was not significant. Nevertheless, the result confirmed Hypothesis 1 (H1). A one percent stronger Swedish currency compared to the euro was significantly connected to 0.52 percent more visitors from Sweden (H2 was confirmed). Due to multicollinearity, we were not able to test Hypothesis 3 (H3).

The income elasticity for German visitors was around zero and not significant. For Sweden, the income elasticity was significant with a value of 0.57. If the income increases by one percent in Sweden, the growth of Swedish travelers visiting Norwegian campsites is 0.57 percent. This confirmed Hypothesis 4 (H4).

6. Discussion

6.1. Campsites and Income

The results were largely consistent with previous research. This confirmed the assumption that the demand for overnight stays at campsites has a low-income elasticity, unlike other parts of the tourism industry. This seems to be the situation in many countries. In an analysis of the tourism industry between 2000 and 2015, Guzman-Parra et al. (2015) observed that there was a significant increase in hotel and rural accommodation, while the number of overnight stays at campsites was stable during this period. This was in accordance with the tendency in Norway (see Figure 3). The regression model showed no correlation between the increase in income in Germany over the past two decades and the use of campsites. Coefficient B was close to zero and was not significant. One interpretation is that the demand for Norwegian campsites among German visitors is independent of the income for this period. For Swedish visitors, on the other hand, the link between income and the use of Norwegian campsites was significant, but the coefficient was small (under 0.6). This means that an increase in income of ten percent will increase the demand for overnight stays at campsites by less than six percent. The demand was inelastic. The reason for the low-income elasticity was presumably that higher incomes lead to more tourists wanting greater comfort than campsites can offer. Campsites are being replaced by more luxurious accommodation options (see Brox and Kumar (1997)).

To counteract the loss of customers, many Norwegian campsites are investing in resources to increase the comfort level (more cabins, leisure facilities, sanitary conditions) to attract more campers. This is in accordance with the observation of Grzinic et al. (2010). This effect may help explain why the income elasticity was not negative. A negative income elasticity has been reported in the United States Rice et al. (2019) and may also apply in Norway. Camping is still mostly low-budget tourism. Therefore, an increase in income in wealthy countries will have little impact on demand. In Australia and New Zealand, there has for example been a substantial increase in the use of caravans and campers, which can offer greater comfort Collins et al. (2018).

6.2. Campsites and Exchange Rate

If a country depreciates the value of its own currency, it becomes less expensive and more attractive to visit. The size of this effect depends on many factors, including the extent of the substitution effect. If the choice is between holidaying in two countries that offer almost the same service, the effect of a slight change in the exchange rate may be considerable. If a tourist is seeking sun and beautiful beaches and is unsure whether to travel to Portugal or Spain, a slight change in the relative prices can have a major impact Patsouratis et al. (2005). In other situations, there are few equal options, in which case, the effect of the exchange rate will be small. Such factors explain why there is a wide gap in the estimation of the exchange rate elasticity.

Although the Norwegian currency has depreciated considerably over the past 10 years, foreigners are still experiencing Norway as an expensive country to visit Jacobsen et al. (2018). The price elasticity of a change in the real exchange rate provides important information about the impact of changes in relative prices. According to our analysis, for German camping visitors, this exchange rate elasticity effect was 0.8. A weaker Norwegian currency leads to more German overnight days at Norwegian campsites (Hypothesis H1). The effect was significant, but the price elasticity was under 1.0. Compared to many other international studies, the influence was rather small. Many German tourists may prefer to experience the midnight sun and see mountains and fjords, often combined with boat trips and fishing, independent of the currency rate Chen and Chen (2016).

Due to multicollinearity, we excluded the value of the Swedish currency in the model for Germany (see Note (2), Table 1) However, our analysis of the data suggested that a change in the Swedish krone had little impact on German camping tourists in Norway. One possible explanation is that the change in the Swedish exchange rate in the examined period was too small for German visitors to factor it into their decisions (see Figure 1). Therefore, it might explain why this analysis cannot prove that a change in the Swedish currency in relation to the Norwegian currency has any significant effect on German visitors. In addition, Germans may find that Norway and Sweden have different offers for camping tourists. This limits the substitution effect. On the other hand, a change in the Swedish krone relative to the euro will have an impact on the number of Swedish visitors to Norwegian campsites. The results showed that a weakening of the Swedish currency compared to the euro (Figure 1) resulted in fewer Swedish visitors (Hypothesis H2) (a strengthening of the Swedish currency against the euro will then have the opposite effect). One possible reason is that Swedes focus on the value of their national exchange rate relative to the euro. If the Swedish currency weakens, fewer Swedes choose to go camping abroad and are more likely to arrange a domestic holiday. The literature indicates that there is often complementarity between different countries. Swedish camping tourism abroad can be combined with visiting neighboring countries (Denmark, Finland, and so on). This may be another factor that explains the significant positive link (elasticity = 0.52) between Swedish currency (relative to the euro) and Swedes' use of Norwegian campsites.

6.3. Other Factors and Campsites

The main reason for using the two periods of lagged dependent variables was to avoid autocorrelation. This factor was statistically significant. One interpretation is stability in the demand; consumers are returning Jacobsen et al. (2018), and a reputation has been developed for ensuring the attraction of new visitors. This is supported by active marketing. The use of campsites in Norway is highly seasonal (see Figure 4). Therefore, as expected, we observed a significant impact on dummy goods for various months.

7. Limitations

This analysis was for a limited time frame and for only two countries. It would be beneficial to include other countries that are important for Norwegian camping tourism, such as the Netherlands and Denmark. It is reasonable to assume that the impact observed for Germans will be largely the same for Dutch tourists. Danes represent a different segment since they visit Norway in winter (skiing). In addition, the analysis was based on public data.

There are many other factors that can affect the demand for Norwegian campsites that were not captured in the model (different types of accommodation at the campsite, standard changes, and so on). For example, most campsites sell different types of accommodation such as cabins or apartments with different standards and prices, tent pitches, and separate pitches for motorhomes with the possibility of connecting to electricity. It is also possible to enter into long-term contracts that run for several years. The opportunities available for outdoor activities also vary from campsite to campsite.

The weather can also have an impact on people's choice of holiday, and with improved meteorological models and flexibility in the employment relationship, the holiday can be planned so that the probability of "good weather" is greater than in the past. This can be a topic for followup research, although there may be problems related to data collection.

8. Contribution and Conclusions

Demand elasticities are helpful tools for tourist industry planning. Because there are significant fluctuations in the exchange rate, it is useful to understand the impact of this variable on tourist demand. This study was based on two countries that are important for the Norwegian tourist industry, namely Sweden and Germany. How income and currency

changes affect camping tourism from Sweden and Germany to Norway has never been studied before.

Using available data, we calculated the currency and revenue elasticity of the inflows of camping tourists from these two countries. The analysis revealed that income had an impact on demand, but the effect was small. This was consistent with previous studies that reported that the demand for campsites was quite inelastic. This research suggested that a weaker Norwegian exchange rate stimulated demand for Norwegian campsites, but with a currency elasticity below 1.0. Furthermore, the result showed that a stronger Swedish currency relative to the euro had a positive influence on overnight stays at Norwegian campsites. The explanation was presumably that it led to more Swedes holidaying abroad and that there was complementarity between neighboring countries and Sweden.

Little research has been performed on camping tourism in Norway. Thus, little is known about what influences this type of tourism. When there is limited knowledge, there is a greater risk that the wrong investment decisions will be made. This may lead to the waste of the society's resources. Our contribution expands the knowledge of what influences camping tourism and provides decision-makers with a better decision basis.

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Impact of Investment in Tourism Infrastructure Development on Attracting International Visitors: A Nonlinear Panel ARDL Approach Using Vietnam's Data

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Abstract: Investment in tourism infrastructure development to make destinations and services increasingly attractive is considered a key measure in developing a country's tourist destinations. This paper investigates the impact of investment in tourism infrastructure components on international visitor attraction using data from Vietnam for the period 1995–2019. The results of analyzing panel data by the nonlinear Autoregressive Distributed Lag (ARDL) approach show that, in the long-run, investing in the three components of tourism infrastructure, namely transport and communications infrastructure, the hotel and restaurant industry, and recreation facilities, has a strong and positive impact on international visitor attraction. In addition, different short-run impacts of the three tourism infrastructure components on the whole market and each major international visitor market are also found.

Keywords: tourism infrastructure; attracting international visitors; transport and communications infrastructure; hotel and restaurant industry; recreation facilities

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1. Introduction

Tourism plays a vital role in the economic growth of many countries, contributing to the development of related services and infrastructure. Thus, the development of tourism affects the progress and prosperity of the national economy (Sinclair 1998). International tourists bring foreign currencies to destination countries, increase residents' incomes, create jobs, improve living standards, and contribute to expanding and strengthening international economic relations. Tourism development has become an important goal for most governments, especially in developing countries. Therefore, studying and proposing policies to develop tourism has become an issue of interest to both governments and researchers in recent years.

According to Boers and Cottrell (2007), the demands of tourists in the 21st century are very specialized and varied, so tourists are not simply satisfied with conventional travel experiences. To meet the unique and diverse demands of tourists, Dujmovic and Vitasovic (2014) argue that it is important to develop new tourism products and destinations, providing tourists with more sources of inspirational experience. Matias et al. (2007) point out that factors driving tourism's growth and development have been identified and improved, including improved income and wealth, improved traffic, changes in lifestyles and consumption values, entertainment space, international globalization, immigration, special events, education, information and communications technology, marketing, promotion of tourist destinations, infrastructure in general, and tourism infrastructure in particular. Therefore, it can be said that improving tourism infrastructure to increase the attractiveness of the destination is an essential factor in attracting tourists. The studies of Tribe (2004), Naudé and Saayman (2005), and Seetanah et al. (2011) point out that a country's infrastructure determines its potential attractiveness as a tourist destination.

Furthermore, recent studies have shown that tourism infrastructure has a positive impact both directly and indirectly on the quality of life of residents through sustainable tourism development (Mamirkulova et al. 2020). Therefore, there have been studies related to tourism infrastructure, although this issue is not always entirely the focus of research, such as those considering the role of infrastructure in tourism development (Prideaux 2000; Jovanović and Ilić 2016), infrastructure impact on tourism development (Seetanah et al. 2011; Yu 2016), the relationship between infrastructure and tourism (Suleiman and Albiman 2014; Mandić et al. 2018), the impact of transport infrastructure on tourism development (Khadaroo and Seetanah 2007a, 2007b, 2008; Seetanah and Khadaroo 2009; Ouariti and Jebrane 2020), relationship between tourism infrastructure and international visitor flows (Lim et al. 2019), and the relationship between foreign direct investment and tourism development (Selvanathan et al. 2012; Khoshnevis Yazidi et al. 2015; Samimi et al. 2017). These studies have shown the impact of infrastructure, or some of its components, on tourism development in various contexts. However, to the best of our knowledge, studies considering the full impact of tourism infrastructure components such as transport infrastructure, social infrastructure, and environmental infrastructure on attraction to tourists are rare. This is the driving force for this study, examining the role of investment in tourism infrastructure development and in attracting international tourists, using empirical data from Vietnam.

Vietnam is a developing country located in Southeast Asia with many historical relics and famous landmarks, notably including eight UNESCO heritage sites. The tourism industry plays a vital role in the development of the economy. Therefore, it is seen as a key economic sector. According to the Vietnam National Administration of Tourism, Vietnam National Administration of Tourism (2020), in 2019 the tourism industry directly contributed to 9.2% of Vietnam's GDP, including the vital role of international tourists. However, despite having diversified and abundant tourism resources, if investment in tourism infrastructure development is limited, Vietnam will become an unattractive tourist destination and will be unable to compete with regional destinations such as Thailand, Malaysia, or Singapore.

This study aims to determine the impact of investment in tourism infrastructure development on attracting international tourists. The important contribution of this paper will be a detailed description of the different roles of investment in transport and communication infrastructure development, the hotel and restaurant industry, and recreation facilities in attracting international tourists, with an updated sample to 2019. Research results are expected to contribute both theoretically and practically, providing necessary implications to attract future tourism development investment.

After the introduction section, the structure of the study includes four further sections: Section 2 presents a literature review; Section 3 presents the methodology and data; Section 4 presents the research results and discussion; and finally the article ends with the conclusion in Section 5.

2. Literature Review

Tourism is viewed as one of the fastest growing fields over recent decades, especially in emerging and developing economies. According to Thapa (2012), although the tourism industry has obviously grown, it is important to maintain and develop it with a sustainable strategy for further expansion. Investment in infrastructure development, emphasizing tourism infrastructure, is considered one of the critical factors to help achieve this goal. Scholars and policymakers agree that infrastructure development plays a key role in maintaining visitor arrivals and overall economic growth (Suleiman and Albiman 2014; Yu 2016). "The maintenance of local tourism infrastructure is becoming an increasingly important prerequisite for the country's competitiveness" (Petrova et al. 2018, p. 259). Moreover, widespread and efficient infrastructure is an important factor in ensuring the efficient functioning of the economy (Bookman and Bookman 2007). Conversely, weak infrastructure can

disrupt a country's economic development and international competitiveness (Tribe 2004; Hope 2010).

Tourism infrastructure is a type of infrastructure consisting of facilities and services performed within a particular locality to meet the needs of local residents and specific purposes (Goeldner and Ritchie 2009). "It is considered as the physical element that is designed and erected to cater to visitors" (Jovanović and Ilić 2016, p. 289). Tourism infrastructure has the potential to increase competition and promote tourism by providing travel facilities for tourists (Suleiman and Albiman 2014). Further, Lim et al. (2019, p. 187) pointed out that "tourism infrastructure increases tourism demand trends". The scope of tourism infrastructure is wide and involves all the factors that can facilitate and promote a destination's tourism development (Swarbrooke and Horner 2001). In a broad sense, tourism infrastructure encompasses all of the means that tourists use when they leave home, arrive at their destination, and return home (Lohmann and Netto 2017).

Tourism infrastructure has long been considered a part of tourism and plays a key role in attracting tourists. Seetanah et al. (2011, p. 92) emphasize "the role of service infrastructure in creating product experience and shaping the overall image of a destination for tourists". Thus, tourism infrastructure is the basis of tourism development. Investment in tourism infrastructure is important in increasing tourist arrivals, and contributes to visitor satisfaction and motivation. As a component of regional tourism, tourism infrastructure is of particular importance for long run tourism growth and the general progress of tourist destinations by providing the required services to tourists. The apparent relationship between tourism development and infrastructure has been confirmed in theory and practice by many authors.

The literature provides different views on the number and type of components representing tourism infrastructure, which can be classified in many various ways. Pearce and Wu (2015) divide tourism infrastructure into two types, namely hard and soft, which Hope (2010, p. 91) called "social and economic infrastructure". According to Enimola (2010, p. 121), "the social infrastructure sub-sector covers some social services like the provision of education, information, town and country planning, health services and other social welfare services in the society"; while "the economic infrastructural sector embraces a group of hard-core economic activities which relate to the production of energy and power, transportation services, water and communication services and others" (Ayodele and Falokun 2003, p. 74). From the model of Pearce and Wu (2015), Bagheri et al. (2018, p. 89) have shown that "to systematize the tourism sector within the soft infrastructure, an amalgamation of diverse factors is shaped, including hospitality, interpretation, and person-to-person encounters that tourists experience". According to Bagheri et al. (2018, p. 89), "Thapa (2012) has also added professional human resources to the sub-set of soft infrastructures, emphasizing the human factor as the most important infrastructure element in developing countries".

Approaching the components of tourism infrastructure, Raina (2005) divides it into four categories, namely: "1. Physical; 2. Cultural; 3. Service; 4. Governance". Ouariti and Jebrane (2020, p. 5) indicated that physical infrastructure includes "hotels, motels, restaurants, transportation, communications, water, electricity"; cultural infrastructure includes "culture, heritage, fairs and festivals, local art and music, dress and dance, language and food"; service infrastructure includes "banking facilities, travel agencies, insurance agencies, tourist guides"; governance infrastructure includes "law and order machinery, customs and immigration".

From the perspective of tourism infrastructure types, Ouariti and Jebrane (2020, p. 5) point out that "the Tourism and Transport Forum (2012) affirms that tourism infrastructure is the supply chain of transport infrastructure, social and environmental infrastructure collaborating at a regional level to create an attractive tourism destination". Among the three components of tourism infrastructure proposed by the Tourism and Transport Forum (2012), social infrastructure is financed mainly by the private sector, while the state mainly controls the environmental and transport infrastructure. The state is responsible

for investing directly in the construction and development of this sector. Today, many countries that want to achieve high business results by attracting more international tourists often focus on increasing investment in the construction and development of tourism infrastructure.

2.1. The Role of Transport Infrastructure and Communications Infrastructure

Although scholars approach elements of tourism infrastructure from different perspectives, it is undeniable that transport infrastructure is an important representation of tourism infrastructure and directly impacts the tourism infrastructure that attracts visitors. Kaul (1985, p. 496) stated that "transport plays an important role in the successful creation and development of new attractions as well as the healthy growth of existing ones. Provision of suitable transport has transformed dead centers of tourist interest into active and prosperous places attracting multitudes of people". Indeed, the transport system performs the task of connecting areas with each other, as well as with tourist attractions, and becomes a factor in the competitiveness of the destination. International visitors often go to destinations where transportation systems are available and well developed. Prideaux (2000, p. 53) argues that "if the ability of tourists to travel to preferred destinations is inhibited by inefficiencies in the transport system there is some likelihood that they will seek alternative destinations ". Hence, investment in transport infrastructure development has been an issue of concern for governments for many years.

Along with transport infrastructure, communications infrastructure also plays a vital role in attracting tourists. Communications play an essential role in the development and sustainability of tourism. This helps travelers obtain destination information, make informed decisions about where to go, and helps countries and travel agencies promote and recommend their destinations. Pearce and Wu (2015) indicate that transportation, tourism facilities, and communications are the main components of hard infrastructure. Raina (2005) thinks that traffic and communications are elements in the physical components of tourism infrastructure, along with hotels, motels, and restaurants. Many recent empirical studies have demonstrated the role of transport infrastructure and communications in attracting tourists, resulting in transport infrastructure and communications infrastructure proving to be important factors affecting the number of tourists visiting (Khadaroo and Seetanah 2007b); transport infrastructure is a significant determinant of tourism inflows into a destination (Khadaroo and Seetanah 2008), transport capital having contributed positively to the number of tourist arrivals in both the short-run and the long-run (Seetanah and Khadaroo 2009), the construction of transportation infrastructure promoting the tourism industry (Yu 2016); thus, infrastructure and transportation are important components of the tourism supply chain (Ghaderi et al. 2018); developing transport infrastructures such as highways, airports, and railway stations, has a positive impact on overnight stays in all types of accommodation (Ouariti and Jebrane 2020). Furthermore, Tang (2020) argues that improving transport infrastructure is an important component of trade facilitation and "trade facilitation has improved the efficiency of the inbound tourism market, especially the indicator of infrastructure" Tang (2020, p. 51).

2.2. The Role of the Hotel and Restaurant Industry

The hotel industry provides hotel services and organizes short-term accommodation rental services at hotels, campsites, motels, student motels, and guest houses, etc., including restaurant services. In general, the hotel industry provides accommodation and food services for tourists. The hotel and restaurant industry is considered a major component of hospitality and an important components of tourist infrastructure. Hospitality, especially in its commercial incarnation as the "hotel", has emerged as the hub, or the most vital segment, of infrastructure facilities for the travel and tourism industry anywhere around the globe. Raina (2005) considers that, along with transportation, hotels, motels, and restaurants are the physical elements of tourism infrastructure. Meanwhile, the Tourism and Transport Forum (2012) points out that hotels are a significant component of tourism's

social infrastructure and Pearce and Wu (2015) consider them part of the hard infrastructure of tourism.

Like transportation infrastructure, the hotel industry's role (including the restaurant industry) in attracting tourists and developing the tourism industry is evidenced by many recent empirical studies. It is also considered an important component in the tourism supply chain (Ghaderi et al. 2018) and many studies have used rooms as a proxy for tourism infrastructure (Khadaroo and Seetanah 2007b, 2008; Seetanah and Khadaroo 2009; Seetanah et al. 2011; Lim et al. 2019).

2.3. The Role of Recreation Facilities

It can be seen that recreational facilities provide attractions, sightseeing, places, and entertainment for visitors during their trip, so is an indispensable component in the tourism infrastructure. Mandić et al. (2018, p. 42) emphasized that "Recreational facilities are an integral part of physical infrastructure which is an indispensable pillar of overall economic and tourism development". Mandić et al. (2018, p. 44) also indicate that "the development of tourism infrastructure and recreational facilities is associated with tourism development (UNWTO 2007; Sharpley 2009)". Adapting the tourism infrastructure model of Jafari and Xiao (2016), Mandić et al. (2018, p. 43) point out that "the physical infrastructure of direct relevance to tourism includes recreational facilities that, along with hotels and other forms of accommodation, spas, and restaurants, form the central tourism infrastructure". In addition, Raina (2005, p. 192) states that "culture and art are also considered elements of the culture which is a component of tourism infrastructure". Therefore, it can be seen that recreational facilities together with transport and communication infrastructure and the restaurant and hotel industries play a part in tourism infrastructure. Each part will promote tourism development by creating attractiveness and enhancing the competitiveness of a destination.

2.4. The Influence of Uncertain Factors

According to Vanegas Sr and Croes (2000, p. 951), many qualitative factors influence tourism consumption decisions, such as "special events, political instability, social conflicts, air travel problems, travel restrictions, economic recession and other factors". Typically, dummy variables are introduced to explain the impact of special events that may temporarily affect tourism demand. According to Lin et al. (2015, p. 39), "Greene (2008, p. 106) proposed a dummy variable is a variable that takes the value of one for some observations to indicate the presence of an effect or membership in a group and zero for the remaining observations". Song and Li (2008, p. 217), after reviewing articles on tourism demand modeling and concluded that "researchers should develop some forecasting methods that can accommodate unexpected events in predicting the potential impacts of these one-off events through scenario analysis". Therefore, it can be seen that, in addition to the quantitative variables of investment in tourism infrastructure development, it is necessary to use dummy variables to represent uncertain factors to consider their effects on attracting international visitors.

3. Methodology and Data

3.1. Specification Research Model

From the literature review, this study hypothesizes that investment in tourism infrastructure such as transport and communication infrastructure, hotel and restaurant industry, and recreation facilities, will positively impact on attracting international visitors to Vietnam, while dummy variables indicate the temporary influence of special events. This relationship is shown by Equation (1) below.

$$VA_{i,t} = f(TC_t, HR_t, EF_t, Dum_{i,t}) + U_{i,t} \quad (1)$$

where $VA_{i,t}$ is the visitor arrivals from source country i in year t; TC_t is the capital invested in transport and communications infrastructure in year t; HR_t is the capital invested in the

hotel and restaurant industry in year t; RF_t is the capital invested in recreation facilities in year t; $Dum_{i,t}$ are the dummy variables representing qualitative factors from source country i at time t; $U_{i,t}$ is the disturbance term that captures all the other factors that may influence the number of visitor arrivals from source country i at time t.

The international visitor arrivals can be divided into several categories, i.e., "sightseeing tourists, business tourists and tourists of other types" (Tang 2020, p. 38) and there can be heterogeneity between them. However, because there are not enough specific data for these objects, heterogeneity between them is not considered.

This study uses regression analysis with a log-log model to estimate the impact of tourism infrastructure development investment on attracting international tourists to Vietnam. In fact, the log-log model is often used to estimate the parameters in order to evaluate the impact level of the independent variable on the dependent variable, because then the effect can be obtained directly from the coefficients (Witt and Witt 1995; Song et al. 2009). Furthermore, the natural logarithmic transformation also reduces data instability (Enders 2004; Studenmund 2006).

There are many techniques to estimate the coefficients of the factors affecting the number of visitors in order to fit the data. Initially, the ordinary least squares (OLS) technique was used commonly for both time series or panel data (such as in the study of Vanegas Sr and Croes 2000; Kulendran and Witt 2001; Lim 2004; Croes and Vanegas Sr 2005; Muñoz 2007). However, OLS regression requires the series to be stationary, otherwise it will lead to spurious regression (Granger and Newbold 1974). One of the technique considered to solve the non-stationary series problem is the cointegration test. The cointegration technique describes "the existence of an equilibrium, or stationary, relationship among two or more time-series, each of which is individually non-stationary" (Banerjee et al. 1994, p. 136). Furthermore, "cointegration techniques permit the estimation and testing of the long-run equilibrium relationships" (Lim and McAleer 2001, p. 1618; Dritsakis 2004, p. 118). Two common estimators for the technique are fully modified ordinary least squares (FMOLS) and dynamic ordinary least squares (DOLS). These estimators need to satisfy one fundamental assumption: the variables included in the models are all non-stationary at level, but stationary at first difference and cointegration of order 1. This technique has been applied in several studies which meet the qualifications (e.g., Dogru et al. 2017). However, these conditions are not always met. Moreover, according to Narayan and Narayan (2005, p. 429), "methods of cointegration are not reliable for small sample sizes". To overcome these limitations, Pesaran and Shin (1999) proposed an ARDL modeling approach. This method is superior regardless of whether the variables exhibit I(0), I(1), or a mixture of both. Song et al. (2003, p. 365) state that "one of the advantages of the general ARDL is that a modern econometric technique, known as error correction, can be readily incorporated into the modeling process". Given these advantages, the ARDL estimation technique has been widely used in recent studies (Song et al. 2003; Lee 2011; Otero-Gómez et al. 2015; Lin et al. 2015; Shafiullah et al. 2018; Kumar et al. 2020).

Based on the above analysis, the nonlinear panel ARDL approach is applied in this study. "Nonlinear ARDL model in panel form which is also a nonlinear representation of the dynamic heterogenous panel data model that is suitable for large T panels" (Salisu and Isah 2017, p. 261). The panel ARDL method also helps to estimate the long-run and short-run relationships for the general sample, as well as the short-run cross-sectional coefficients for each subject, even when the variables are non-stationary and/or show no cointegration. The nonlinear panel ARDL model used in this study is presented in the form of Equation (2) below:

The panel ARDL method also helps in estimation.

$$\begin{aligned} \Delta lnVA_{i,t} = \mu_i + & \sum_{j=1}^{q1} \vartheta_{1ij} \Delta lnVA_{i,t-j} + \sum_{j=0}^{q2} \vartheta_{2ij} \Delta lnTC_{t-j} + \sum_{j=0}^{q3} \vartheta_{3ij} lnHR_{t-j} \\ & + \sum_{j=0}^{q4} \vartheta_{4ij} lnRF_{t-j} + \varphi_{oi} + \varphi_{1i} lnVA_{i,t-1} + \varphi_{2i} lnTC_{t-1} + \varphi_{3i} lnHR_{t-1} \\ & + \varphi_4 lnRF_{t-1} + Dum_{i,t} + \varepsilon_{i,t} \\ & i = 1,\ 2,\ \ldots N;\ t = 1,\ 2,\ \ldots\ T \end{aligned} \tag{2}$$

where μ_i is the group-specific effect; i is the source country; t is the number of periods (year); $-1 < \varphi_1 < 0$ is the error correction term's coefficient; $\varepsilon_{i,t}$ is the error term; is the first difference operator; j is the lag order decided by the Akaike Information Criterion (AIC); ln is the natural logarithm. For each cross-section, the long-term slope (elasticity) of capital investment in transport and communications infrastructure, the hotel and restaurant industry, and recreation facilities is calculated as $-\frac{\varphi_{2i}}{\varphi_{1i}}$, $-\frac{\varphi_{3i}}{\varphi_{1i}}$, $-\frac{\varphi_{4i}}{\varphi_{1i}}$, respectively, and with the expectation of a positive coefficient. Therefore, the short-term estimate of capital investment in transport and communications infrastructure, the hotel and restaurant industry, and recreation facilities are ϑ_{2ij}, ϑ_{3ij}, ϑ_{4ij}, respectively.

3.2. Data

The measurement of tourist attraction to Vietnam in this study is based on international tourist arrivals, as used by many previous studies to measure tourism demand (Khadaroo and Seetanah 2007a; Seetanah and Khadaroo 2009; Seetanah et al. 2011; Mandić et al. 2018). The international visitor arrivals were collected from the ten largest source markets and the remaining markets for 25 years (1995–2019) to form panel data with 275 observations (N = 11 and T = 25). Data on international visitors to Vietnam by source countries in the period 1995–2018 were collected from the VNAT. The ten countries with the most significant number of visitors to Vietnam in the period 1995–2019 are China, Korea, Japan, the United States (US), Malaysia, Australia, the United Kingdom (UK), Singapore, France, and Germany, respectively. These ten source countries accounted for 70.08% of total visitor arrivals to Vietnam from 1995–2019 (Figure 1).

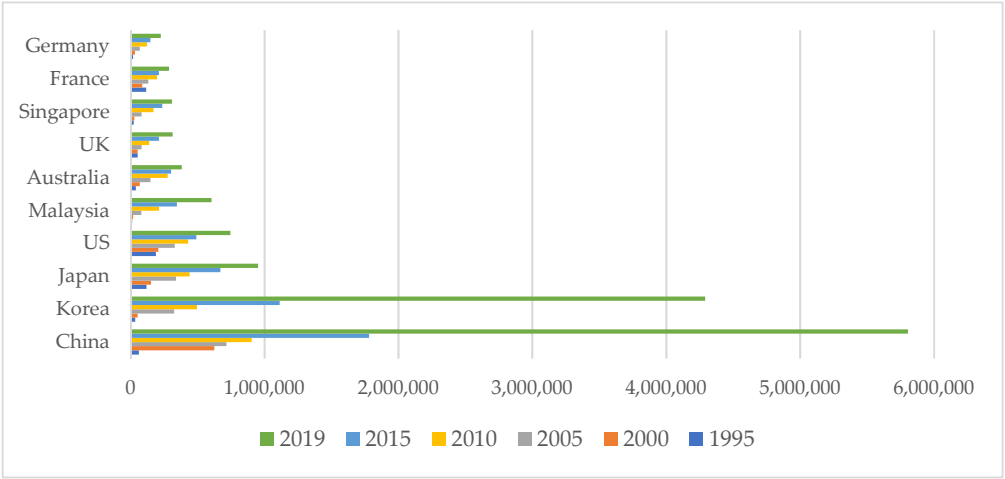

Figure 1. Visitors from ten major international markets in the period 1995–2019.

The data series covers 25 years from 1995–2019 and the summary of variables used in the model is described in Table 1 below.

Table 1. Summary of variables used in the model.

Variable	Measure	Description	Data Source
VA	Visitor arrivals	Total number of visitor arrivals per annum	World Tourism Organization (UNWTO) and VNAT
TC	Transport and communications infrastructure	Social investment in transport; storage, and communications	GSO of Vietnam
HR	Hotel and restaurant industry	Social investment in the hotel and restaurant industry or accommodation, food and beverage service activities	GSO of Vietnam
RF	Recreation facilities	Social investment in recreation, culture, and sport or recreation, entertainment, and the arts	GDO of Vietnam

Note: Data on social investment capital is converted to fixed prices; the original year was 1994.

According to the GSO of Vietnam, the investment capital of the activities in Table 1 for the period 1995–2009 are based on the original year, 1994. However, from 2010–2019 the fixed price is for 2010. Therefore, the fixed price of 2010–2019 is converted to the original year price by the conversion coefficient of the original year 2010 to the original year 1994 according to the Equation (3) below.

$$\text{Conversion coefficient of the original year 2010 to the original year, 1994} = \frac{\text{Value in year n at the 2010 price}}{\text{Value in 2010 based on the original 1994 price}} \quad (3)$$

Source: Vietnam Ministry of Planning and Investment (2012).

Between 1995 and 2019, there were three years of negative growth in international tourist arrivals to Vietnam: 1998, 2003, and 2009 show −11.4%, 7.6%, and −11.5%, respectively, due to the Asian financial crisis in the late 1990s, the SARS epidemic in 2003, and the global recession in 2008–2009. However, the following year, the number of international tourists to Vietnam increased again and offset previous declines (Figure 2).

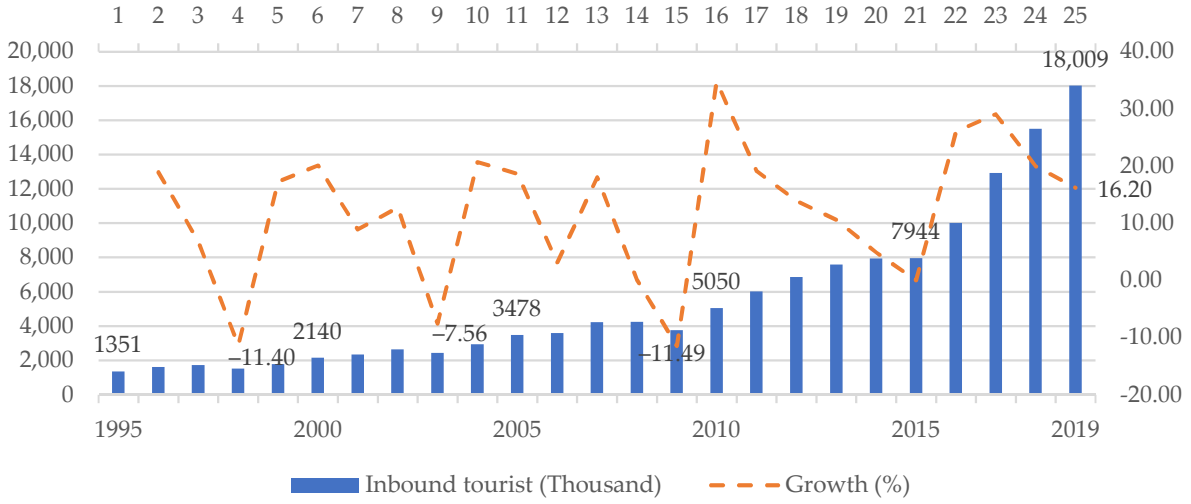

Figure 2. Changes in international visitors to Vietnam in the period 1995–2019. Source: Data from UNWTO and VNAT.

Particularly for the Chinese source market, the largest market to Vietnam in recent years, there are also special events such as in 1995, when the relationship between China and Vietnam had not been normalized, so visitors from China to Vietnam faced difficulties obtaining visas; in 2015, China placed an oil rig in Vietnamese waters, straining relations between the two countries and severely affecting tourism. In this study, the above events are considered unstable factors which affected tourists' decision to visit Vietnam. Therefore, the dummy variable used is the value 1, and the remaining cases are assigned the value 0. More details about the methodological use relating to dummy variables can be found in Song and Lin (2010) or Lin et al. (2015). Table 2 below presents descriptive statistics of the variables in the model with 275 observations (11 source markets over 25 years).

Table 2. Descriptive statistics variables.

	Ln(VA)	Ln(TC)	Ln(HR)	Ln(RF)
Unit	1000 person	Billion VND	Billion VND	Billion VND
Mean	12.3131	10.3976	8.5841	8.0096
Maximum	15.5745	11.1848	9.5693	8.9410
Minimum	9.5076	9.1832	7.7227	6.7178
Standard Deviation	1.2666	0.6630	0.5147	0.6452
Coefficient of Variation	0.1029	0.0638	0.0600	0.0806
Observations	275	275	275	275

Source: Author's calculation using Eviews.

4. Research Results and Discussion

4.1. The Test Results, Stationarity and Cointegration

Before estimating the parameters, stationarity and cointegration tests were performed to show that the nonlinear panel approach ARDL is appropriate for the data. The unit root test is a popular method for stationary tests for both annual time series and panel data. The stationarity test is conducted in both "individual intercept" and "individual intercept and trend" in test equations. There are many types of unit root test for panel data such as Levin, Lin and Chu t (LLC) and Breitung t-stat with common unit root process; I'm, Pesaran and Shin W-stat (IPS), ADF—Fisher Chi-square (ADF), and PP—Fisher Chi-square (PP) with individual unit root process. The panel data in this study are balanced so that both hypotheses can be applied. The LLC test is chosen for the hypothesis "common unit root process" and the hypothesis "individual unit root process" is chosen for the IPS test. The results of panel unit root tests for logarithms of variables are summarized in Table 3.

Table 3. Results of stationarity test.

	Intercept				**Intercept and Trend**			
	LLC	**IPS**	**ADF**	**PP**	**LLC**	**IPS**	**ADF**	**PP**
lnVA	I(1) ***	I(1) ***	I(1) ***	I(1) ***	I(0) **	I(1) ***	I(1) ***	I(1) ***
lnTC	I(0) ***	I(1) ***	I(1) ***	I(1) ***	I(1) ***	I(1) ***	I(1) ***	I(1) ***
lnHR	I(1) ***	I(1) ***	I(1) ***	I(1) ***	I(1) ***	I(1) ***	I(1) ***	I(1) ***
lnRF	I(0) ***	I(0) ***	I(0) **	I(1) ***	I(1) ***	I(1) ***	I(1) ***	I(1) ***

Source: Author's calculation using Eviews. Note: LLC, Levin, Lin & Chu; IPS, I'm, Pesaran and Shin W-stat; ADF, ADF—Fisher Chi-square; PP, PP—Fisher Chi-square; ** and *** for statistically significant at the 0.05 and 0.01 levels, respectively.

According to Table 3, most of the series are non-stationary at level, but stationary at first difference, except for lnVA in LLC test of intercept and trend; lnTC in LLC test of intercept; and lnRF in LLC, IPS and ADF of intercept. Based on the majority of the results, it can be seen that the series are non-stationary at level but stationary at first difference, so a cointegration test should be performed to consider the long-term relationship between variables.

To analyze the cointegration relationship between variables in the panel data model, this study chooses the Pedroni and Kao tests because they are more comprehensive and universal. Cointegration tests are conducted for both "individual intercepts" and "individual intercept and individual trends" in the Pedroni test. By contrast, it is only conducted in the case of individual intercepts in the Kao test. The Pedroni test used seven test statistics (four tests for within-dimension and three tests for between-dimension). The Schwarz Information Criterion (SIC) automatically chooses the lag length with Newey-West automatic bandwidth selection and Bartlett kernel. Table 4 below presents the results of panel cointegration analysis.

Table 4. Results of panel cointegration test.

Method	**Statistic**	**Individual Intercept**	**Individual Trend and Individual Intercept**
Pedroni test	Panel v-Statistic	1.0575	2.8684
	Panel rho-Statistic	−0.7207	−1.0157
	Panel PP-Statistic	−3.0080 ***	−8.0608 ***
	Panel ADF-Statistic	−2.4028 ***	−2.3750 ***
	Group rho-Statistic	0.4850	1.1146
	Group PP-Statistic	−3.1699 ***	−5.8950 ***
	Group ADF-Statistic	−2.3379 ***	−3.7839 ***
Kao test	t-Statistic	−0.7738	

Note: *** for statistically significant at the 0.01 levels, respectively; deterministic trend specification: Individual intercept for Pedroni test and Kao test; Four tests for within-dimension of Pedroni test are weighted statistics. Source: Author's calculation using Eviews.

According to the results of the Pedroni test in Table 4, 4/7 tests are significant at the 0.01 level for both "individual intercept" and "individual trend and individual intercept". This means that most cointegration tests in the Pedroni test result in the cointegration series. However, the Kao test gives the opposite result, meaning that the Kao test result does not give cointegration series at the level of 0.05, so is not compelling evidence to conclude clearly that series shows cointegration. Because of lnVA, lnTC, lnHR, and lnRF containing both I(0) and I(1), and when the existence of long-run associations is unclear, the ARDL technique is the most appropriate.

4.2. Estimated Results

This study uses the Pooled Mean Group (PMG) estimator to estimate the impact of investment in tourism infrastructure development on attracting international visitors to Vietnam. The PMG estimator is a well-known technique used in the estimation of a dynamic heterogeneous panel data model. Furthermore, by design, in addition to the panel regression results, the PMG also generates results for the individual units (Blackburne and Frank 2007). Thus, computing the impact of tourism infrastructure development on attracting international visitors can assess both long-run and short-run responses for the general sample and each sample (each source market). First, the parameters are estimated by the PMG estimator for the general sample (panel data) with Automatic selection in three maximum lags, Akaike info criterion (AIC) in the Model selection method, and Linear trend in trend specification. Table 5 below summarizes the regression results by the PMG estimator for the general sample for both long-run and short-run.

Table 5. Results of regression by the PMG estimator for the general sample.

Variable	Coefficient	t-Statistic	*p*-Value
Long-Run Equation			
LnTC	0.7836	4.0925 ***	0.0001
LnHR	0.7503	7.5976 ***	0.0000
LnRF	0.4026	3.0775 ***	0.0028
Dum	−0.3533	−2.9951 ***	0.0036
Short-Run Equation			
COINTEQ01	−0.4743	−3.9677 ***	0.0002
$\Delta LnVA_{(-1)}$	0.1314	0.7826	0.4361
$\Delta LnVA_{(-2)}$	0.2049	1.0379	0.3023
$\Delta LnTC$	−0.1881	−0.8512	0.3971
$\Delta LnTC_{(-1)}$	−0.1081	−0.5081	0.6127
$\Delta LnTC_{(-2)}$	−0.3618	−1.5872	0.1162
$\Delta LnHR$	−0.2994	−2.1350 **	0.0357
$\Delta LnHR_{(-1)}$	−0.3207	−2.3850 **	0.0193
$\Delta LnHR_{(-2)}$	−0.3747	−2.6398 ***	0.0099
$\Delta LnRF$	0.0073	0.0944	0.9250
$\Delta LnRF_{(-1)}$	0.3680	4.8035 ***	0.0000
$\Delta LnRF_{(-2)}$	0.2761	5.5745 ***	0.0000
Δ Dum	−0.0309	−0.5882	0.5579
Δ $Dum_{(-1)}$	−0.0466	−1.2999	0.1972
Δ $Dum_{(-2)}$	0.0266	0.6770	0.5003
C	−2.6244	−3.8043 ***	0.0003
@Trend	−0.0059	−0.6470	0.5194
Statistics			

Standard error of regression = 0.0814; Sum squared residual = 0.5565; Log likelihood = 445.9467; Akaike info criterion = −1.8542; Schwarz criterion = 0.6579; Hannan-Quinn criterion: −0.8460. Note: LnVA is dependent variable; ** and *** for statistical significance at 0.05 and 0.01 levels, respectively. Source: Author's calculation using Eviews.

As shown in Table 5, the Log-Likelihood is large; Standard error of regression, Sum squared residual, and Akaike info criterion, Schwarz criterion, and Hannan-Quinn criterion statistics are relatively small, so the model is appropriate and fits with the data. For the long-

run equation, all variables of interest are significant at the 0.01 level, so they are accepted. The estimated coefficients have the same sign as the initial expectation. Investment in tourism infrastructure such as transport and communications infrastructure, the hotel and restaurants industry, and recreation facilities, all positively impact attracting international visitors to Vietnam. Meanwhile, uncertainty factors have been negatively affected.

In the short-term equation, the coefficient of cointegrating equation has a negative sign (−0.4743) and is significant at the 0.01 level. This means that the variables converge to the long-run equilibrium, and the convergence rate is 47.43%. The lnTC and Dummy are not significant at the 0.05 level for all lags. By contrast, the variable lnHR is significant at the level, the first difference, the second difference, and lnRF at first difference and second difference, to be more specific, the sign of the coefficients of the negative lnHR and the sign of the positive lnRF coefficients. These findings imply that no significant impact of investment in transport and communications infrastructure has been found on attracting international visitors to Vietnam in the short-term. In comparison, there is a positive effect of investment in recreation facilities, while investment in the hotel and restaurant industry has the opposite effect in the short-run.

Table A1 in Appendix A.1 provides short-run coefficients across cross-sections of the 10 source countries. Accordingly, there are nine source markets moving towards long-run equilibrium, except the US (where the Cointegrating Equation is positive). Additionally, there is at least one coefficient at one level in the short-run of significance at 0.05 or 0.01 for the variables of interest in each source country, except lnTC in the Korean source market. These coefficients indicate the different short-run roles of investments in tourism infrastructure in attracting international visitors to different source markets. At lag 3, the coefficients of lnTC, lnHR, and lnRF are significant in most source markets. Considering this lag, investment in transport and communications infrastructure has different positive and negative roles for each source market in the short-run. To be more specific, investment in transport and communications infrastructure has an active role in source markets in descending order, Germany, the US, Japan, and China. The source markets with a negative role in ascending order are Australia, the UK, France, Malaysia, and Singapore. As for the role of investment in transport and communications infrastructure, investment in the hotel and restaurant industry also has different positive and negative roles for each source market in the short-run. The source markets where it has an active role in descending order are the US, Germany, Japan, respectively. The source markets where it has a negative role in ascending order are Australia, the UK, France, Malaysia, China, and Singapore, respectively. Meanwhile, investment in recreation facilities plays an active role in all source markets. In descending order, these are China, France, Germany, Japan, Korea, the UK, Australia, and the US, respectively. The coefficients of dummy variables with different signs in source markets indicate the short-run impact of different uncertainties on source markets. Positive effects were found in the short-run in China, Korea, Malaysia, Australia, the UK, Singapore, and France. In contrast, the negative effects were found only in Japan, the US, and Germany.

4.3. Diagnostic Test and Robustness Check

To further consider the reliability and validity of the model estimate, diagnostic tests are considered. There are two critical diagnostic tests for the panel PMG/ARDL method in Eview: coefficient diagnosis and residual diagnostic. However, according to Wooldridge (2015), based on the asymptotic theory, when there is a sufficient number of observations, it is not necessary to test the normal distribution of the residuals. With 275 observations, this study omits the residual diagnostic and only performs the coefficient diagnostic by coefficient confidence intervals and the Wald test, with the Null Hypothesis that the coefficients are all equal to 0. The results of the diagnostic coefficients are presented in Table 6 below.

Table 6. Coefficient diagnostics.

Coefficient Confidence Intervals					
Variable	**Coefficient**	**95% Confidence Intervals**		**99% Confidence Intervals**	
		Low	**High**	**Low**	**High**
LnTC	0.7836	0.4029	1.1644	0.2790	1.2883
LnHR	0.7503	0.5539	0.9467	0.4900	1.0105
LnRF	0.4026	0.1424	0.6627	0.0578	0.7473
Dum	−0.3533	−0.5878	−0.1187	−0.6641	−0.0424
Wald test Null Hypothesis: C(1) = C(2) = C(3) = C(4) = 0 F-statistic: 43.9951 ***; Chi-square = 175.9803 ***					

Note: *** for statistical significance at the 0.01 levels, respectively. Source: Results of Wald test.

Table 6 provides the values of the coefficients at the 95% and 99% confidence intervals. Accordingly, the maximum and minimum values of lnTC, lnHR and ln RF are all greater than 0. In contrast, the values of Dummy are all less than 0. The Wald test gives significance at 0.01 level for both F and Chi-squared statistics. Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted, meaning that the estimated coefficients in the model are all non-zero, and they are all necessary for the model. This evidence lends support to the reliability and validity of the estimated model.

Next, the robustness check is performed by comparing the estimated results among PMG/ARDL, cointegration regression and OLS for panel data (assuming the cointegration series from the Pedroni test result). In the OLS method, Random Effects Model (REM) is selected from the Pooled OLS model, Fixed Effect Models (FEM) and REM. In the cointegration regression, the FMOLS estimator is chosen because there is a quite large difference in the long-term coefficient of variance in lnVA (Table 2). The estimated results by FMOLS and OLS methods are detailed in Table A2 in Appendix A.2. The coefficients estimated by PMG/ARDL, FMOLS and OLS methods are compared in Table 7.

Table 7. Differences in coefficients estimated by PMG/ARDL, FMOLS and OLS.

Variable	**PMG/ARDL**	**FMOLS**	**REM**	**Difference of PMG with**	
				FMOLS	**REM**
LnTC	0.7836 ***	0.7066 ***	0.7393 ***	0.0770	0.0443
LnHR	0.7503 ***	0.5691 ***	0.5442 ***	0.1812	0.2061
LnRF	0.4026 ***	0.0981	0.0691		
Dum	−0.3533 ***	−0.2122 **	−0.2237 ***	−0.1411	−0.1296

Note: ** and *** for statistical significance at the 0.05 and 0.01 levels, respectively. Source: Estimation results from PMG/ARDL, FMOLS and OLS.

According to Table 7, although the methods produce different estimation results, the signs of the coefficients are similar. To be more detailed, lnTC has quite similar results (bias of no more than 10%), lnHR has a maximum bias of 27.4% and Dummy variable has a bias of no more than 40%. Particularly, lnRF estimated by FMOLS and REM do not reach significance at the 0.05 level. Despite certain differences, it is believed that the results from the PMG/ARDL are more appropriate because of the advantage of PMG/ARDL discussed above, and the cointegration series is still in doubt.

4.4. Discussion

The above findings indicate that investment in tourism infrastructure components positively impacts attracting international tourists to Vietnam. In the long-run, increasing 1% of investment capital in transport and communications infrastructure, the hotel and restaurant industry, and recreation facilities will increase international visitors to Vietnam by 0.7836%, 0.7503%, and 0.4026%, respectively. This indicates that capital investment

in transport and communications infrastructure and the hotel and restaurant industry plays a crucial role in attracting international visitors. This evidence lends support to the view that investments in transportation and hotels have played an important role in attracting international tourism, as many earlier studies have found (Khadaroo and Seetanah 2007a, 2007b, 2008; Prideaux 2000; Seetanah et al. 2011). In this study, the role of investment in transport and communications infrastructure (coefficient 0.7836) and investment in the hotel and restaurant industry (coefficient 0.7503) in Vietnam is higher in some areas such as in Mauritius, where the coefficient is found to be 0.36 for investment in transport infrastructure and 0.56 for the investment and hotel industry (Khadaroo and Seetanah 2007b) or 0.32 for investment capital in transport infrastructure and 0.54 for investment and the hotel industry (Seetanah et al. 2011); in 26 island economies, the results are 0.064, 0.16, 0.074 and 0.28 for investment in road, air, communications, and the hotel and restaurant industry, respectively (Khadaroo and Seetanah 2007a); and in 28 countries representing Europe, Asia, America, and Africa, these are 0.13, 0.18, 0.06 and 0.22, respectively, for investment in road, air, port and hotel (Khadaroo and Seetanah 2008). The impact coefficient of the hotel and restaurant industry in this study is lower than that of the hotel accommodation infrastructure in Singapore, from 0.839 to 0.855 in the study by Lim et al. (2019). However, it must also be seen that the different roles of the hotel and restaurant industry depend not only on each country, but also on how the variable that represents it is measured. This role is appropriate because Vietnam is a developing country with great tourism potential and scenic beauty. However, the terrain is difficult, and transportation infrastructure and hotel availability are still limited. With the efforts of the government and the community, the transport and communications infrastructure, as well as the hotel and restaurant facilities in Vietnam, have been significantly improved, creating a favorable environment for tourists, and strongly enticing international visitors to Vietnam. The research results also show that the government and private sector investors cannot expect to see a fast Return on Investment. Their investment in transport and communications infrastructure and hotel and restaurant facilities will only be evident in the long-run. This can be explained by the long lead-in time required by infrastructure works and hotel developments. The impact, therefore, takes time to be fully demonstrated. However, it should be noted that transport and communications infrastructure investment attract visitors and develops other areas of the economy and society, including the hotel and restaurant industry and recreation facilities.

Cross-section short-run coefficients show that, in the short term, the role of investment in the hotel and restaurant industry is decreasing, in this order source markets: the US, Germany, Japan, Australia, the UK, France, Malaysia, China, and Singapore. Meanwhile, the order for investment in transport and communications infrastructure is as follows: Germany, the US, Japan, China, Australia, the UK, France, Malaysia, and Singapore, respectively. This is consistent with the idea that inhabitants of developed countries are accustomed to modern, high-quality transport infrastructure and high-quality restaurants and hotels. Consequently, they prefer to find similar infrastructure in other countries. In contrast, tourists from less developed countries tend to be less demanding of these infrastructures.

Research results also show that investment in recreation facilities is also important to attract international arrivals to Vietnam. Although its role in the long-term is not equal to that of the other two areas of tourism infrastructure in this study, it is effective in both the long-run and short-run. Investment in recreation facilities will directly make destinations more attractive. Formica (2002) states that without attractions, tourism destinations could not exist; attractions are the basis for visitation. These findings are consistent with Vengesayi et al. (2009), suggesting that attractions are the main reason people visit specific destinations and not others. The role of investment in recreation facilities in attracting international visitors in this study is empirical evidence supporting the tourism infrastructure model of Mandić et al. (2018). Accordingly, recreational facilities with hotels and other forms of accommodation, spas, and restaurants form the main tourism infrastructure.

Usually, investment in modern amusement parks will require considerable investment capital. In contrast, investment in developing conservation and ecological tourist areas may require a smaller amount of capital if considered per unit area. The above order of roles of investment in recreation facilities in the short-run implies that in general, visitors want to improve recreation facilities in Vietnam, but visitors from China, France, Germany, and Japan require much more improvement than visitors from Korea, the UK, Australia, and the US. This finding is indicative of visitor preferences from source markets.

5. Conclusions and Implications

Attracting international tourists is an essential task for countries as international tourists bring significant income, foreign currency, and jobs to countries, especially potential tourism countries. Therefore, to attract tourists and implement an appropriate pricing policy, investing in tourism infrastructure development to make the destination more competitive and attractive are critical measures. This is the reason why this study examines the impact of investment in tourism infrastructure development on attracting international tourists from empirical research in Vietnam through panel data from 1995 to 2019.

The three types of tourism infrastructure used in this study are transport and communications infrastructure, restaurants and hotels, and entertainment infrastructure. After testing the stationarity and cointegration of the data, this study used the ARDL approach to examine the impact of three tourism infrastructure components on attracting international visitors to Vietnam in the long-run and short-run. In the long-run, investment in tourism infrastructure components has a positive and robust impact on attracting international visitor arrivals. The most decisive impact is investment in transport and communications infrastructure, followed by investment in the hotel and restaurant industry, and finally investment in recreation facilities. However, the short-run impacts of these three types of tourism infrastructure also differ in both sign and magnitude. In addition, different impacts of the three tourism infrastructure components in the short-run on attracting international visitors in general and in each of the leading international visitor markets to Vietnam are also found.

The contribution of this study impinges on two aspects. Firstly, from a theoretical perspective, this study enriches the role of investment in tourism infrastructure in tourism development with three components: transport and communications infrastructure, hotel and restaurant industry, and recreation facilities. Second, from a practical perspective, the study points out the different impacts of components of tourism infrastructure and their specific impact on attracting international visitors to Vietnam as the basis for policies for tourism development.

Overall, investment in transport and communications infrastructure drives economic growth and social development. However, the significant impact on tourism growth in Vietnam revealed in this study justifies the need for government investment in transport infrastructure and information and communications. Besides, investment in the hotel and restaurant industry will provide accommodation, food and beverage services for tourists, especially international tourists. Furthermore, investment in recreation facilities will make the destination more attractive to visitors. Therefore, the positive and vital role of investment in the three tourism infrastructure components is shown in this study because they are the most critical components in the tourism product chain experienced by tourists. On the other hand, although Vietnam has substantial tourism potential, its tourism infrastructure is still limited, so investing in components of tourism infrastructure becomes increasingly pressing to attract visitors in general and international visitors in particular.

Unlike an investment in transport and communications infrastructure that is primarily financed by government funds, investment in the hotel and restaurant industry, as well as recreation facilities, can mobilize the resources of the entire society, especially the private sector, because this is a highly commercialized and profitable sector, and is not prohibitively subject to government control. Thus, internationally and in Vietnam in particular, there is an urgent need for investment incentives for the private sector to help develop these areas.

Although some valuable results have been obtained, this study still has some limitations. Due to data limitations, this study only explores the role of investment in three groups of components without separating each component in detail as well as from different capital sources to see the different roles of the economy sectors. In addition, heterogeneity among visitor arrival groups has not been considered. These issues may provide opportunities for further study.

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Appendix A

Appendix A.1. Result of Cross-Section Short-Run Coefficients

Table A1. Cross-section short-run coefficients.

	China	Korea	Japan	US	Malaysia
COINTEQ01	−0.2188 ***	−0.5408 ***	−0.1571 ***	0.2442 ***	−0.9303 ***
ΔLnVA$_{(-1)}$	0.4138 ***	0.6812 ***	0.4094 ***	0.1804 **	0.3772 ***
ΔLnVA$_{(-2)}$	0.5513 ***	0.3598 **	−0.1618 ***	−0.7762 ***	0.5502 ***
ΔLnTC	−1.3162 ***	−0.4403	0.2158 ***	−0.0069	−0.1595
ΔLnTC$_{(-1)}$	1.6776 ***	−0.2047	−0.7786 ***	0.0590	−0.2536 *
ΔLnTC$_{(-2)}$	0.3185 ***	−0.4225 *	0.4404 ***	0.4836 ***	−0.8196 ***
ΔLnHR	−0.8777 ***	−0.1762 *	−0.0300 ***	0.2010 ***	−0.1345 **
ΔLnHR$_{(-1)}$	0.2177 ***	−0.3818 ***	−0.4700 ***	0.0903 **	−0.2748 ***
ΔLnHR$_{(-2)}$	−0.9323 ***	−0.1601 *	0.0671 ***	0.4512 ***	−0.6735 ***
ΔLnRF	−0.1209 ***	0.3317 ***	0.2365 ***	0.1692 ***	−0.5142 ***
ΔLnRF$_{(-1)}$	0.5206 ***	0.7553 ***	0.1835 ***	0.2281 ***	−0.1185 *
ΔLnRF$_{(-2)}$	0.5467 ***	0.2941 ***	0.3317 ***	0.1021 ***	0.0653
Δ Dum	−0.3408 ***	−0.0330 **	−0.2453 ***	−0.2100 ***	0.1738 ***
Δ Dum$_{(-1)}$	−0.2570 ***	0.0271	−0.0453 ***	−0.1173 ***	0.0158
Δ Dum$_{(-2)}$	0.2051 ***	0.0286 **	−0.1513 ***	−0.1475 ***	0.0540 ***
C	−1.2348 ***	−3.2720	−0.7252 **	0.9469	−5.9835
@Trend	0.0188 ***	0.0309 ***	−0.0044 ***	0.0224 ***	0.0201 ***

Table A1. *Cont.*

	Australia	UK	Singapore	France	Germany
COINTEQ01	−0.2230 ***	−0.4722 ***	−1.0421 ***	−0.9949 ***	−0.3443 **
ΔLnVA$_{(-1)}$	−0.7976 ***	−0.0621 **	1.1662 ***	−0.1767 ***	−0.3478
ΔLnVA$_{(-2)}$	0.3498 ***	−0.0883 ***	1.7735 ***	−0.1197 ***	0.1028
ΔLnTC	0.5289 ***	0.3891 ***	−1.7959 ***	0.0749 *	0.2754
ΔLnTC$_{(-1)}$	0.2878 ***	−0.6483 ***	−0.8821 ***	−0.4528 ***	0.2184
ΔLnTC$_{(-2)}$	−0.4132 ***	−0.4869 ***	−1.4587 ***	−0.6643 ***	0.6033 **
ΔLnHR	0.0986 ***	−0.1741 ***	−1.4111 ***	−0.3999 ***	−0.0915
ΔLnHR$_{(-1)}$	0.1510 ***	−0.5506 ***	−1.3510 ***	−0.5582 ***	−0.4007 ***
ΔLnHR$_{(-2)}$	−0.2002 ***	−0.5204 ***	−0.9590 ***	−0.5994 ***	0.1700 **
ΔLnRF	−0.3545 ***	0.0890 ***	0.0308	−0.0893 **	0.1158 **
ΔLnRF$_{(-1)}$	0.2466 ***	0.4231 ***	0.6569 ***	0.3287 ***	0.6064 ***
ΔLnRF$_{(-2)}$	0.1928 ***	0.2773 ***	0.0310 *	0.4173 ***	0.3353 ***
Δ Dum	−0.1033 ***	0.0528 ***	0.1058 ***	0.1854 ***	0.0245
Δ Dum$_{(-1)}$	−0.1194 ***	0.0688 ***	0.0447 ***	0.0486 **	−0.2367 ***
Δ Dum$_{(-2)}$	0.0840 ***	0.0368 ***	0.2676 ***	0.0108 **	−0.0831 ***
C	−0.9987	−2.6653 **	−6.2748	−4.8529	−2.3403
@Trend	−0.0173 ***	−0.0143 ***	−0.0169 ***	−0.0753 ***	−0.0023 ***

Note: LnVA is dependent variable; *, ** and *** for statistical significance at 0.10, 0.05 and 0.01 levels, respectively. Source: Author's calculation using Eviews.

Appendix A.2. Estimated Coefficients

Table A2. Estimated coefficients by FMOLS and OLS.

		FMOLS	Pooled OLS	FEM	REM
LnTC	Coefficient	0.7066	0.7439	0.7392	0.7393
	t-Statistic	3.067 ***	1.77 *	4.78 ***	4.78 ***
LnHR	Coefficient	0.5691	0.5778	0.5440	0.5442
	t-Statistic	5.10 ***	2.88 **	7.38 ***	7.39 ***
LnRF	Coefficient	0.0981	0.0519	0.0692	0.0691
	t-Statistic	0.44	0.13	0.47	0.4708
Dum	Coefficient	−0.2122	−0.0780	−0.2247	−0.2237
	t-Statistic	−2.06 **	−0.42	−3.29 ***	−3.28 ***
R-squared		0.9273	0.3874	0.9204	0.8243
Adj R-squared		0.9233	0.3783	0.9161	0.8216
F-statistic			42.69 ***	214.75 ***	316.57 ***
Effects Tests			174.10 ***		
Hausman test				0.00	

Note: *, ** and *** for statistically significant at the 0.10, 0.05 and 0.01 levels, respectively. Source: FMOLS and OLS estimation results for data panel in Eview.

Table A2 above shows that adjusted R squared for all estimators is quite high, except Pooled OLS. Significance in F-statistics of Pooled OLS, FEM and FEM are all at 0.01 level. The Redundant Fixed Effects test in the FEM estimate gives significance in the Cross-section F statistic at the 0.01 level, so it allows a strong rejection the null hypothesis that the effects are redundant and shows that the cross-section fixed effects are statistically significant. This means that FEM is more reliable than Pooled OLS estimation. The Chi-square statistical significance of Cross-section random in Hausman Test does not reach 0.05 level, and the Null hypothesis cannot be rejected, so the REM model is selected. These results show that both the FMOLS and REM estimators are reliable.

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What Are the Needs of Senior Tourists? Evidence from Remote Regions of Europe

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Abstract: Tourism is one of the fastest-growing industries in Europe, with growth mostly centered in major cities and urban locations. Nevertheless, remote destinations can also offer tranquility and accessibility, as well as both unexploited and unknown development potential for active senior travelers. The purpose of this paper is to analyze, on the basis of information gathered from 1705 questionnaires, senior touristic behavior, including motivations and decision-making issues for senior travelers in 11 remote regions of nine European countries (Finland, Latvia, Poland, Slovakia, Hungary, Bulgaria, Spain, Ireland, and Greece). A mixed-methods approach was used to fulfill the research objectives. Both interviews and the survey method were applied to generate data from senior tourists. The present study will focus on the key factors explaining senior tourists' motivations and barriers to travel. The results of surveys conducted within the TOURAGE project indicate the significant potential of remote regions in the development of senior tourism. For senior respondents, a very important reason for going on holiday is the possibility of enjoying rest and silence. Safety, nature, historical sites, quality of services, and easy transportation connections are the top five attraction factors for seniors when choosing a destination. At the same time, according to the interviews, among the important problems negatively influencing the size of the senior tourism market in remote regions are: difficulties in reaching seniors with tourist offers, a lack of promotion of local tourist products aimed at seniors, and finally a lack of financial resources for the implementation of local projects supporting the development of senior tourism.

Keywords: senior tourism; senior travelers; travel motivations

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1. Introduction

The progressively aging population observed in recent years is among the most important social and economic issues of the modern world. Compared to 2000, when the percentage of women over 60 and men over 65 was 14% of the total population, demographic predictions for 2030 anticipate that this share will increase to 24%, amounting to a total of 9 million, 290 thousand people on average in Europe (Zielińska-Szczepkowska and Samusjew 2015). Eurostat forecasts indicate that elderly people will be close to 28% of the population in the European Union in 2050 (Żmuda-Pałka and Siwek 2019).

The increase in the number of seniors, despite differences in individual countries, is global (Urbaniak 2016). At the end of the past century, it was accepted that the aging of the population is a key challenge of the 21st century. This is reflected in the senior policies adopted by the European Union. In 2005, the green paper, Confronting Demographic Change: A New Solidarity between the Generations (2005), was published, and three years later the communication entitled The Demographic Future of Europe—From Challenge to Opportunity (2008) was published. These documents emphasized that the aging of society can and should be used to increase the competitiveness of the European economy.

The progressing demographic changes influence various aspects of our life, including tourism traffic. The structure of travelers undergoes changes, as well as their expectations, needs, and motivations (Alén et al. 2012; Fu and Zheng 2011; Kim and Kim 2020). Tourism,

being one of the most dynamically growing industries, in order to continue to expand, must account for new trends and regularities. In connection with the clearly noticeable aging of societies, especially in Europe, the tourism of elderly people is an area with high development potential. A wide group of recipients means vast development opportunities in many European regions, especially poorer ones. Regions lying in direct proximity to the border are usually remote, and remain to a lesser or greater degree marginalized in many ways, especially economic and political. The problem of peripheral location is a significant issue assumed by the European Union. In accordance with Growing Regions, Growing Europe: Fourth Report on Economic and Social Cohesion (2007), 26% of all regions are classified as remote regions (20% of the EU) and inhabited by one-quarter of the citizens. In countries of the EU, the main measure for classifying a given area as remote is GDP per capita below 75% of the EU average (according to the purchasing power parity).

In many countries, the direction of development for remote regions that is provided by tourism is treated as one of the elements of multifunctional development. This results from the immense potential from the stimulation of other sectors as well as creating new places of work. Researchers into the development potential of silver tourism in the European Union noticed, as early as 2010, in accordance with the communication, Europe—The World's No. 1 Tourist Destination—New Political Frameworks for the European Tourism Sector (2010), that one of the greatest challenges for the European tourism sector is the progressing demographic change connected with the aging of the population. The continuation of senior policy in the tourism sector has its place in the financial programming period for the years 2014–2020. Although tourism was not included as a thematic objective for the regulation of the European structural and investment funds (ESIF), seeing as how it is more a center or sector of the economy than an objective, the regulation nevertheless anticipates many possibilities of thought-out investment in tourism. Tourism will continue to play a significant role in the planned financing from the ERDF program, as well as in investments connected with the maintenance, protection, promotion, and development of natural and cultural heritage[1].

The silver economy creates a new possibility for dealing with the problems of aging through a proactive approach to the market, which makes use of the production of goods and services resulting from the needs of an aging society. The increasingly better health conditions of elderly people, as well as raising awareness when it comes to assuming physical activity, facilitate the popularization of active tourism (Zielińska-Szczepkowska and Źróbek-Różańska 2014). The elderly are undeniably specific clients, who possess large amounts of free time, and are thus a large potential source of economic growth. On the other hand, some of the seniors from remote regions are forced to deal with inadequate financial resources for the realization of long-range tourist expeditions. An answer to their needs may be the poorer border regions of European countries, which are abundant in natural and cultural assets, and which, at the same time, are facing the challenge of adapting their touristic offerings to the needs of the elderly.

The aim of this article is to analyze senior touristic behavior, including an assessment of the motivations and decision-making issues of senior travelers, in 11 remote regions of nine European counters (Finland, Latvia, Poland, Slovakia, Hungary, Bulgaria, Spain, Ireland, and Greece) based on information gathered from 1705 questionnaires. In addition to presenting the results of the questionnaire studies carried out among seniors, the results of interviews with representatives of the tourism industry and local governments on the topic of the development of senior tourism are analyzed. This publication also makes use of subject literature, as well as statistical data pertaining to demographic forecasts. Strategic documents placed on the website of the European Commission, as well as information on the subject of the international project supporting the development of senior tourism, entitled "TOURAGE—senior tourism development in European remote regions", were also used within the framework of the present study.

2. Literature Review

2.1. Elderly Tourists Segment

Along with the dynamic increase in the touristic activity of the elderly observed in recent decades, the concept of senior tourism has been distinguished. The term is basically used to describe the spatial mobility of elderly people (Oleśniewicz and Widawski 2015). At this point, it is worth defining the concept of old age. In the literature on the subject, there are many explanations of this term. They usually refer to the age at which a given person enters old age, as well as the terminology used to refer to these people: seniors, older adults, baby boomers, or the silent generation. Researchers of tourism define 'senior travelers' as people over the age of 55, with the term 'older adults' referring to people who are retired, typically at the age of 65 and older (Patterson 2006). Many scientific publications, on the other hand, use these two terms interchangeably, without any specific definition which would differentiate between the two. In works concerned with the use of leisure time, attention is drawn to the importance of the change of work status, from active work to a changeover to retirement, as a factor that has a particular influence on changes in the lifestyle of older people (Gee and Baillie 1999; Nimrod 2008). Other researchers on the subject draw particular attention to the age of seniors as well as the history interweaved in their life to date. According to Norman et al. (2001), this is of particular importance in the later tourism preferences of older people. Alcaide (2005 cited in Alén et al. 2012) states that many companies set the senior age at 55 years. According to this perspective, this is the age at which the consumer begins to sense different needs and starts to forecast and plan for aging. They are considered as part of the segment of the elderly in the banking system, which begins to differentiate and specialize treatment for them. Accordingly, this study defines the elderly as individuals who are 55 years old or older, as is usually and consistently defined in gerontology studies.

Regardless of how a senior tourist is defined, attention is also paid to treating the phenomenon of senior tourism more broadly and not limiting it to merely issues connected with age. In the deliberations, a series of elements characteristic of this sector of tourism have been defined, such as the specific motivations of seniors, their large amounts of free time, the seasonality of their travel, and their physical or economic limitations (see Patterson and Balderas 2020; Huber 2019; Otoo and Kim 2018).

The elderly tourist segment in the new panorama of social and business management can undoubtedly be taken as a growing and constantly evolving sector, and much research has been undertaken to unravel its specificities (Amaral et al. 2020). According to Le Serre (2008), the senior tourist segment represents a profitable source of revenue for companies linked to the tourism sector, not only because of its growing size, but also due to the availability of seniors and their time to travel. Otoo and Kim (2018) claim that motivation is the first step in exploring the prospects of the senior tourism segment. Continued research on the motivations of senior tourists reveals different types of motives for which seniors pursue travel.

2.2. Seniors' Travel Motivations

An increasingly high number of researchers on the subject deal with the study of the motivations of elderly people (e.g., Guinn 1980; Tongren 1980; Anderson and Langmeyer 1982; Romsa and Blenman 1989; Zimmer et al. 1995; Norman et al. 2001; Sellick and Muller 2004; Pestana et al. 2020). The tourism sector, seeing the high potential for the development of offers directed towards seniors, makes attempts at market segmentation (Panasiuk 2014). Researchers hoping to meet these needs carry out studies on senior tourists to categorize them, accounting for various factors, such as demographic and psychological factors (Horneman et al. 2002), lifestyle and attitudinal factors (Marthur et al. 1998; Muller and O'Cass 2001), and educational and income levels (Javalgi et al. 1992; Jang and Ham 2009).

Researchers studying tourism classify elderly people in different ways due to their behaviors, indicating diverse types of senior tourists (Table 1).

Table 1. Various classifications and labels for different types of older tourists (own elaboration based on Sedgley et al. 2011).

Authors	Types of Senior Tourists
You and O'Leary (1999)	"passive visitors" "enthusiastic go-getters" "cultural hounds"
Kim et al. (2003)	"active learner" "relaxed family body" "careful participant" "elementary vacationer"
Morgan and Levy (1993)	"pampered relaxers" "highway wanderers" "global explorers" "independent adventurers" "anxious travelers"
Moschis (1996)	"healthy indulgers" "healthy hermits" "ailing out goers" "frail recluses"
Cleaver et al. (1999)	"Nostalgics" "Friendlies" "Learners" "Escapists" "Thinkers" "Status-Seekers" "Physicals"

The existing studies in the field of seniors' travel motivations are based on the two dimensions of motivation, that is, 'pull' and 'push' factors (Crompton 1979; Dann 1981; Iso-Ahola 1982; Uysal and Hagan 1993; Uysal and Jurowski 1994; Cha et al. 1995; Klenosky 2002; Chen and Wu 2009). The distinction between push and pull factors appeared in the subject literature in the context of motivation for the first time thanks to Dann (1977), who, based on the work of Tolman (1959), presented the answer to the question of "what makes tourist travel?" He included all outside factors which attract a tourist to a given place, such as, e.g., the sea, mountains, sun, beach, etc., as pull factors. In the context of seniors, other researchers have shown that the main attributes of a destination that attract seniors are: natural, cultural, and historical attractions, and good weather conditions (Norman et al. 2001); security, cost of the trip, and cultural and natural attractions (Wu 2003); places of historical interest, medical service (facilities), and the weather condition (Huang and Tsai 2003).

Push factors, on the other hand, included internal factors stemming from the predispositions of the actual tourists—their values, experiences, and desires, such as sentimentalism, the wish to escape from the hustle and bustle of the city, etc. (Norman et al. 2001; Wu 2003; Huang and Tsai 2003; Jang and Wu 2006; Sangpikul 2008; Chen 2009). In accordance with this theory, people travel because they are "pushed" by internal factors and "pulled" by external factors (Uysal et al. 2008).

According to Uysal and Hagan (1993), individuals are pushed into making a travel decision by motivational variables, as well as being pulled or attracted by the destination area. Pull factors are mainly related to the attractiveness of a given destination, such as beaches, accommodation, recreation facilities, cultural and historical resources, whereas push factors are origin-related and refer to the desires of the individual traveler, e.g., rest and relaxation, health, adventure, or prestige.

Travel motivations according to the push and pull factors for traveling are also an issue that relates to elderly tourists. According to Widiyastuti and Ermawati (2019), the elderly's travel decisions are influenced by factors arising from themselves (internal factors, such as spiritual needs, health needs and health condition, working, having money, meeting

people, the availability of travel companions, traveling for recreation, etc.) and factors which are offered by the destination (external factors, such as the suitability of the location to the elderly people's condition, accessibility and convenience in accessing information, etc.).

Many studies are striving to answer the question of what senior tourists' motivations for traveling are (Cleaver et al. 1999; Backman et al. 1999; Fleischer and Pizam 2002; Horneman et al. 2002; Huang and Tsai 2003; Jang and Wu 2006). Motivations for travel cover a broad range of human behaviors and experiences, and the typical list of these motivations might include relaxation, excitement, social interactions with friends or family, adventure, status, age, and escape from routine or stress. All of them play a significant role in the decision-making process.

3. Methodology

The distinct deep demographic changes taking place in recent years are not only a topic of scientific inquiry but also a matter of strategic interest, both at the level of individual countries and regions, as well as for actual EU institutions. In 2010, the European Commission, in a communication entitled *Europe, the world's No. 1 tourist destination: A new political framework for tourism in Europe*, revealed for the first time that, in addition to challenges such as economic crisis, climate change, and the development of new technologies, the European tourism sector should also take into account the issues that result from the wide-reaching aging of society. According to the European Commission, tourism will play an immense role in the development of many European regions, especially the poorer ones[2].

The above changes will require a fast reaction from the tourism sector so that it can maintain its current level of competitiveness. Seniors possess buying power as well as free time. In order to fully take advantage of the economic potential of the silver economy, it is essential to identify the needs of and create an adequate offer for the senior tourist.

A response to the abovementioned challenge was the realization of an international project (entitled "TOURAGE—Developing Senior Tourism in Remote Regions") in 2012–2014, financed by the INTERREG IV C Interregional Cooperation Programme. The project was created thanks to the intense cooperation of regions affiliated in the Network of Eastern External Border Regions (NEEBOR), which in many cases are distant from each other and scarcely populated, whose economic development and employment are faced with great challenges. This was also observed by regional authorities, accounting for the development of tourism in their regional development strategies.

Eleven partners from nine European Union member states were involved in the realization of the project (Figure 1):

- The Regional Council of North Karelia, Finland (Lead Partner);
- The Bourgas Regional Tourist Association, Bulgaria;
- The Region of East Macedonia and Thrace, Greece;
- The Lake Balaton Development Coordination Agency, Hungary;
- The Szabolcs-Szatmár-Bereg County Regional Development and Environmental Management Agency, Hungary;
- The West Regional Authority, Ireland;
- The Vidzeme Planning Region, Latvia;
- The Association of Polish Communes of Euroregion Baltic, Poland;
- The Podkarpackie Region, Poland;
- The County Council of Granada, Spain;
- The Regional Development Agency of the Prešov Self-Governing Region, Slovakia.

Figure 1. Geographical coverage of the partnership of the "TOURAGE—Developing Senior Tourism in Remote Regions" project.

In the first part, an extensive review of the literature (desk research) focusing on the motivation of senior tourists, their needs, and the decision-making process in the case of travel requirements was conducted to identify travel motivations expressed by senior tourists from remote regions of Europe. Information cited in the literature was selected to be included in the questionnaire.

In the second part of the research, a questionnaire was developed to collect quantitative data. A survey was conducted among local seniors. To better understand the needs of this target group, I had to develop an adequate and comprehensive questionnaire for them. With this local senior questionnaire, I sought to identify what kind of traveling habits, motivations, and needs the regional seniors have while they are living on retirement pensions. The aim of the questionnaire was to seek out important information regarding how we should develop the regional touristic services so that they meet the needs of senior citizens.

The questionnaire comprised 22 questions (11 questions on the motivations and needs of senior tourists in Europe, three region-specific questions to bring added value for the local authorities, and eight questions regarding background information on the general characteristics of seniors).

Thanks to the realization of the TOURAGE project, I used different types of occasions to meet with local seniors and ask them for their opinions on tourism-related issues:

- meeting with local senior clubs;
- distributing questionnaires at exhibitions;
- sending questionnaires to local senior groups.

The questionnaire consisted of two parts. The first part included questions regarding the travel behaviors and trip characteristics of the respondents. It was designed to gather

opinions on travel motivations and the needs of seniors from remote regions of Europe, including questions on the travel preferences of seniors, their travel plans, the sources of information they used in their decision-making process, popular destinations for their holiday trips, the modes of transportation they used when traveling, and the barriers that they feel discourage travel. Senior tourists were also asked to give opinions on a five-point Likert scale (1—no importance to 5—extremely important). One of the questions included seven closed attributes and one open attribute concerning their motivations for traveling, in which seniors were asked to rate the perceived importance of each of the attributes for considering their preferences. The last question of the first part included 31 closed attributes and one open attribute, covering the major touristic components of destination selection, including, for example, accommodation, accessibility, natural and cultural attractions, and public services.

The second part dealt with the personal characteristics of the respondents, gathering data on their gender, age, length of retirement, place of residence, marital status, educational level, and annual income compared to the national yearly average of retirees in each region.

The content validity of questionnaire items was evaluated by tourism professionals from each region and one scientific expert. Subsequently, a pilot test was conducted to assess how well the research instrument works. To increase the variety of respondents, the questionnaire was translated into Polish, Finnish, English, Latvian, Slovak, Hungarian, Bulgarian, Spanish, and Greek.

Questionnaires were distributed and collected in 2014 in the TOURAGE project regions. As a result, 1705 questionnaires were filled and analyzed, amounting to an average of 142 per region (Table 2).

Table 2. Number of filled questionnaires in remote regions.

Region	Country	Number of Filled Questionnaires	Percentage
North Karelia	Finland	183	10.73
Vidzeme	Latvia	177	10.38
Baltic Euroregion—Pomorskie	Poland	154	9.03
Baltic Euroregion—Warmia-Mazury	Poland	47	2.76
Podkarpackie	Poland	150	8.80
Presov	Slovakia	150	8.80
Szabolcs-Szatmár-Bereg	Hungary	129	7.57
Balaton	Hungary	150	8.80
Bourgas	Bulgaria	150	8.80
Granada	Spain	176	10.32
West Ireland	Ireland	129	7.57
East Macedonia and Thrace	Greece	110	6.44
Total		1705	100

Two seminars dedicated to the elderly in tourism were also organized during the realization of the studies. The participants of the meetings were representatives of local governments, organizations affiliated with and operating on behalf of seniors, academic institutions, and tourism businesses, with whom interviews on the following topics were carried out: the possibility of using the potential of elderly people in the tourism industry, the assessment of the quality of the existing touristic offerings for seniors, the role of local governments in the direction of supporting the touristic activity of elderly people, and the interest of entrepreneurs in the elderly as the recipients of tourism services.

4. Results

4.1. Demographic Characteristics

The seniors answering the questionnaire were mainly women (69%—1176 answers, Table 3). This confirms the demographic fact that women are a majority of elderly people. It also signals that they are more active participants in activities where the questionnaires

were distributed (senior club activities, exhibitions organized for seniors). This higher representation of women also affects the results of the questionnaire, as the answers concerning the motivations and needs of seniors with respect to tourism reveal the interests of women more than men.

Table 3. Demographic characteristics of the respondents.

Demographic Characteristics	Number of Respondents	Percentage
Gender		
Male	529	31.03
Female	1176	68.97
The average age of seniors (68.4 years old)	1590	93.26
The average retirement period (9.7 years)	1504	88.21
Marital status *		
Married	884	51.86
Single	160	9.38
In a relationship	47	2.76
Widowed	414	24.28
Divorced	115	6.74
Education **		
Elementary	305	17.89
Secondary School	438	25.69
Technical/vocational	506	29.68
University degree	350	20.53
Employed as a retirement pensioner ***		
Yes, full time	153	8.97
Yes, part time	107	6.28
Yes, as an entrepreneur	78	4.58
No	1253	73.49
Annual income ****		
Deeply under the average	131	7.68
Under the average	389	22.82
On average	543	31.85
Over the average	329	19.30
More than double of the average	57	3.34

Notes: * 26 of the respondents did not answer; ** 40 of the respondents did not answer; *** 51 of the respondents did not answer; **** 90 of the respondents did not answer.

The average age of seniors answering the questionnaire was 68.4 years (1590 answers). There was a balanced response from young and older senior groups. Therefore, the answers to the questions show good representativeness of all age groups of seniors. The oldest senior answering the questionnaire was a 95-year-old Greek citizen.

The seniors involved (1504 who filled out the question) had been retired for almost 10 years (9.7 years) on average. Most of them were married (52%) and 24% were widowed. When talking about tourism, it is important to understand that a high ratio of this group are single or living alone as a widow (35%). Specific senior club activities and especially tourism group tours target these seniors, who are looking for travel companions.

The responding seniors (1599) had a balanced educational background. Results show that 22% of the respondents had a university degree, 19% had completed elementary school, and 59% had finished secondary education. This balanced level ensured good representativeness of seniors with all types of educational backgrounds in the questionnaire.

One-fifth of the pensioners were still working (9% full time, 6% part time, and almost 5% as an entrepreneur). The high number of full-time employees, in particular, reveals two tendencies. On the one hand, as shown by answers on income level and the main barriers to senior tourism (presented above) in the remote regions of Europe, there is a need for senior employment because of economic reasons. Nevertheless, people working during

the first period of retirement is also a trend in wealthier countries, as senior citizens are feeling active enough to be present on the labor market. Another important message that arises from the answers is that seniors are open to entrepreneurship—78 seniors answered that they were running their own business.

For the question regarding their economic status, only 1449 seniors provided answers, most likely due to its sensitivity (the response rate was 85%). Analyzing the average annual income of respondents is quite critical. Usually, seniors who can afford to engage in tourism are those with at least an average level of earnings, and who can cover their daily costs and have some savings after paying the bills. The annual income of 32% of respondents is average, and a quarter of them reported that they have an income over the average (almost 20%) or even double the average income (more than 3%), although 23% answered that their annual income is under the national yearly average. Critically, how are seniors able to share in the experience of tourism in remote regions of Europe if their incomes do not allow it? This is a question which pertains to a key hypothesis of this study. Significantly, almost 8% of seniors answered that their income is deeply under the average, including especially seniors in Poland, Slovakia, Bulgaria, and Hungary, a disproportionate number of whom categorized themselves as being in this group. This number is a basic signal that, especially in these countries, more attention should be paid to the social tourism of seniors as well as special support schemes.

4.2. Travel Patterns of Seniors

The first six questions of the survey were related more to the general travel patterns of the seniors (Table 4).

Almost 12% of respondents did not travel since having retired. Most respondents prefer to have only shorter holidays, similar to working periods; only a few of them stated that they stay for longer periods (with 9% staying for 2–3 weeks, and only 2% for 1 month or more). The hypothesis that seniors are willing to spend more time on holiday is therefore not true; their travel patterns are quite similar to active citizens, with only a small portion of seniors spending more time on holiday.

The results show that even though the majority of seniors prefer spending their holidays in their home country, there is a huge number of them (one-quarter of seniors) who still prefer to travel abroad during their holidays. This supports the claim that seniors have important market potential. The regional strategies should focus more on how to reach international senior tourists, and how to attract them to the respective regions. The seniors are open to traveling abroad as well during their retirement; this is more a question of whether service providers can understand their specific needs. I will try to answer these questions in addition to what the specific motivations and needs of senior tourists are.

Most of the seniors (44%) prefer to organize their travel individually. There was one important remark on the role of different pensioner organizations and associations, as well as some social tourism schemes being mentioned by respondents. Pensioner organizations (such as Active Retirement Ireland, pensioners' clubs, and thematic pensioner associations) are key players in organizing group travels for seniors. Some other associations (such as tourism, religion, and associations for the handicapped) are also coordinating the travel of seniors (although they are not specifically focusing on seniors in their offers). The social tourism scheme of the National Public Health Organization of Finland and the SOREA program of Slovakia were also mentioned as a specific way of organizing a holiday. Relatives and ex-coworkers are important travel companions, in addition to being mentioned as organizers of holidays.

Personal experiences (16%), family (15%), and friends (15%) are the most important sources of information for seniors making decisions regarding their travels. The media and social media are not relevant sources of information, although the internet was mentioned in more than 4% of the answers as a source of information. For the category of "other", some specific sources of information were mentioned: the role of pensioner organizations (e.g., Active Retirement Clubs for seniors in Ireland, Universities for Seniors in Poland, and

Church Organizations in Poland and Spain) is crucial, though the suggestions of doctors were also mentioned.

Table 4. General travel patterns of the seniors.

Travel Pattern	Number of Respondents	Percentage
Length of holidays		
1–3 nights	398	23.34
4–7 nights	483	28.32
8–10 nights	312	18.30
2–3 weeks	156	9.15
1 month or more	37	2.17
Have not traveled on retirement	201	11.79
No answer	66	3.87
Destination of travel during retirement		
Abroad	402	25.08
In home country	967	60.32
No answer	234	14.60
Organization of holiday trips during retirement		
Travel/accommodation organized individually	641	43.58
Travel/accommodation booked through a travel agency	390	26.51
Package tour/all-inclusive holiday booked via internet	59	4.01
Package tour/all-inclusive holiday booked through a travel agency	120	8.16
Other	31	2.11
No answer	230	15.63
The most important information sources for making decisions regarding travel *		
Own personal experience	616	16.31
Relatives and family	559	14.80
Friends	551	14.59
Recommendations of other people	264	6.99
Guidebooks and magazines	237	6.28
Travel catalogs, brochures	208	5.51
Internet	166	4.40
Travel/tourist agencies	151	4.00
Media (newspaper, radio, TV)	65	1.72
Social media (Facebook, Twitter, Instagram, blogs, etc.)	18	0.48
Other	87	2.30
No answer	854	22.62
Usual transportation mode on holiday during retirement		
Airplane	243	15.66
Boat	22	1.42
Train	176	11.34
Bus	543	35.01
Car	337	21.73
Motorbike	0	0
Bicycle	3	0.19
Other	6	0.39
No answer	221	14.25
Travelmates during retirement pension		
Spouse/partner	666	41.89
Own child/children	81	5.09
Grandchild/children	27	1.70
Other relatives	41	2.58
Friend(s)	271	17.04
Alone	104	6.54
Group travel with people you know	157	9.87
Group travel with people you have not met before	13	0.82
Other	13	0.82
No answer	217	13.65

Notes: * Respondents could choose three answers.

To better understand the seniors' decision-making process, it is worth mentioning concrete information sources (mentioned under other sources by seniors): books and dreams from their youth, which can be sources of a decision. This also shows that seniors

are sentimental, and mass media does not provide the direction for their travels in most cases (only 2% of respondents mentioned it as a source of information).

Traveling by bus was the most common mode of transport for seniors (35%). Using their cars for shorter distances was also mentioned (22%). Airplane travel is also popular (16%). Only a few of the respondents reported using more sustainable modes of transport (such as a bicycle or a boat). As another mode of transport, a few of them mentioned camping caravans, which is a way of traveling for longer periods and to more rural locations (e.g., in Poland, Spain, and Ireland).

Besides the spouse/partner (42%), friends are the most common travel mates based on the answers received (17%). Seniors usually travel with friends, either in smaller groups (10%), or with specific travel groups that focus on seniors (1%). It is important to know the people who one travels with, and therefore the third largest group of travel companions were found to be relatives: their own children, grandchildren, or other relatives (more than 9%).

Around 1400 answers relating to the season seniors are willing to travel in were also provided (Table 5).

Table 5. Seasons of senior tourism.

Season	Usually YES	Usually NO	Total
Spring	572	813	1385
Summer	732	676	1408
Fall	696	696	1392
Winter	237	1150	1387

The results show that seniors from remote regions prefer to travel in the summer as well, but traveling in the spring or fall is also an acceptable period for this age group. The results show that winter is the least preferred season for holidays, due mostly to the security aspect connected with the specific weather conditions.

4.3. Motivation and Needs

Three questions in the survey focused especially on the motivation and needs of seniors. These specificities could be important in developing new destinations and services specially designed for senior citizens.

Financial reasons and health problems are the main barriers to travel for seniors (Table 6). Financial issues are a specificity of peripherality and especially low-income areas of Europe, which shows the importance of social tourism programs for seniors. Even in the Finnish region, North Karelia, the respondents gave the highest ranking to this barrier, though it was perceived as such by only 34% of the respondents (contrary to the average level of 74%). It is also interesting that 59% of the respondents consider health problems to be a barrier (the second highest rank). This barrier was noted by only 23% of respondents from the North Karelia region (Finland). Ranked third and fourth highest answers were the lack of time and the lack of interesting locations, respectively, which is interesting seeing as how there is a financial divide behind these answers as well. The lack of time is mentioned more in poorer regions (where seniors are still working), while the lack of proper supply was quoted more frequently in the wealthier regions.

The third group of barriers is the lack of travel companions, insufficient transportation connections, and concerns regarding the safety of the destination and the journey (from 26% to 25%). They are more related to the logistics of senior tourism, and are in line with the belief that this group of people prefers to travel in groups (not alone), looking for a safe holiday, where they can obtain all the necessary quality services, and the destination should be easily accessed by direct transportation links (see answers relating to transportation modes).

Table 6. Barriers to traveling during retirement (Y = Yes, N = No).

Barriers to Traveling during Retirement	Y	N	Y (%)	N (%)
Financial reasons	887	318	74%	26%
I had health problems	659	451	59%	41%
Lack of time	404	554	42%	58%
There was no supply which I'm interested in	295	575	34%	66%
I didn't have a traveling companion	260	672	28%	72%
I was concerned about safety at the destination	225	645	26%	74%
Transportation connections were lacking	221	621	26%	74%
I was concerned about safety while traveling	222	649	25%	75%
Accessibility at the destinations was weak	177	654	21%	79%
I'm not interested in making holiday trips	143	727	16%	84%
I didn't have the necessary travel documents	112	761	13%	87%
Other	42	117	26%	74%

What should also be noted as an important non-barrier factor is that seniors are ready to travel and make holiday trips (only 16% answered that they are not interested in making trips), and they have the necessary travel documents to do so (only 13% do not possess them). Therefore, more active participation in senior tourism activities is more a social (financial and health) issue in remote regions.

For travel motivations, the research findings presented in Table 7 showed that enjoying rest and silence were the most important factor for seniors when they are planning their vacation. This is an important consideration when a certain region plans to expand senior tourism. The region must offer places that are relaxing and provide a safe environment for seniors. Family is also a major motivation factor for going on holidays; in many cases, family members (children, grandchildren) live far away, and holidays can provide a great way of meeting and spending time with family members. Moreover, it is important for seniors (as well as being an important factor for younger generations) to take rest and escape daily routines, and to experience something new.

Table 7. Motivation for holidays.

Motivations for Holiday	No Importance	Not Very Important	Neutral	Some Importance	Extremely Important	Average Importance	Rank
To enjoy rest and silence	81	103	192	429	579	3.96	1
To spend time with my family	130	73	181	362	556	3.88	2
To escape routines	102	67	242	445	492	3.86	3
To improve the quality of life	79	98	296	432	416	3.76	4
To experience something new	138	96	218	479	419	3.70	5
To make friends and socialize	172	176	311	373	302	3.34	6
To look for romance	574	184	261	139	108	2.23	7
Other	83	13	49	46	70	3.03	

The survey allowed the respondents to name any missing holiday motivations. Mentioned here were incentives such as looking for new places to visit, and especially a desire to explore their own country (e.g., Greece, Latvia) and its cultural and natural heritage. It was noted that one important goal was not only to spend time with family on a holiday, but also with friends. Many sports (e.g., golf, skiing) and cultural activities (e.g., art classes, dancing) were also mentioned as holiday motivations. Health and rehabilitation were also listed, together with relaxation and being away from daily practices.

According to the results of the survey, traveling for seniors is not about making new friendships or looking for romance (these ranked last). They are more about traveling with their family and friends, and simply having an enjoyable and relaxing holiday in a new location. This makes for a basic description of what seniors from remote regions expect from a holiday.

Safety, nature, historical sites, quality of services, and easy transportation connections are the top five attraction factors for seniors when choosing a destination (Table 8). Doing sports, snow, making handicrafts, dancing, and camping are the top five non-attraction factors. Based on the analysis of 32 factors, it can be said that a perfect standard for seniors could be formed from the top five attraction factors. Even in previous questions, safety, easy access, quality of services, nature, and historical sites were mentioned, so it can be said that the senior tourists in remote regions may be attracted by these factors.

Table 8. Attraction factors in choosing a destination.

Attraction Factors Choosing a Destination	No Importance	Not Very Important	Neutral	Some Importance	Extremely Important	Average Importance	Rank
Nature	57	44	130	532	642	4.18	2
Historical sites	69	73	221	548	437	3.90	3
Events and festivals	173	232	383	321	192	3.10	17
Local culture	99	131	277	507	292	3.58	8
Gastronomy	151	177	304	364	279	3.35	14
Wellness services	220	199	345	279	209	3.05	19
Healthcare and medical services	132	146	284	377	364	3.53	10
City life	251	268	389	261	95	2.75	24
Country life	199	225	403	289	165	3.00	20
Beach and sun	158	170	296	359	350	3.43	12
Snow	476	233	282	184	88	2.35	29
Religious sites	232	197	326	302	230	3.08	18
Meeting local people	170	186	402	344	171	3.13	16
Visiting friends and relatives	210	155	263	325	363	3.36	13
Doing sports	428	246	309	190	97	2.43	28
Light physical activities	313	209	330	316	135	2.81	23
Heavy physical activities	572	244	279	97	67	2.08	32
Shopping	271	282	349	277	114	2.75	24
Dancing	431	220	297	194	139	2.52	26
Making handicrafts	483	236	302	162	88	2.32	30
Learning new things and educating myself	182	146	290	437	237	3.31	15

Table 8. *Cont.*

Attraction Factors Choosing a Destination	No Importance	Not Very Important	Neutral	Some Importance	Extremely Important	Average Importance	Rank
Low prices	114	101	264	433	408	3.70	6
Sustainability and environmental friendliness	114	115	367	373	305	3.50	11
Good accessibility of services	92	125	325	430	315	3.58	8
Easy transportation connections	104	85	232	437	455	3.80	5
Safety	49	51	156	406	653	4.19	1
High-quality hotel accommodation	123	83	298	423	378	3.65	7
Cottage accommodation	245	191	375	300	145	2.93	21
Camping	556	189	280	132	86	2.20	31
Quality of services	90	40	200	538	404	3.89	4
Possibility to use mobile guides in the destination	313	146	329	304	135	2.84	22
Other	88	14	59	17	29	2.44	27

Although some touristic offers for seniors are focused on making senior citizens more active, the results of the questionnaire show that they are not interested in being involved in sports, dancing, or art. It is important to say that (which is connected with quality needs) they are looking for higher-quality accommodations (not camping), and would like to have the opportunity to get to know the local culture and become involved in some local activities. The importance of health and medical services is also high.

The studies conducted with the seniors were completed with interviews carried out with 90 participants and two topic-related seminars organized in 2014 by the Baltic Euroregion Association operating in Warmińsko-Mazurskie Voivodeship (Poland). Taking part in the meetings were representatives of the TOURAGE project partners from 11 remote regions of the EU, organizations affiliated with seniors, local governments, and entrepreneurs from the tourism industry, as well as the scientific community dealing with the development of tourism. The interviews that were carried out show that the following are among the most relevant problems negatively influencing the size of the tourism market for seniors in remote regions of Europe: problems with getting the touristic offers to seniors because of the low use of the internet—currently one of the most important sales channels—by seniors; the lack of tools in the form of publications with ready tourism packages, and thus the lack of interest among tour operators in the promotion of local offers directed towards the elderly; and finally, the lack of financial resources for implementing local projects supporting the development of tourism for the elderly.

5. Discussion

The progressively aging population in modern societies forces us to draw attention to the social and economic implications arising thereof. Among these, the problems of senior touristic activity are worth focusing upon. Seniors nowadays, despite strongly rooted stereotypes, are an entirely different social group than in past decades. They are better educated, live in better conditions, make use of widely available information, and take interest in an active lifestyle, both occupationally and socially (see: Walker 2004; Śniadek 2006; Patterson 2006). Bai et al. (1999) and Batra (2009) showed that older seniors prefer to travel accompanied. This is supported by the results of this research, according to which

most of the respondents had a secondary education, were economically well off, were willing to make their own travel arrangements, and prefer to travel with a spouse/partner.

According to a study conducted by Otoo and Kim (2018), the senior tourism market can have a positive impact on seasonality, as it provides a solution to bridge the gap between lean and peak tourist seasons. The current study has shown that seniors preferred not only the summer for their trips, but also spring and fall. This feature represents a major opportunity for tourism development in remote regions in the "low season".

Earlier studies into senior tourism indicated that retirees travel more to visit family and/or friends (Blazey 1992). This has not been confirmed in this study. Visiting friends and relatives is only ranked thirteenth among the 32 attraction factors considered when choosing a destination. Today, seniors take travel trips primarily because they want to be in nature or visit historical sites. They also attach importance to safety and quality services at the destination.

The research findings show that it is clear that the most important travel motivations of the respondents are rest and silence (3.96), escaping routine (3.86), improving the quality of life (3.76), and discovering something new (3.70). Esichaikul's (2012), Horneman et al. (2002), and Fleischer and Pizam's (2002) studies of senior travel motivations revealed similar findings. According to Woo et al. (2016) senior travelers today are interested in discovering new things and improving their quality of life more than previous generations of seniors.

Safety, nature, historical sites, the quality of services, and easy transportation connections are the top attraction factors of seniors, which is similar to the findings in the study by Norman et al. (2001). A large number of senior tourists still enjoy sun-sea-sand vacations (3.43) and are attracted to historical sites (3.90). The safety of the destination is the most important factor for respondents, which was also confirmed in Lindqvist and Bjork's (2000) study. Most European cities maintain their high standard of safety and, as a result, senior tourists would expect the same level of safety when traveling. The findings of a different study conducted by Patuelli and Nijkamp (2016) identified the key motives of senior travel as culture and nature, which are also very important for seniors from European remote regions.

Interviews conducted with representatives of the tourism industry and local authorities revealed that key among the significant problems negatively influencing the size of the senior tourism market in European remote regions mentioned by the respondents are the difficulties in reaching seniors with tourist offers through the inadequate promotion of tourist packages targeted at the elderly. This is supported by the results of another study conducted by Amaral et al. (2020), according to which it is very important to consider appropriate tools for promoting tourist offers targeted at seniors.

It is worth highlighting that mutual discussion on developing senior regional tourism during the conducted seminars also led to determining strengths and weaknesses of tourism resources, facilities, and services in remote regions of Europe (Table 9). Strengths include: hospitable local communities open to elderly tourists, natural and culinary attractions, historical conditions, low prices of tourist services, the safety of means of transport and stay, and cooperation between different stakeholders in the tourism industry when responding to the needs of seniors. Despite strengths, European remote regions also have some weaknesses, such as a lack of foreign language skills to communicate with senior tourists, limitations to their public transport, lack of English language information boards in places which are attractive to tourists, and insufficient touristic offerings.

Table 9. Strengths and weaknesses of tourism resources, facilities, and services in European remote regions.

Strengths	Weaknesses
People from European remote regions are friendly and polite. They offer a warm welcome and hospitality to senior tourists. They usually respect the elderly as part of their culture.	Some service providers cannot communicate fluently in English, Russian, German, or French (the most popular foreign languages learned by European citizens) with senior tourists. There is a lack of local tour guides who are able to speak the above foreign languages. Local people from remote regions seldom speak foreign languages other than English.
Beautiful scenic sun-sea-sand (e.g., in Spain, Greece, Hungary, and Bulgaria) and natural attractions (e.g., in Finland, Slovakia, and Ireland) which senior tourists can visit year-round. Cultural attractions (e.g., culinary tourism in Latvia; pilgrimage tourism in Poland) are unique and interesting to senior tourists.	Local transportation in remote regions is limited due to economic reasons (the popularity of cars has caused a low demand for public transport among residents). Taxi drivers can be dishonest and attempt to overcharge senior tourists.
Trips to Europen remote regions are inexpensive and senior tourists receive good value for their money.	Few road signs are in English or a foreign language; the bad condition of roads in remote regions and lack of car rental companies makes it difficult for foreign tourists to move around destinations independently or rent a car and drive around.
Safety standards in transportation systems, such as buses and ferries, are up to standards. Tourist police have been increased and are sufficient in various popular tourist attractions.	Insufficient touristic offerings, including sport and recreation for elderly people, in particular in areas of the countryside in remote regions.
Cooperation between entrepreneurs and social organizations in the area of tourism, sport, and recreation for the elderly people.	Insufficient adjustment of tourist and sport and recreation facilities for the needs of the elderly people. Especially in the countryside, physical facilities and types of equipment for senior or disabled tourists are not adequate or efficient, such as elevators, ramps, and footpaths.
Most tour operators are professional and understand the nature and differences among senior tourists. Tour operators are familiar with major tourist destinations. They can design touristic products according to customer needs. They provide standard services for senior tourists, such as safe transfer/transport services and quality tour guides.	
Hotel staff usually provides friendly services. Senior tourists enjoy privacy, tranquility, and safety in hotels and motels.	

Senior age is accompanied by various changes—physical, psychological, and social—which affect the ability of seniors to explore opportunities to participate in touristic activities. In addition, other constraints, such as lower income and poorer health conditions, also affect seniors' participation in tourism. According to Huber et al. (2018), for that reason, specific social tourism programs are offered to encourage the participation of senior citizens in tourism. This is also confirmed by the conducted research. Based on the results of the questionnaire studies as well as the resources of the remote regions comprising the spatial area of the study, a few propositions for touristic offers for seniors were designed and implemented. Table A1 in the Appendix A presents selected good practices directed

towards the senior tourist. They were divided according to region, type of tourism, and offers. The Vidzeme region (Latvia) has two touristic products based on the resources of the region. Seniors interested in health and exploratory tourism can use the Ligatne Rehabilitation Center created in the Soviet Bunker. On the other hand, tourists interested in history and culture can enjoy the Museum of Regional History and Art in Vamiera. The offer of this place is also addressed to active tourists. Culinary tourism is being developed in North Karelia (Finland), where seniors have the opportunity to taste traditional dishes and experience the lifestyle of the Karelian inhabitants. Due to the natural resources of this part of Finland (forests), active tourism and ecotourism are also being developed here (also aimed at disabled people). Finns are very active in acquiring European funds for the implementation of innovative projects. One of them is the Tourist Guide for the Northern Periphery, which also benefits seniors. The region of Grenada in Spain, to attract seniors in the so-called "low season", has special programs called "Alhambra for seniors" and "Tropical Tourism Granada Programme". In Ireland, on the other hand, there is the "Golden years Holiday Programme" offered by one of the hotels located in a seaside resort. These programs are very attractive for seniors due to their lower prices and tailor-made offers. The last example of a tourist offer addressed to seniors is a pilgrimage and culinary tourism program, which is developing in Warmia and Mazury (Poland). The "Saint Warmia" pilgrimage route connects 16 towns that offer religious places for seniors, as well as culinary attractions. The above examples of good practices of senior-oriented touristic products may be an inspiration for other European remote regions.

6. Conclusions and Implications

Today's seniors are a completely different social group than in previous decades. Older people are much better educated, live in better conditions, and benefit from widely available information. They are interested in active lifestyles, both professionally and socially. The seniors answering the questionnaire were mainly married women with an average age of 68.4 years, secondary education, retired, and with an average annual income. The results show that the majority of seniors prefer spending shorter holidays in their home country. This supports a claim that seniors have an important market potential, especially for domestic tourism. Most of the seniors prefer to organize their travel individually. At the same time, personal experience, family, and friends are the most important sources of information for seniors making decisions regarding their travels. Traveling by bus and by car were the most common modes of transport for seniors. They usually travel with their spouse/partner or friends. The results also show that winter is the last preferred season for this age group, and summer is the most preferred one. Because traveling in the spring and fall is also an acceptable period for seniors, it is good information for regions that would like to extend the tourist season by other months. Financial reasons and health problems are the main barriers to travel for seniors. Regarding travel motivations, research findings showed that enjoying rest and silence was the most important factor for seniors during their holidays. It is worth emphasizing that family and friends are also a major motivational factor for going on holidays. The top five attraction factors for seniors when choosing a destination are: safety, nature, historical sites, quality of services, and easy transportation connections. On the other hand, sports, snow, making handicrafts, dancing, and camping are the top five non-attraction factors. According to the representatives of the tourism industry and local authorities, the reason for the low interest in traveling by seniors may be economic, but also the lack of a special offer addressed only to this particular target group.

The findings of this study have some theoretical implications for senior tourism. Most of the research into senior tourism has focused on the travel motivation factors of the elderly in general. The studies of senior traveler behavior usually concern the specifics of respondents who comes from one country or region. This study fills the gap in this respect because it contains a comprehensive analysis of the senior tourists' motivations and barriers to travel from 11 remote regions of nine European countries. Various classifications and labels for different types of older tourists have not yet provided for this type: the safety

vacationer. Considering the results of this study, as well as the current situation related to the COVID-19 pandemic, this type of tourist, especially in the elderly group, is extremely important in the tourism economy nowadays.

The findings of this investigation also provide some important practical implications for planners and marketers. European remote regions must develop certain policy measures and strategies in the public and private sectors. Physical improvement of tourist destinations, the development of easy and convenient accessibility, support for accommodation and attractions, and facility improvement for senior tourists should be taken into consideration if remote regions want to attract more senior tourists. Hopefully, most of the regions which were involved in this research started preparing and implementing special programs dedicated to seniors after the project's completion. That may be good practice for other regions wishing to open up to senior tourism development.

It must be said, however, that, despite efforts and due diligence, this study does not exhaust all aspects of the issue. Therefore, the results that were obtained should be interpreted taking into account the specificity of the assumptions and ranges described. Considering that the conducted study included a sample of only 11 remote regions of nine European countries, this limits the generalizations that can be drawn from its results. At the same time, it should be emphasized that the presentation of the profile of a tourist—a senior coming from peripheral European regions—and their preferences regarding experiences resulting from completed and planned tourist trips, is an important contribution to future research, which can be built upon not only with a larger sample, but also by extending the research to other countries. The impact of the COVID-19 pandemic on travel by seniors is of particular interest for future research. Tourism and travel have been reduced to a minimum during the COVID-19 pandemic. It is expected that domestic tourism will be the first to recover after the end of the lockdowns, which will lead to a major shift in travel flows. Cities with a high population density, dependent on festival and event tourism, have a disadvantage, while destinations in rural areas have an advantage. The study shows that seniors are very keen to travel to small towns and rural areas. Interesting research questions in the context of further development of the senior tourism market are: which destinations and tourist attractions will benefit from the COVID-19 crisis, how will tourism demand for urban and rural tourism change in the recovery phase, and how important is the issue of sanitary safety in the organization of tourist trips among seniors? These and other questions are novel, and I intend to answer them soon.

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Appendix A

Table A1. Good practices for senior tourists from European remote regions.

Region (Country)	Type of Tourism	Offer
Vidzeme (Latvia)	Health and exploratory tourism	Ligatne Rehabilitation Center—created based on the former Soviet bunker, measuring 2000 m^2 and built at a depth of 9 m. - Rehabilitation, medical, and leisure services for the elderly and disabled from the entire territory of Latvia and abroad (2000 patients); - Rehabilitation offer for people with cardiovascular and pulmonary diseases as well as back and joint problems; - An offer of therapeutic activities for people with neurotic disorders or suffering from Akureyri disease; - An offer of trips around a bunker with communist-style attractions (meals, customs). http://www.rehcentrsligatne.lv (accessed on 22 May 2021).
	Cultural and active tourism	Museum of Regional History and Art in Vamiera—located in the very heart of the historical center of Valmiera within the ruins of the old castle of the Livonian Brothers of the Sword. - The museum offer (over 60 thousand exhibits from various periods document the rich history of the city and region); - Trips, lectures, and various educational programs; - Offers of educational workshops on the topic of herb cultivation and brewing herbal teas; - Walking trips for seniors with a museum guide around the area including a trip on a water taxi on the Gauja river; - An offer of a 30–40 min cruise down the Gauja river through the historic center of Valmiera makes for an interesting touristic offer, especially for handicapped people and the elderly (the tourist attraction was adapted to the needs for people with problems with mobility). http://www.diklupils.lv (accessed on 21 May 2021).
North Karelia (Finland)	Culinary tourism	Karelia a la Carte chain—a collaboration of over 80 small businesses from the agrotourism, culinary, and crafts industry, aimed at creating a widely recognizable brand of promoting the touristic values of North Karelia within the country and abroad. - Culinary trips for seniors connected with visiting cultural heritage objects as well as getting to know the local history and lifestyle of inhabitants living in the area of Karelia; - Cookbook with recipes from Karelian cuisine and a guidebook of the culinary history of Karelia. http://www.pohjois-karjala.proagria.fi (accessed on 22 May 2021).
	Active tourism	Tourist Guide for the Northern Periphery (TG4NP) - The project will provide site-specific, locally accessible, multimedia information, delivered to visitors of remote areas. Basic services include an introduction to the area and will feature useful information, natural heritage; - Information provided includes links to accommodation databases, weather reports, local eateries, points of interest, and other attractions. This is developed using multimedia content, and addresses the need for the revival of the area's unique culture; - Easily accessible services for the elderly and disabled—all information can be obtained easily, with the use of a mobile phone and, if need be, using speakerphones. Fond of the Forest—Forest Wellbeing Tourism - Touristic offerings based on the virtues of the local biosphere, forests, and local Karelian culture. It connects the natural beauty of Karelian nature with local cuisine, culture, herb cultivation, and herbal medicine. - For the senior tourist, services are connected with active tourism based on nature, tranquillity, and the building of well-being, e.g., the offer of the Nevala agrotourism focused on the development of shepherd tourism and relaxation in peace and quiet. http://www.pohjois-karjala.proagria.fi (accessed on 22 May 2021).
	Ecotourism	Accessible tourism - Ecotourism services are avaialbe for the elderly and disabled. - Publication of the guide entitled "Happiness and benefits stemming from accessibility". The guide contains practical advice for entrepreneurs in the tourism industry wishing to modernize their tourism base in terms of improving accessibility to the elderly and disabled. https://www.accessibletourism.org/?i=enat.en.enat_projects_and_good_practices.869 (accessed on 29 May 2021).

Table A1. *Cont.*

Region (Country)	Type of Tourism	Offer
Grenada (Spain)	Cultural tourism	"Alhambra for Seniors" Programme - Alhambra is at the top of the list of the most frequently visited places, not only in the region but also in all of Spain; the city is famous for the Alhambra Palace, which in 1984, was included in the UNESCO World Heritage List; - Seniors 65+, as well as retirees of the European Union, have the right to a discounted ticket, allowing them to go on a tour of Alhambra (for seniors of the Andalusia region, it is free); - Special sightseeing programs for seniors as well as educational programmes (e.g., historical), are prepared with the needs of seniors in mind. http://www.alhambradegranada.org/en/ (accessed on 21 May 2021).
	Active tourism	"Tropical Tourism Grenada" Programme - Covers 138 territorial government units and is managed by the Delegacy on Employment and Regional Development of the Granada Province Council; - The target group are inhabitants of the region above the age of 65 as well as disabled people residing permanently in the region of Granada; - The regional government is the owner of the hotel complex located in Almuñecar. During the so-called "low season", seniors can receive free accommodation for 4 days/3 nights. Approximately 3000 elderly people take part in the program annually. - The senior accommodation program covers entertainment, light motor exercises, and social activities. There is great interest in the offer. http://www.turismotropical.com/ (accessed on 21 May 2021).
Mayo (Irland)	Active tourism	Golden years Holidays Programme—offered by the Westport Woods hotel located in the seaside town of Westport. - An offer of attractive stays for older people above the age of 55 at the end of the tourist season; - The program ensures conveniences for seniors with disabilities, including easy access to the reception and more important rooms, free bus transport between the hotel and train station, free travel by city public transport, as well as individual conveniences for regular guests. http://www.westportwoodshotel.com/about/ (accessed on 21 May 2021).
Warmia and Mazury (Poland)	Pilgrimage and culinary tourism	Pilgrimage route "Saint Warmia"—connects 16 towns offering senior tourists access to places of religious importance: sanctuaries, pilgrim's routes, and sacred buildings connected with various events of a religious nature, e.g., Gietrzwałd—the only palace in Poland with the revelation of the blessed Virgin Mary. There are also a castle and a cathedral in Olsztyn, Calvary in Głotowo, and a hall church in Dobre Miasto, Stoczek Klasztorny and Święta Lipka—referred to as the Częstochowa of the north, on the border of Warmia and Masuria. - Sacred buildings offer cheap accommodation for senior tourists, whereas local restaurants located near the building offer traditional regional cuisine, included in the "Culinary heritage of Warmia, Masuria and Powiśle"; - For motorized tourists, a guidebook and audiobook of the trail has been prepared; - Local travel offices in cooperation with representatives of the hotel, the gastronomical industry, as well as transporters and guide pilots, provide a complex offer for individual people as well as organized groups (including seniors) along the trail of holy places in Warmia. https://www.stoczek.pl/Swiete_miejsca_Warmii (accessed on 20 May 2021).

Notes

[1] https://ec.europa.eu/regional_policy/pl/policy/themes/tourism/ (accessed on 10 March 2021).

[2] https://ec.europa.eu/regional_policy/pl/policy/themes/tourism/ (accessed on 10 June 2021).

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Holiday Rentals in Cultural Tourism Destinations: A Comparison of Booking.com-Based Daily Rate Estimation for Seville and Porto

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Abstract: Multiple variables determine holiday rentals' price composition in cultural tourism destinations. This study sought, first, to test a model including the variables with the greatest impact on tourism accommodations' prices in these destinations and, second, to demonstrate the proposed model's applicability to cultural city destinations by identifying the adaptations needed to apply it to different contexts. Two cities were selected for the model application—Seville in Spain and Porto in Portugal—both of which are located in different countries and are well-known cultural tourism destinations. The data were extracted from Booking.com because this accommodations platform has adapted its offer to the sharing economy, becoming one of the most important players in the market, and because research on holiday rentals using data from Booking.com is scarce. The results show that the variables used are relevant and highlight the adaptations necessary for specific cultural tourism destinations, thereby indicating that the model can be applied to all cultural tourism destinations. The proposed approach can help holiday rental managers select the correct tools for determining their accommodation units' daily rates according to their product and marketing context's characteristics.

Keywords: daily rate pricing; holiday rentals; hedonic pricing method; Booking.com; sharing economy

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1. Introduction

The rapid development of information and communication technologies has profoundly transformed the tourism and hospitality industries (Cheng et al. 2018, 2019; Dickinger et al. 2017; Fernández-Gámez et al. 2020; Suzilo 2020). Consumers have changed the way they search for information, book services and communicate their experiences, thereby disrupting traditional distribution routes (Fernández-Gámez et al. 2020; Mohamad et al. 2021; Núñez-Tabales et al. 2020; Pinto and Castro 2019; Suzilo 2020) and making online booking the main channel of business (Cheng et al. 2019; Fernández-Gámez et al. 2020; Suzilo 2020). New business models have emerged such as online reservation systems and sharing economy platforms, also called peer-to-peer (P2P) platforms (Fernández-Gámez et al. 2020; Guttentag 2015; Suzilo 2020; Veiga et al. 2018). Customers' decision-making processes increasingly rely on comments posted by tourists who have experienced the relevant products and/or services (Cheng et al. 2019; Fernández-Gámez et al. 2020; Suzilo 2020; Veiga et al. 2018) rather than on official websites, advertising or travel agent information (Fernández-Gámez et al. 2020; Gemar et al. 2019; Suzilo 2020; Veiga et al. 2017). In addition, the connection between demand and supply has become more accessible to

consumers through new online distribution channels, allowing people to book accommodations provided by their peers rather than by travel or rental companies (Veiga et al. 2017, 2018; Zekan et al. 2019).

Millennials are among the most intensive users of P2P accommodations, as they look for authentic experiences, including living in residential areas among local populations (Lu and Tabari 2019; Suzilo 2020; Veiga et al. 2017). This generation also tends to reject traditional tourism structures and looks for places that they do not perceive as tourism destinations (Veiga et al. 2017). For private owners, P2P rentals is a way to monetise otherwise unused residential spaces or redefine their use for tourism purposes (Zekan et al. 2019).

Various factors attract tourists to residential areas, including historic quarters' traditional architecture, local people's everyday life and authentic experiences of cities (Maitland 2008). However, tourists and residents do not always coexist easily, and, in some cases, encounters can create friction between them (Davidson and Infranca 2016; Veiga et al. 2017, 2018; Zekan et al. 2019). Another phenomenon frequently linked to the sharing economy in some cities is overtourism, as it tends to concentrate an excessive number of tourists in city centres, historic quarters and residential areas (Veiga et al. 2017, 2018).

According to a comparative study of four European cities, 'only a minority of Airbnb listings can be classified as sharing economy services, while commercial offers constitute a significant share of listings on the platform' (Gyódi 2019, p. 536). Reinhold and Dolnicar (2021) also question the use of the terms sharing economy, collaborative consumption and P2P accommodations to describe Airbnb and similar platforms' products. The original idea of empowering ordinary people to purchase access to private owners' spare rooms has been replaced in most cases by companies trading short-term rentals for commercial purposes. Interactions between hosts and guests have been significantly reduced, as guests can book instantly, and the relevant individuals' photos are no longer displayed until the booking is confirmed (Reinhold and Dolnicar 2021).

Hosts frequently turn out to be agencies that act as intermediaries, receiving a commission for their services. The latter comprise inserting listings into booking platforms, managing bookings and check-in, assisting guests, if needed, during their stay and check-out and cleaning and maintaining rental properties (Reinhold and Dolnicar 2021). The lodgings' owners do not need to care about how well any of these procedures go, so no authentic hosts are involved, and owners have no contact with guests.

Regardless, the true sharing economy is an urban phenomenon that has extended tourism to new city areas (Davidson and Infranca 2016; Veiga et al. 2017, 2018) and contributed to urban transformation and gentrification (Davidson and Infranca 2016; Gant 2016; Veiga et al. 2018). This economy has also funded the regeneration of buildings in historic quarters and city centres that otherwise would have remained vacant. These structures have thus suddenly become valuable assets (Davidson and Infranca 2016).

One of the two largest platforms for accommodation bookings and holiday rentals, Booking.com, was the platform that first disrupted the entire accommodations sector. Airbnb did the same for vacation rentals. Both platforms replaced traditional intermediaries, such as tour operators and travel agencies, by allowing customers to book directly through their platforms. However, these websites' scope of business has changed, as Booking.com is expanding into the vacation rental sector, and Airbnb is entering the hotel sector (Cardoso 2018). An increasing number of vacation rentals are listed on both platforms in order to attract more clients (Cardoso 2018).

Research applying the hedonic pricing method (HPM) to the sharing economy's accommodation prices is relatively new (Tong and Gunter 2020) and restricted mainly to Airbnb. Because Booking.com has expanded into the holiday rental sector relatively recently, studies connecting this platform to the sharing economy are still scarce. The same can be said about comparative investigations of vacation rentals in cultural city destinations. More specifically, no researchers, to date, have compared vacation rentals' price composition in two or more urban cultural tourism destinations listed on Booking.com. Therefore,

the present study addresses both research gaps. It thus sought, first, to identify the most influential variables for holiday rentals' price composition in cultural tourism destinations and, second, to demonstrate this HPM model's applicability to different cultural tourism destinations listed on Booking.com. The last objective was to provide examples of the adaptations needed to apply the proposed model to all cultural city destinations.

2. Literature Review

2.1. Efficient Pricing

Pricing tools play a crucial role in the accommodation sector's revenue management, and efficient pricing has become a popular research field in recent years. Many hotels rely on cost-based, competition-driven and customer-driven pricing strategies (Tong and Gunter 2020), while others use dynamic pricing, namely, adjusting prices upward or downward over time (Leoni and Nilsson 2021). According to Vives and Jacob (2020), two dynamic pricing models are currently widely applied in the hotel industry to maximise revenue. The first is a deterministic model that sets different prices across booking horizons, while the second is a stochastic model that segments demand into different classes in order to determine market responses and demand's sensitivity to price variations. A combination of both dynamic pricing models is often used.

These models take advantage of consumers' willingness to pay more as the date of their stay approaches. Companies set the price of accommodations according to the time horizon between booking and travel dates and their hotels' capacity at any given time. Empirical research has shown that the probability is extremely high that the price will increase as the travel date approaches and the number of rooms available decreases (Leoni and Nilsson 2021).

HPM theory posits that prices depend on each product's features and their effects, which determine that item's consumption utility. HPM models have long been used to analyse the relationship between various product characteristics and their prices and to study heterogeneous features' impact on prices (Liang and Yuan 2021). Soler-García et al. (2019) report that HPM models have been extensively used in both tourism and hospitality studies to assess the influence of specific destination and hotel factors on room rates. To ensure efficient pricing, hotel managers need to know customers' propensity to pay for particular amenities and their hotel's set of services, so services' impact on overall customer satisfaction and the associated costs need to be analysed (Soler-García et al. 2019). HPM models facilitate the estimation of goods or services' prices based on previously defined variables. For hotels, prices are mainly determined by various tangible factors such as hotel category and geographic location, but type of accommodations and hotel chain membership are also important.

In addition, destinations' characteristics must be incorporated into hotel room rates (Soler-García and Gémar-Castillo 2018). Another external feature considered is the time of year, especially in sun-and-sea destinations, due to seasonality (Coenders et al. 2003; Rigall i Torrent et al. 2011); day of the week, especially in destinations with higher occupation rates on weekends; or special event periods (Soler-García and Gémar-Castillo 2017). Typical accommodation characteristics that influence prices are distance to the beach, the city centre, tourism hotspots, train stations or airports (Castro and Ferreira 2018; Gunter and Önder 2018; Soler-García and Gémar-Castillo 2018), as well as reputational factors such as hotel brand, number of stars and customer ratings (Castro and Ferreira 2018; Soler-García et al. 2019). Additional features affecting prices are hotel category; availability of a swimming pool, fitness centre or sport facilities (Castro and Ferreira 2018); pet admission (Santos et al. 2021); spa; parking; accommodations' size (Chen and Rothschild 2010; Santos et al. 2021; Voltes-Dorta and Sánchez-Medina 2020); the inclusion of a restaurant, bar or terrace; and room amenities such as Wi-Fi, television (TV), minibar or room service (Castro and Ferreira 2018).

Inefficient pricing can contribute to financial losses in every business activity, especially in the holiday rental sector. Hotels have trained professionals, price management

programmes and industry benchmarking reports, but vacation rental units are usually managed by people without specific training in pricing strategies and with limited access to pricing tools (Gibbs et al. 2018). Airbnb has made some attempt to develop pricing tools that the hosts can use to set their listings' prices. However, the first tool launched in 2012 was quite basic, as it only focused on simple factors including, among others, the number of rooms, neighbouring properties and amenities such as parking (Gibbs et al. 2018; Hill 2015).

A second, more elaborate pricing tool, Smart Pricing, was released a few years later, which takes both property characteristics and demand into account. The tool uses machine learning to provide hosts with a suggested price for a specific date that hosts may accept or change according to their perception (Gibbs et al. 2018; Hill 2015). Smart Pricing thus has a purely advisory function, so it may have no real influence on holiday rentals' price because most hosts do not use the tool (Tong and Gunter 2020).

As hosts are responsible for setting their listed properties' price, analyses of which factors affect vacation rental rates are of great importance to the sharing economy (Voltes-Dorta and Sánchez-Medina 2020). A significant number of studies have found that property, host and location factors have the strongest impact on prices (Voltes-Dorta and Sánchez-Medina 2020). Significant property features usually include the number of beds, bedrooms and bathrooms (Fearne 2021; Gibbs et al. 2018; Gunter and Önder 2018; Voltes-Dorta and Sánchez-Medina 2020) and online photos (Tong and Gunter 2020). Host characteristics, reputation, experience, responsiveness and 'superhost' status are specifically referred to in research on Airbnb (Gunter and Önder 2018; Voltes-Dorta and Sánchez-Medina 2020). Extremely important location factors for pricing holiday rentals are similar to those for hotels, namely, distance to the city centre, bus or train stations, airports, beaches or other hotspots (Gunter and Önder 2018; Gyódi and Nawaro 2021; Santos et al. 2021; Toader et al. 2021; Voltes-Dorta and Sánchez-Medina 2020).

While most research on sharing economy accommodation pricing has focused on Airbnb, a few investigations have taken Booking.com into account. For example, Gyódi (2017) compared Airbnb and Booking.com listings in Warsaw, finding evidence that Airbnb provides cheaper accommodation alternatives in all price segments. However, the cited study included Booking.com's complete offer of hotels, hostels and apartments, so the focus was not exclusively on the sharing economy. Santos et al. (2021) subsequently proposed a new HPM model for Booking.com holiday rentals using an extensive set of variables developed by Solano-Sánchez et al. (2019) that were also used in the present comparative study (see Table 1).

Table 1. Variables, descriptive statistics and description.

Var.	Seville		Porto		Description
	Mean or %	SD	Mean or %	SD	
PRCE	162.093	105.542	108.994	44.267	Accommodation price per day
MIN	14.71	8.531	14.3	11.872	Minutes to walk from accommodations to Plaza del Triunfo (Seville)/Praça da Liberdade (Porto)
IDIS	0.959	0.092	0.775	0.105	District index according to price per square metre in each district
BEDS	3.94	1.9	3.04	1.422	Number of beds
M2	75.8	40.818	54.62	29.376	Square metres
TV	99%	–	95%	–	Television (dummy variable)
WASH	96%	–	29%	–	Washing machine (dummy variable)
BAL	44%	–	46%	–	Balcony (dummy variable)

Table 1. *Cont.*

Var.	Seville		Porto		Description
	Mean or %	SD	Mean or %	SD	
TER	36%	–	22%	–	Terrace (dummy variable)
CRT	34%	–	17%	–	Courtyard or patio (dummy variable)
VIEW	53%	–	69%	–	Panoramic views (dummy variable)
INS	21%	–	41%	–	Soundproofing (dummy variable)
PARK	40%	–	41%	–	Parking (dummy variable)
PETS	11%	–	9%	–	Pets allowed (dummy variable)
POOL	3%	–	1%	–	Swimming pool (dummy variable)
BATH	34%	–	14%	–	Bathtub (dummy variable)
CAL	8.872	0.678	9.138	0.4597	Previous users' ratings (from 0 to 10)
PICS	32.8	0.22	38.95	12.445	Number of photos
VSAT	8.403	0.826	8.733	0.599	Visual appeal according to photos (from 0 to 10)
HWD	35%	–	35%	–	High season weekday (dummy variable)
HWE	13%	–	17%	–	High season weekend (dummy variable)
LWD	29%	–	30%	–	Low season weekday (dummy variable)
LWE	10%	–	14%	–	Low season weekend (dummy variable)
HW	8%	–	NA	NA	Holy Week (dummy variable) for Seville only
FAIR	5%	–	NA	NA	April Fair (dummy variable) for Seville only
SJ	NA	NA	4%	–	São João (dummy variable) for Porto only

Note: Var. = variable; SD = standard deviation; NA = not available. Source: (Booking.com 2018, 2019); (Google Maps 2018, 2019); (Tinsa 2018); (INE-PT (Instituto Nacional de Estatística) 2019).

2.2. Rise of Sharing Economy and Normative Adaptations

In Spain, legislation on holiday rentals varies according to the autonomous region involved. Vacation rentals' law[1] in Andalusia, of which Seville is the capital, define it as *viviendas con fines turísticos* (homes for tourism purposes, i.e., holiday rentals, HRs hereinafter). This law's Article 3 defines HRs as those located in buildings for residential use that provide accommodation services regularly marketed specifically to tourists. Andalusian HRs can be rented in full (i.e., the entire home) or in part (i.e., a spare room). In addition, tourism's law in Andalusia (Boletín Oficial de la Junta de Andalucía 2011)[2] highlights different types of tourism accommodations' obligation, including HRs, to register with the RTA[3] (Andalusian Tourism Registry), which the general public can access.

Portugal's national legislation on holiday rentals endows municipalities with the power to approve and, when the volume of existing vacation rental establishments has exceeded the limit set, curbing these facilities' numbers. Portugal started regulating the sharing economy's accommodations in 2008 (Diário da República 2008) to provide a legal framework for the provision of temporary accommodations in homes that did not meet the legal requirements imposed on any facilities previously classified as tourism accommodations. The new form of holiday rental establishments has been designated local lodging[4] and standardised as HRs in the present research, which consists of villas, apartments and lodging establishments that, after being authorised for this use, provide temporary paid accommodation services but do not meet the requirements to be classified as tourism businesses. HR establishments must comply with the minimum safety and hygiene requirements, be registered with the relevant municipal council and be marketed to tourists either by their owners or by travel and tourism agencies.

In 2014, several laws[5] were passed to provide further regulations on this type of activity in terms of properties' taxation, delimitation and required characteristics. These laws (Diário da República 2014, 2015) also specify which entity monitors compliance with rules and noncompliance fines, as well as safety requirements, such as a fire extinguisher and fire blanket in the kitchen, first aid equipment and the national emergency number (i.e., 112) posted in a visible place.

In 2018, another law[6] further regulates temporary holiday rentals and allows owners to rent rooms in their own home. This decree additionally allows municipal councils to set limits on HR accommodations or even extinguish all HR activity in specific areas of cities, makes liability insurance mandatory and requires owners to display an information book with the building's accommodation rules. These councils also determine the temporary vacation rental facilities' maximum capacity. Lisbon and Porto have relied on this legislation to impose strong restrictions on HR accommodations and stop issuing permits for new HR facilities in their historic city centres.

In 2020, another law[7] introduced, among other norms, standards regarding all HRs' environmental sustainability. This legislation requires owners to implement practices promoting more efficient water and energy consumption, as well as making available to guests information on these sustainable tourism practices. In addition, all HR properties must use biodegradable detergents, be equipped with recycling bins for solid waste separation and ensure employees are continuously trained in environmentally friendly procedures. Owners must get an environmental certification or quality seal from a national or international organisation of recognised merit. All HR accommodations have to implement these regulations as of 4 February 2022.

If an HR facility is an autonomous part of an urban property, which can be used independently, the remaining owners together can oppose the accommodation activity, but the decision must be approved by more than half of them. The reasons for the decision have to be substantiated (e.g., annoying actions that affect the other property owners), and the mayor of the relevant city council must be informed of the decision. This legislation means that owners of apartments in buildings can close down HR activity in their building. In addition, apartment owners in buildings can now impose an additional fee on each HR in their building—up to a limit of 30% of the annual value of the respective activity—to cover the expenses arising from an increased use of shared areas. This fee must be approved by a two-thirds majority of the building's owners (Diário da República 2020).

As a concluding remark, it can be said that the autonomous regions of Spain have their own legislations for HR, while Portugal has national legislation that, in the last few years, has been adapted to assure high-quality standards of HR as well as the safety of guests and the well-being of the resident population.

2.3. Seville and Porto Vacation Rental Overview

The number of registered holiday rentals has grown significantly in Seville and Porto (see Figure 1). Starting in January 2017, the public was given access to data from official HR records in Seville[8]. Both cities present quite similar trends in holiday rentals' growth, with a more pronounced increase as of January 2018.

Porto has significantly more holiday rental facilities than Seville does. According to Portugal's National Institute of Statistics (INE-PT)[9], the latest official data on Porto's total population set the total of residents at 222,252 in 2013 (RNT (Registo Nacional de Turismo) 2019). In contrast, Spain's National Institute of Statistics (INE–ES[10]) reported that Seville had a total population of 688,711 in January 2018 (INE-ES (Instituto Nacional de Estadística) 2018). Thus, by March 2019, Porto would have had a ratio of approximately one HR for every 35 inhabitants as compared to 167 inhabitants for each HR in Seville.

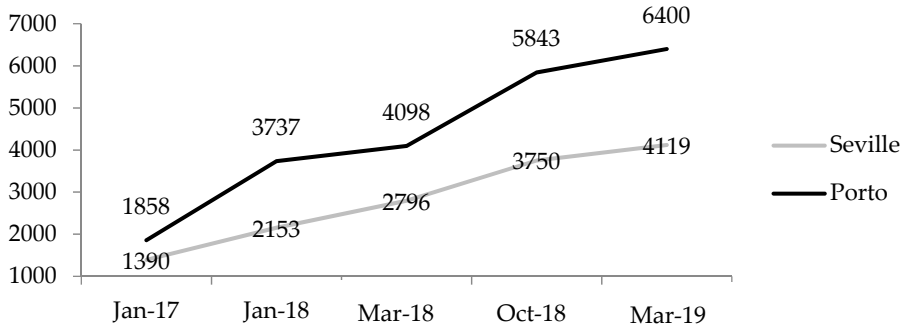

Figure 1. Evolution of number of HRs in Seville and Porto. Source: Authors, based on data from RTA. (Registro de Turismo de Andalucía) (2016, 2017, 2018) and RNT[11] (RNT (Registo Nacional de Turismo) 2019).

An analysis was carried out of the relative number of beds for each city in March 2019. In Seville (see Figure 2a), the beds for vacation rentals and hotel establishments were equal—both around 45%. However, in Porto (see Figure 2b), the number of tourism-related beds was much higher since almost two out of every three accommodations in the city were vacation rentals (i.e., HR).

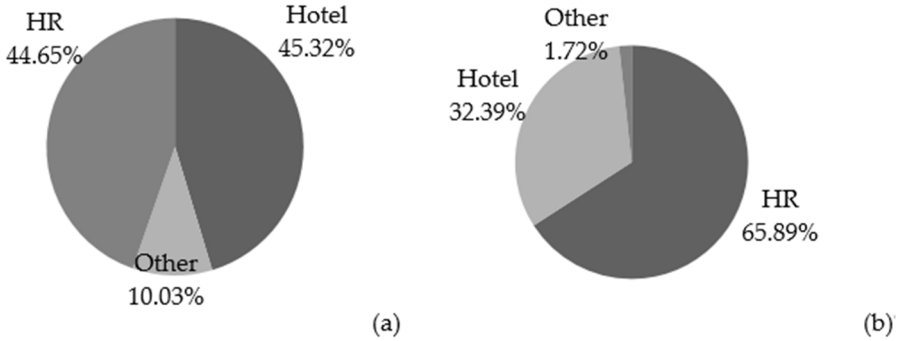

Figure 2. Number of tourism accommodation beds in Seville (**a**) and Porto (**b**) in March 2019. Source: Authors, based on data from RTA (Registro de Turismo de Andalucía) (2018) and RNT (Registo Nacional de Turismo) (2019).

3. Materials and Methods

HPM models can take a variety of functional forms. The present study used a linear function as a reference point because it is the most commonly used function in HPM models, similar to the one proposed for this research. In addition, when other functional forms were tested, the results showed that the linear function produces the best outcomes. This type of function is expressed as Equation (1). Following this formula, the subsequent *Xs* (1,2, . . . , *n*) correspond to the relevant variables that determine the daily rate of the accommodation (*Y*). The model estimations (β_0, β_1, . . . , β_n) are the parameters that assess the direct influence in price that each variable (X_1, X_2, . . . , X_n) has.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \ldots + \beta_n X_n + \varepsilon \quad (1)$$

To develop the HPM model, data had to be obtained for a sample of registered holiday rentals based on the cities' total units. The research population was defined as the number of HR facilities officially existing at the time of data collection. For HRs in Porto, only the 'apartment' category was selected. For HRs in Seville, the modality 'by rooms' was excluded from the sample due to the distortion that could occur in the model if different services (i.e., spare room or complete apartment) were compared. This study thus only focused on complete apartments, especially because spare rooms are an insignificant percentage of vacation rentals in Seville and Porto.

The final sample (see Table 2) comprised the total number of holiday rentals for which complete data could be obtained. It is checked that both sample sizes guarantee a confidence level of 95%. The HPM model was developed using IBM SPSS Statistics 25 and EViews 10 software. The number of cases included was higher than that of the initial sample because identical accommodations offered with different numbers of beds were quantified separately.

Table 2. Number of cases, sample and total population of vacation rentals in Seville and Porto.

Type of Data	Seville (Municipality)	Porto (Municipality)
Population at time of data collection	3467 HRs (October 2018)	6400 HRs (March 2019)
Sample	665 HRs	369 HRs
Number of cases included in system	1623	882

Note: HRs = holiday rentals. Source: RTA (Registro de Turismo de Andalucía) (2018) and RNT (Registo Nacional de Turismo) (2019).

The variables to be analysed (see Table 1 above) were selected based on the literature review's findings. The information incorporated into the HPM models was extracted from searches of Booking.com (Booking.com 2018, 2019). The exceptions to this rule were the MIN variable (i.e., minutes needed to walk from accommodations to the city's main tourist attractions), which were taken from Google Google Maps (2018, 2019), and IDIS (i.e., district index according to the price per square metre (m^2)), which was drawn from Tinsa (2018) for INE-PT (Instituto Nacional de Estatística) (2019) for Porto. In addition, VSAT (i.e., visual appeal according to photos) was evaluated by the authors.

Table 1 above presents the main similarities and differences between the holiday rentals in both cities. Major similarities include the average number of minutes needed to walk to the city's main tourist attractions and the availability of a TV, balcony, views, parking and pet admission. Other parallel features are the average rating given by previous guests on Booking.com and the number of photos in accommodations' profiles on that website, as well as the images' visual appeal. Notable differences appear in the average price (i.e., significantly lower in Porto) and accommodations' size—both in m^2 and in the number of beds offered. The most important contrasts in amenities are that washing machines are much less often available in Porto's HR facilities compared to the HRs analysed in Seville, and notable differences were found in whether a courtyard, patio and bathtub were available.

Regarding the data extraction process, the price (PRCE) was estimated per holiday rental facility and day for Seville based on a stay of two days, which is the average for that city according to the Seville Tourism Data Centre[12] (Centro de Datos Turísticos del Ayuntamiento de Sevilla 2017). The average stay is, however, only 1.73 nights for tourism accommodations in Portugal's northern region and thus for Porto, according to the INE-PT (Instituto Nacional de Estatística) (2019). Taxes, tourist fees and other added expenses (e.g., cleaning) were included.

In the case of a property that offered different types of lodgings at the same price, the one that provided the greatest added value was chosen to reflect how any rational consumer would act. Priority was given to the option of cancellation within a specific period and/or a partial refund. Finally, the no refund option was selected only when no other possible alternative was given.

The minutes to walk from accommodations to the city's main tourist attraction (MIN) were determined for Seville using the Plaza del Triunfo. This square is located between the Cathedral of Seville and the Real Alcázar, which are the two most visited monuments according to (Centro de Datos Turísticos del Ayuntamiento de Sevilla 2017). For Porto, Praça da Liberdade was taken as the reference point, as it begins at Avenida dos Aliados, which is considered the city's centre. This square's proximity to the São Bento train station

also played a fundamental role in the choice of the Praça as Porto's main tourist attraction. This variable should negatively influence the price since the less time spent reaching major points of interest from the accommodations means the more expensive they will be.

The district index (IDIS) was quantified as the average price per m^2 according to the Seville district or Porto parish in which the vacation rentals were located (see Table 3). The predefined hypothesis posited that a higher value per m^2 in a district or parish implies a higher property value, which will be reflected on accommodations' price. This index was composed by giving the highest-priced district or parish a value of one, after which the rest of the cities' zones were given a proportional value. Tests were also carried out on the model in which each district or parish served as a dummy variable, except the one zone that served as a basis, because the inclusion of all districts or parishes would increase the chances of an exact multicollinearity problem appearing in the model.

Table 3. District index.

District (Seville)	EUR/m^2	Index	Parish (Porto)	EUR/m^2	Index
Historic quarter	2398	1	UF: Aldoar, Foz do Douro, Nevogilde	2250	1
Los Remedios	2196	0.916			
Nervión	2137	0.891	UF: Cedofeita, Sto. Idelfonso, Sé, Miragaia, S. Nicolau, Vitória	1860	0.826
Triana	1932	0.806			
South	1825	0.761	UF: Lordelo do Ouro, Massarelos	1810	0.804
San Pablo–Santa Justa	1629	0.679			
Bellavista–La Palmera	1578	0.658	Ramalde	1429	0.635
Macarena	1301	0.543	Bomfim	1319	0.586
East Alcosa–Torreblanca	1226	0.511	Paranhos	1316	0.585
Norte	1041	0.434	Campanhã	986	0.438
Cerro Amate	974	0.406			

Note: EUR/m^2 = euros per square metre; UF = União de Freguesias (Joint Parishes). Source: Tinsa (2018) and INE-PT (Instituto Nacional de Estatística) (2019).

Regarding the accommodations' amenities, the model specified that only views (VIEW) of the city and/or emblematic monuments would be considered rather than views of patios, courtyards and/or interior gardens. For the parking variable (PARK), both parking in the establishment itself and private parking near it were quantified. Finally, Table 4 reflects the different dates on which the price of a stay was based. For Seville, May–June and January were selected as the high and low seasons, respectively, thereby avoiding holidays that could cause specific price increases. In addition, special events in the city such as Holy Week (i.e., the week leading up to Easter) and the April Fair were highlighted. For Porto, August was set as the high season and November as the low season to exclude holidays again, and São João was selected as the city's most characteristic celebration.

To determine the seasons' weight (see Table 1 above), the accommodations' price was divided into approximately two halves to take into account both high and low seasons (i.e., from April to September and from October to March, respectively). Greater weight was given to the high season due to the associated increase in overnight stays. Weekends account for just over two-sevenths of all cases in comparison to weekdays due to a significant increase in overnight stays on weekends. The special events of Holy Week (HW) and April Fair (FAIR) are approximately one week each, so those dates were assumed to quadruple and double, respectively, the 2% that an average week takes up of the total year, due to the increase in overnight stays in these two periods. São João (SJ) was given a slightly lower proportion than the April Fair because Porto's festivities take up fewer days.

Table 4. Dates when prices were taken.

Var.	Description	Seville		Porto	
		From:	To:	From:	To:
HWD	High season weekdays	27 May 2019	29 May 2019	05 August 2019	07 August 2019
HWE	High season weekend	31 May 2019	02 June 2019	09 August 2019	11 August 2019
LWD	Low season weekdays	14 January 2019	16 January 2019	11 November 2019	13 November 2019
LWE	Low season weekend	18 January 2019	20 January 2019	15 November 2019	17 November 2019
HW	Holy Week	18 April 2019	20 April 2019	NA	
FAIR	April Fair	10 May 2019	12 May 2019	NA	
SJ	São João	NA		23 June 2019	25 June 2019

Note: Var. = variable; NA = not applicable. Source: Booking.com (2018, 2019).

Andalusian (RTA) and Portuguese (RNT) Tourism Registry were the key sources used to develop the database with which the model was constructed. However, other sources were also consulted, such as Booking.com and Google Maps. The information was processed with IBM SPSS Statistics version 25 and EViews version 10 software.

4. Results

After different tests confirmed that using a linear functional form for the HPM model was the best option, the independent variables considered too insignificant to include in the model were excluded from it. For all of these, the probability of error if the null hypothesis is rejected using the Student's *t*-statistic is greater than 1% ($p > 0.01$). Next, 5 atypical cases were eliminated from the system in the Seville model and 12 in the Porto model because they were considered to be nonrepresentative of the entire dataset, and their inclusion would cause significant distortions in the models. The final set of variables analysed in the two datasets and their coefficients is presented in Table 5.

Table 5. Variables and coefficients of HPM model for Seville and Porto.

Variable	Coefficient	Standard Error	Student's *t*	Prob.	VIF
		Seville			
Constant (C)	−65.087	15.211	−4.279	0.000	-
MIN	−1.475	0.159	−9.255	0.000	1.104
BEDS	14.854	0.837	17.75	0.000	1.51
M2	0.934	0.041	23.004	0.000	1.641
POOL	31.028	8.443	3.675	0.000	1.05
VSAT	12.868	1.767	7.283	0.000	1.27
HWE	17.56	4.191	4.19	0.000	1.207
LWD	−30.783	3.287	−9.364	0.000	1.32
LWE	−24.09	4.604	−5.232	0.000	1.171
HW	151.876	5.12	29.665	0.000	1.147
FAIR	130.666	6.274	20.825	0.000	1.091
		Porto			
Constant (C)	−89.584	15.542	−5.764	0.000	-
UF: Aldoar, Foz do Douro, Nevogilde	57.633	12.427	4.638	0.000	1.509
MIN	−0.303	0.109	−2.779	0.006	1.631

Table 5. *Cont.*

Variable	Coefficient	Standard Error	Student's *t*	Prob.	VIF
		Porto			
BEDS	12.219	0.942	12.971	0.000	1.711
M2	0.422	0.046	9.252	0.000	1.708
CRT	−9.123	2.79	−3.27	0.001	1.043
PICS	0.307	0.091	3.372	0.001	1.224
VSAT	16.458	1.861	8.846	0.000	1.186
LWD	−29.699	2.365	−12.557	0.000	1.131
LWE	−30.649	3.131	−9.79	0.000	1.112
SJ	30.62	5.327	5.748	0.000	1.074

Note: Prob. = probability; VIF = variance inflation factor; UF = União de Freguesias (Joint Parishes).

The coefficients represent the marginal price variations (i.e., endogenous variable) produced by each exogenous variable. Thus, an HR in Porto that is located within the Union of Parishes of Aldoar, Foz do Douro and Nevogilde increases its daily price of a one-night stay by EUR 57.63 compared to another facility that does not (see Table 5 above). Concurrently, every extra minute spent walking from a HR to the Plaza del Triunfo in Seville (i.e., the city's main tourist attraction) reduces accommodations' price by EUR 1.48. In contrast, if guests walk from an HR to Praça da Liberdade in Porto (i.e., the city's main tourist attraction) the reduction in price is only EUR 0.30. Finally, each extra bed that a holiday rental offers in Seville increases its price by EUR 14.85, compared to EUR 12.22 in Porto.

Regarding the variables related to seasonality (see Table 5 above), in the Seville model, the HWD variable was the basis on which the price was estimated, so this variable was excluded from the model to avoid the problem of exact multicollinearity. In Porto, both HWD and HWE proved to be irrelevant to the model, so the same price was estimated for the high season without a distinction being made between weekend or weekday prices. Additional tests were performed to rule out multicollinearity between independent variables using the variance inflation factor (see Table 5 above). No independent variables exceeded the tolerance level (i.e., set at 10), thereby implying that no multicollinearity was present.

A comparison of the models (see Table 5 above) highlighted the main similarities and differences. Similarities include the variables referring to the accommodations' size (BEDS and M2), distance to the centre (MIN) or visual attractiveness (VSAT). Special events are also decisive for both Seville (HW, FAIR) and Porto (SJ). The models diverge regarding the vacation rentals' amenities. Pool availability (POOL) is a key feature for Seville's HRs but irrelevant for Porto's HR establishments. Conversely, courtyard or patio availability (CRT) is significant in Porto but extraneous in Seville.

Table 6 includes an assessment of the models' overall goodness of fit. The coefficient of determination (R^2) represents the total percentage of each endogenous variable's variation that is explained by the model's full set of exogenous variables. The Seville model has a significantly higher R^2 than the Porto one does, that is, the former model's exogenous variables explain 19.2% more of the estimated price than the Porto model does.

Table 6. Adjustment measurements of Seville and Porto HPM models.

Variables	Seville	Porto
Coefficient of determination (R^2)	0.732	0.54
Mean relative error	22.97%	21.09%
Theil inequality index	0.139	0.129

The mean relative error (see Table 6 above) shows the differences in percentage between each model's predicted prices and its actual values. The Porto model has a slightly

higher goodness of fit than that of Seville since the absolute average of errors committed is approximately 2% lower. The Theil index of inequality represents a given model's predictive power, namely a greater accuracy the closer this index gets to zero. Both models have values that indicate a good ability to predict prices. Finally, the Chow test was run to check the models' stability, which produced results indicating no structural changes occurred in both models' parameters.

Figure 3 presents graphs comparing the real price with the price estimated by the Seville and Porto models. The former model shows a significantly higher price range than that of Porto. An outlier above EUR 400 appears in the Porto model in the real price range, but that price's exclusion would mean a lower goodness of fit. The models' degree of fit, if perfect, should appear as point clouds in a diagonal line, as seen in Figure 3. Both models' estimated values thus suggest that the linear form is a good fit.

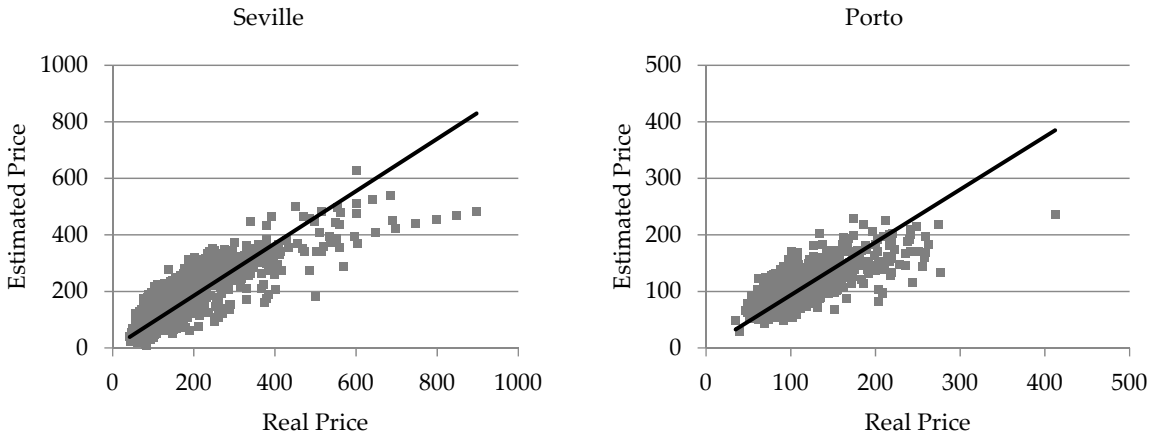

Figure 3. Comparison of real vs estimated price for Seville and Porto models.

5. Discussion

The dependent variables found to be relevant to the models are in agreement with previous studies in terms of distance to the city centre or tourist attractions of greatest interest. Comparable results have been reported by, among others, Soler-García and Gémar-Castillo (2017), Gyódi (2017) (i.e., a Booking.com model), Gibbs et al. (2018), Soler-García and Gémar-Castillo (2018) and Tong and Gunter (2020) (i.e., a Seville case study). However, Voltes-Dorta and Sánchez-Medina's (2020) research did not confirm any significant relevance, and Gyódi and Nawaro's (2021) results vary depending on the city analysed.

More specifically, the number of beds appears as an important variable in Gibbs et al. (2018), Tong and Gunter (2020), Voltes-Dorta and Sánchez-Medina (2020), Fearne (2021) and Gyódi and Nawaro's (2021) findings. The m^2 of accommodations is also significant in the present study's two models, as reported by Chen and Rothschild (2010), but this variable is rarely present in other tourism accommodation pricing models. In addition, the date on which the price is recorded is seldom mentioned in the literature. However, variables related to this factor are similarly treated as important in work done by Coenders et al. (2003) and Rigall i Torrent et al. (2011) on seasonality and Soler-García and Gémar-Castillo (2017) on special events such as Seville's April Fair.

6. Conclusions and Implications

The comparison of the models developed produced especially interesting results on similarities and differences between the two cities. Strong conditioning factors in both models include accommodations' size in m^2, location, walking distance to the centre and visual appeal, as well as the influence of high and low seasons and, in particular, local festivities. The main differences are more secondary issues such as holiday rentals'

amenities, district or parish and number of photos in Booking.com profiles. The large number of variables that proved to be insignificant for the model is also noteworthy—primarily specific amenities including, among others, the availability of a TV, washing machine, views, soundproofing or parking. The district index also was irrelevant to the configuration of vacation rentals' final stay price for both models.

The most interesting conclusion drawn from this research is that conclusive results can be obtained by applying the same methodology when developing a model for estimating holiday rentals' prices for two different cities. In summary, the literature review and findings confirm that the strongest price determinants to consider in pricing models for cultural destination holiday rentals are distance to the city centre, number of beds, m^2, seasonality factors and special events. These results also underline the convenience of using Booking.com and Google Maps as a source of data on all these variables. The methodology used in this study will likely produce different results for other cultural tourism cities as researchers accept or discard variables according to each city's realities. However, this study detected the same similarities as Tong and Gunter (2020) and Gyódi and Nawaro (2021) did, except for seasonality, which was not included in the latter investigation. Thus, the proposed methodology appears to be applicable to multiple cultural city destinations. The application of this methodology to the comparison of daily rate estimation of cultural city destinations using data from Booking.com is the main theoretical contribution of this study.

The model's main practical implication is related to estimating accommodations' daily rate under previously defined conditions (i.e., variables) since the model is easy for the relevant practitioners to customise. This research's contribution consists of presenting two models of price estimation whose application entails the obtention of a certain price through easily modifiable variables. Thus, a collection of predetermined variables will assess a confident daily rate estimation under those circumstances. This tool can help holiday rentals' managers or consumers determine in advance if a price is in line with what the market normally offers under specific circumstances. These estimations can also be useful for municipal councils' tax agencies to calculate reasonable tax bases, especially in a sector in which the informal economy is prominent.

The study's limitations include, first, the impossibility of creating larger datasets due to the difficulty of obtaining complete data for all cases and variables and, second, the data collected reflecting a pre-coronavirus disease-19 (COVID-19) period. Finally, future lines of research could involve replicating the above methodology for holiday rentals in other cultural city destinations of great importance to tourists such as Paris, Barcelona, Rome, Venice or Amsterdam. These studies need to analyse the new models' main similarities to and differences from—with a special focus on COVID-19's effects—the two models developed in this research or to adapt the methodology to fit other types of tourism accommodations.

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Conflicts of Interest: The authors declare no conflict of interest.

Notes

1 Decreto (Decree) 28/2016 (Boletín Oficial de la Junta de Andalucía 2016).
2 Article 37 of Ley (Law) 13/2011 of 23 December.
3 *Registro de Turismo de Andalucía*, in Spanish.
4 *Alojamento local* in Portuguese.
5 Decreto-Lei n.º 128/2014 of 29 August (Diário da República 2014) was passed and then amended by Decreto-Lei n.º 63/2015 of 23 April (Diário da República 2015).
6 Decreto-Lei n.º 62/2018 (Diário da República 2018).
7 Portaria (Ordinance) No. 262/2020 of 6 November (Diário da República 2020).
8 When Decree 28/2016 (Boletín Oficial de la Junta de Andalucía 2016) came into force.
9 *Instituto Nacional de Estatística*, in Portuguese.
10 *Instituto Nacional de Estadística*, in Spanish.
11 *Registo Nacional de Turismo*, in Portuguese.
12 *Centro de Datos Turísticos del Ayuntamiento de Sevilla*, in Spanish.

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Article

Evidence of a Threshold Size for Norwegian Campsites and Its Dynamic Growth Process Implications—Does Gibrat's Law Hold?

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Abstract: Although campsites are an important segment of the tourist sector, few applied articles have analyzed their growth path and tested Gibrat's Law for firms within this industry. This knowledge can be of importance to the authorities when analyzing the regional impacts of growth in this sector. With government statistics from the last decade, we use a GMM framework to test the stricter version of Gibrat's Law, which consist of three parts: the campsites' growth trend, how they carry over success and failure, and how volatile their size is. The first and third part are rejected for Norwegian campsites, leading to a rejection of Gibrat's Law. To see if firms of different sizes follow different dynamics, we split the sample in three parts. Here, we find evidence of a threshold size, as large campsites follow a fundamentally different dynamic than small and medium campsites. Specifically, large campsites gain no stability in revenue by further increases in size, whereas they carry over success/failure across years. The opposite is true for the rest of the sector. Gibrat's Law is rejected on at least one count for each of the sub-samples. Lastly, we supplement the analysis with economy-wide and firm-specific variables to test further hypotheses.

Keywords: Gibrat's Law; campsites; tourism; growth; system GMM estimator; dynamic panel data; Norway

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1. Introduction

In the growth path literature that uses Gibrat's Law, there are few studies that analyze campsites, and none that investigate Norwegian campsites. Previous studies of Italian and Dutch campsites do not reject Gibrat's Law, using an OLS framework on a sample of five years. This study uses a GMM (and ML) framework on a sample with twice the time dimension, although we have a smaller cross-sectional sample. The composition of the sample is also different, as Italian (Piergiovanni et al. 2003) and Dutch (Audretsch et al. 2004) campsites do not face the same degree of natural (and state) restrictions as Norwegian ones do, in addition to being larger than Norwegian ones. Unlike the previous literature, the present paper uses a detailed and accurate methodology to test Gibrat's Law. We hope to supplement the existing literature with our findings about the growth of businesses that work under these conditions, using a modernized framework.

The tourism industry is important for many countries and contributes to value creation and employment; accordingly, there is a relatively large amount of existing literature on the subject. Although campsites are an important contributor to this industry in Europe, North America, Australia, and parts of Asia, few analyses have tested Gibrat's Law for this segment.

It is of great interest to see if Gibrat's Law applies to the tourism industry in Norway, as Norway is moving towards a future in which it will be less dependent on oil. Therefore,

the focus must be on other industries The tourism industry is important for ensuring future sustainable regional development (NOU 2020). Therefore, the authorities need more knowledge about the campsites, among other things. For example, will the growth be distributed equally, or will there be a concentration around the large companies? The purpose of this article is to find out more about this, and related, issue(s).

The article in which Gibrat proposes the Law of Proportional Effect (LPE) (Gibrat 1931) has formed the basis for many research articles, and it states that an individual firm's relative growth is independent of firm size. Consequently, the best prediction one can make about any individual firm's size the next year will be that firm's current size, plus the growth in the relevant sector. If the year-to-year growth of large firms is 5%, it will be 5% for small firms as well. This does not mean that all firms grow at the same pace, but that the growth is independent of firm size.

The market concentration of industries and sectors is an essential topic in economics, thus how the distribution of market share changes over time is important. This dynamic is why the LPE has received so much attention, as it serves as the baseline with which to compare the growth dynamic in different industries and sectors. Any deviation from Gibrat's Law is evidence of the market at hand converging, at the extreme, towards perfect competition or monopoly. In most cases, when Gibrat's Law is rejected, it is rejected in favour of the mean reversion, although the very long run distribution of firms is often observed to be logarithmic rather than normal. This is due to the fact that sectors act more in accordance with Gibrat's Law the older they become.

2. Literature Review

Gibrat's Law has been an inspiration for many international publications (Daunfeldt and Halvarsson 2015) and many different methods and approaches have been applied. Mansfield (1962) applied Gibrat's Law in different ways. First, he tested if smaller firms were more likely to leave the market than larger firms. Then, based on economic theory, he investigated whether the companies had to pass a certain scale level, at which production exceeds the minimum efficient scale (MES) level, before Gibrat's Law holds. That is, it is possible that there is a threshold size at which a firm's growth pattern changes. Several other researchers have reported similar results, with the general conclusion being that larger firms grow independently of their size, as for the largest U.S. companies (Hymer and Pashigian 1962; Simon and Bonini 1958). The literature yields a mixed picture for industrial firms, as others show that this does not hold for small- and medium-sized enterprises (SMEs) (Becchetti and Trovato 2002; Hart and Oulton 1999; Fotopoulos and Louri 2004), whereas others show that the LPE holds for entire sectors (Buckley et al. 1984; Hymer and Pashigian 1962; Lensink et al. 2005; Simon and Bonini 1958). Most studies that reject Gibrat's Law show that the sector has a mean reverting tendency, meaning that smaller firms grows faster than larger firms (Almus 2000; Bartoloni et al. 2020; Daunfeldt and Elert 2013; Yadav et al. 2020). According to Jurado et al. (2021), Gibrat's Law applies to large capital-intensive companies that use advanced technology, which is taken to the extreme in other studies who suggest that large firms grow faster than their smaller competitors (Mukhopadhyay and AmirKhalkhali 2010). Finally, there are articles that did not find any hold for Gibrat's Law (Lotti et al. 2001).

Previous research has shown that Gibrat's Law applies to campsites based on data from the Netherlands (Audretsch et al. 2004) and Italy (Piergiovanni et al. 2003), meaning that it cannot be rejected that growth is independent of size. Furthermore, several authors have argued that Gibrat's Law applies to the service sector to a far greater extent than to manufacturing (Audretsch et al. 2004). The articles that failed in rejecting Gibrat's Law for campsites had rather short time dimensions of five years; however, this was in contrast to our ten years studied: from 2010 to 2019. This longer time dimension allows us to use the GMM framework to estimate the parameters of interest, whereas previous analyses of camping sites have used the less advanced OLS framework suggested by Chesher (1979). The choice of estimator is crucial when working with dynamic models using short panel

data, which is why we apply three different estimators that each have their strengths and weaknesses. Through this, we hope that we have attained results that are reliable, so that we can link them to economic theory with certainty.

If there is a minimum size a firm must obtain for survival (the MES), negative growth for small firms may result in deficits, which could, in the long term, lead to the closure of these firms (Audretsch et al. 2004). Mansfield (1962) reported that small firms have relatively higher death rates, but those that survive seem to have higher variation and grow faster than the big firms. He also noticed that firms with successful innovators grow twice as fast as others.

There is a substantial difference between the manufacturing and service industry (Audretsch et al. 2004). In the manufacturing industry, which depends heavily on capital as input, being small is obviously a drawback due to the economies of scale. If production exceeds the MES, the possibilities for profitable operation are far better. This might not be the case for the service industry, since the production is far less capital intensive. Consequently, there are less sunk costs, and economies of scale do not play as much of a key role as for manufacturing. This may explain why there are many small businesses in the service sector. There is a high proportion of family owned units in the Netherlands, and they often do not have ambitions to expand further. The same trend is also found in Italy, where a high proportion of companies in the hospitality sector have fewer than five employees (Piergiovanni et al. 2003). In Norway, the campsites are even smaller.

In a study of Italian hospitality industry (cafeterias, restaurants, cafes, campsites, and hotels), only cafeterias and campsites did not reject Gibrat's Law (Piergiovanni et al. 2003). An analysis based on Dutch data gave the same result for campsites (Audretsch et al. 2004). They state that growth in this sector is independent of firm size. For the four other sub-sectors within the field of hospitality, Gibrat's Law failed to hold. Park and Kim (2010) rejected Gibrat's Law for the restaurant industry, whereas Host et al. (2018) reported that the average growth of firms in the Croatian tourism sector was independent of their size. However, Ivandić (2015) did not confirm Gibrat's Law in a study of the hotel sector in Croatia, instead showing that the hotels tend to revert to a certain mean: smaller firms grew faster than the bigger ones. The growth was also shown to depend on ownership, where publicly owned companies had lower growth than privately owned ones.

3. Applying Gibrat's Law

The literature has discussed the various reasons for why Gibrat's Law may be valid, as well as the factors that contribute to rejecting it. Economy-wide and firm-specific effects can aid in both rejecting and accepting the random walk Gibrat describes, depending on if the effects explain the variance or level of firm size. Later in this paper, we include the exchange rate (economy-wide) and the debt level (firm-specific) as variables that explain the size of campsites.

There are statistical and econometric challenges to testing Gibrat's Law (Novoa 2011). When using dynamic panel data analysis, the first choice is that of the dependent variable. There are essentially two alternatives: firm growth and firm size. By choosing growth, one takes the first difference of size, while using size as the explanatory variable (Oliveira and Fortunato 2008). In this case, Gibrat's Law holds if the parameter for size is insignificant. Alternatively, using size as the dependent and explanatory variable, the following model is applied:

$$y_{it} = \alpha + \beta y_{i,t-1} + \varepsilon_{it}, \quad (1)$$

where y_{it} is the logarithmic value of size for the actual company in a specific sector at time t. The lagged dependent variable is the only explanatory variable, α is a constant and ε_{it} is random disturbance term. In this model, Gibrat's Law holds if it is shown that firms follow a random walk; that is, if $\beta = 1$. Deviations from this random walk give insight into the distributional trend of the sector's firms.

3.1. The Hypotheses Connected to Gibrat's LPE

If $\beta > 1$, the sector has an explosive trend, where larger firms grow proportionally faster than smaller firms. If this explosive trend persists over time, there will be few companies left, and the sector will convergence to oligopoly or monopoly. In young industries, the explosive trend could be relevant as an initial edge can exacerbate itself in succeeding years. This cannot last forever, however, which is one reason why older sectors tend to not reject the LPE. If $\beta < 1$, there is a mean reverting trend in the sector, where the mean growth is stronger among small companies as they are in a state of 'catch-up'. Thus, we can assume there exists a 'natural' or 'perfect' firm size at which firms will eventually return if they diverge from it, their long-run growth being equal. The steady state size of each firm need not be the same, but the firms will revert to some mean. In the extreme case, where $\beta = 0$, every deviation from this mean will be cancelled out in the next period, meaning that firms do not deviate for more than one period. In this case, current size is no predictor of future size.

Many papers (Novoa 2011; Oliveira and Fortunato 2008; Shehzad et al. 2009) have tested Gibrat's Law by following the procedure of Tschoegl (1983), which is a stronger version of Gibrat's Law that suggests three propositions (P1–P3). From Equation (1), we can write the growth for company *i* as:

$$y_{it} = \alpha + \beta y_{i,t-1} + \varepsilon_{it}, \text{ where } \varepsilon_{it} = \rho\varepsilon_{it-1} + u_{it}, \text{ and } u_{it} \sim N(0, \sigma^2) \quad (2)$$

The sum of the error term's (u_{it}) deviation (σ) is by construction equal to zero. In addition, the variance of the error term is written as:

$$\sigma^2{}_{it} = \delta y_{it} + \eta_{it} \quad (3)$$

which gives the three propositions (the null hypothesis) as:

P1: $\beta = 1$
P2: $\rho = 0$
P3: $\delta = 0$

First (P1), the relative growth of each firm is independent of the firm's initial size, and firms follow a random walk. This is the firm size's autoregressive process. Second (P2), if a firm deviates from its growth path in one year, this deviation does not carry over to the next year; that is, extraordinary success/failure in one year does not translate into extraordinary success/failure the next year. The second proposition differs from the first in the sense that the first proposition concerns the firm's trend, whereas the second concerns deviations from this trend. This (P2) is equivalent to the firm size's moving average process. The third proposition (P3) states that the relative variance in firm size is independent of the firm's initial size. That is, small firms do not vary relatively more or less in their size than large firms. This is equivalent to the firm size's heteroscedastic property.

As stated, P1 holds if the firms collectively follow a random walk, meaning if the best prediction of future size is the current size and all deviations from this size follow a random process.

If P2 holds, all outside effects on the firm size for a given year will be completely reflected in the firm size for this particular year, and those effects will have no impact for the firm's growth in the coming years. A success one year will give an increase in the size of the firm, but this increase does not necessarily lead to a further increase in the next year. That is, the deviation in growth in one year will not carry over into the next year. This does not mean that the success/failure of one year disappears the next year, only that its effect is absorbed that year. If $\rho = 0$, there is no spill-over effect, and growth will normalize to the prior regular growth after an initial shock. If $\rho < 0$, firms with extraordinary success in one year will have considerably worse results the next year, with a growth below the average. A lucky period is followed by an unlucky following period, and vice versa: a failure one year results in good performance the next year, with growth stronger than the

others. If $\rho > 0$, extraordinary growth one year will persist into the following year. That is, growth over the average level for a given firm will persist into the following period. If a company has extraordinarily strong growth one year, it will also manage to maintain this above-average growth in the following period. If one year turns out badly for a company with a low growth, this will also yield negative consequences the following year. If firm growth is characterized by $\rho > 0$, we can view this a persistence in firm success/failure, or 'slowness' in firm growth. On the other hand, $\rho < 0$ can be viewed as success/failure being 'cancelled out'. Particularly for campsites, P2 can go both ways, depending on whether the visitors are (dis)pleased with more/fewer other visitors at the same campsite.

If P3 holds, the proportional variance of revenue for the companies is independent of their size—that is, firm size is not related to growth volatility. A negative δ value means there is a negative relationship between a firm's growth volatility and its size: smaller firms have relatively more volatility in their revenue stream. One interpretation is that smaller companies experience greater uncertainty than large enterprises, perhaps because smaller firms are more sensitive to consumer tastes and market conditions, whereas larger firms have a more stable revenue stream.

A study by Calvino et al. (2018) concluded that the value is negative, and remarkably stable across 21 selected countries. Goddard et al. (2004) investigated whether the previous year's growth has an impact on the actual growth, and found a positive relationship, but with no significant impact.

Many researchers have included independent and control variables to the estimators to see how this affects growth. By extending the model with other variables, one can test and explain how different factors contribute to growth and analyse why Gibrat's Law is rejected (Oliveira and Fortunato 2008). For instance, Donati (2016) showed how liquidity constraints limited the growth of small firms. Debt leverage as a control variable yields a mixed result (Jang and Park 2011; Phillips 1995). Some report a negative relationship (Billett et al. 2007), because higher debts increased the number of poor projects. On the other hand, a higher debt level can increase firm performance through successful ventures—that is, the level of debt can be seen as risk-taking.

3.2. Econometric Methods

In early empirical testing of Gibrat's Law using econometrics, the ordinary least squares (OLS) method of estimation was used. Due to the presence of the lagged dependent variable, this induces endogeneity issues through the feedback, or looping, mechanism, as shown by Chesher (1979). Consequently, as Chesher (1979) and Jang and Park (2011) have pointed out, this means that OLS will be inconsistent unless the number of variables representing firm size is equal to the number of time periods. When there are more than a few time periods, this becomes, at a minimum, inefficient, and infeasible at most. Even so, many researchers have used OLS to test Gibrat's Law (Daunfeldt and Halvarsson 2015). This is true for the previous studies that have analysed the validity of Gibrat's Law in camping sites (Italian and Dutch).

An alternative approach is to use the generalized method of moments (GMM) and, specifically, those methods that are specifically created for dynamic panel data scenarios. Arellano and Bond (1991) proposed such a method for panel data to ensure a consistent evaluation of the parameters. They exploited the moment conditions of the first differenced error terms, which allowed for the use of the lagged level of two periods prior as instruments for the first differenced equation. The estimator has been called the AB or FD GMM method. Some researchers have used it to test Gibrat's Law (Ivandić 2015), but when the autoregressive parameter (β) approaches unity, the instruments used become weaker. In the case that Gibrat's Law holds, $\beta = 1$, the instruments are entirely invalid, as they are not correlated with the first differenced equation. This leads to inconsistent and downwardly biased estimators of β, as has been shown in several studies using Monte Carlo simulations (Blundell and Bond 1998; Jang and Park 2011; Moral-Benito et al. 2019). As a result, using the Arellano–Bond estimator will tend to lead to a rejection of Gibrat's

Law too often. Due to the difficulties of the first difference GMM estimator (Arellano and Bond 1991), Arellano and Bover (1995) and Blundell and Bond (1998) developed an improved version of the dynamic panel data GMM estimator, which combines the lagged level instruments for the differenced equation with differenced instruments for the level equation. The method has been called the system GMM (SYS-GMM) estimator and has proven to be a very powerful dynamic panel data estimator, even when the autoregressive parameter β approaches unity. This is what the testing of Gibrat's Law requires, and it has been used in many articles (Donati 2016; Giotopoulos 2014; Jang and Park 2011; Oliveira and Fortunato 2008). In addition, due to the information contained in the level equation, one can estimate time-invariant variables, such as location and sector, which is not possible with the FD-GMM estimator. The System GMM estimator is the estimator of choice in a dynamic model with short panel data.

There are two main arguments against the SYS-GMM estimator, however. First is the issue of using instrumental variables, as they will always run the risk of becoming weak (as with the FD-GMM estimator). This risk is circumvented to a degree by the SYS-GMM estimator by using sets of equations with two sets of instruments, in addition to the fact that the instruments are the 'same' variable as those being instrumented. The instruments do require the sacrifice of a time period, which can be crucial in short panels. The second contention is more serious, as, contrary to the FD-GMM estimator, the SYS-GMM estimator requires the assumption of mean stationarity of the cross-sectional observations (firms). That is, by including the first difference instrument for the level equation, it assumes that all cross-section observations have reached a steady state (Allison et al. 2017; Moral-Benito et al. 2019). This translates into the assumption that each of the firms has reached their natural size and are in a steady state at the beginning of the sample period, which seems to be an unrealistic assumption for the camping sector (and many other sectors for that matter). Additionally, the moment conditions that both GMM estimators rely on require that there is no second order autocorrelation for validity of the instruments. If this does not hold, trice-lagged instruments need to be used, which would induce weaker instruments, and the sacrifice of another time period.

Consequently, Allison et al. (2017) and Williams et al. (2018) developed a maximum likelihood estimator based on simultaneous equations as an alternative to the GMM estimators; this is called the ML-SEM (maximum likelihood structural equation modelling) estimator. This is a computationally intensive method, which avoids both the instrumental variables issue of GMM, the limitations of FD-GMM, and the unrealistic assumptions of SYS-GMM. The ML-SEM estimator is slightly more precise and unbiased than the SYS-GMM estimator under a variety of conditions while relying on the same weak regulatory assumptions as the FD-GMM estimator, without using instrumental variables. For our study, the ML-SEM estimator's largest drawback is its novelty, as it is not fully optimized with our software, and we are not aware of any published article testing Gibrat's Law by applying ML-SEM.

4. Hypotheses

We use an extended version of Gibrat's Law, which contains three propositions that pertain to the sector's growth, inertia, and variance. This translates into testing the sectors: autoregressive, moving average, and heteroskedastic components, parameters which are obtained via dynamic panel data modelling. The three propositions translate into the three hypotheses, which encapsulate the stricter version of Gibrat's Law. The first hypothesis is:

Hypotheses 1 (H1). *Company growth is independent of their size (β = 1).*

This hypothesis is the original hypothesis of Gibrat's Law (P1), and it refers to the autoregressive process of the sector. If it holds, the firms follow a random walk. Due to the natural and government restrictions that the sector faces, we expect that the individual campsites have a 'natural' or steady-state size that they revert to in the long run. Therefore,

if H1 fails, we expect that the autoregressive component to be below unity for the sector size (equivalent to being below zero for sector growth).

The second hypothesis is one of the two additions of the stricter version:

Hypothesis 2 (H2). *Success or fiasco one year has no effect on growth in the subsequent year ($\rho = 0$).*

If this hypothesis does not hold, shocks to revenue are followed by additional shocks in subsequent years. That is, there is inertia in shocks to revenue.

The last hypothesis connected directly to Gibrat's Law is:

Hypothesis 3 (H3). *There is no link between growth volatility and firm size ($\delta = 0$).*

The third hypothesis is most often seen to fail, as small firms tend to have relatively higher volatility in size in comparison with larger firms.

Furthermore, we extend the model to investigate whether there is any link between the exchange rate, the level of debt, and the growth of campsites in Norway. This constitutes two models, the first one being represented in Equations (2) and (3). We may call this the restricted model, whereas the unrestricted model is as follows:

$$y_{it} = \alpha_{it} + \beta\, y_{i,t-1} + \gamma_1\, x_{1t} + \gamma_2\, x_{2,it} + \varepsilon_{it}, \text{ where } \varepsilon_{it} = \rho\varepsilon_{i,t-1} + u_t,\ u_{it} \sim N(0, \sigma^2) \quad (4)$$

where $x_{1,t}$ and $x_{2,it}$ represent the log of the exchange rate (NOK/Euro) and the log of debt, respectively. The exchange rate is defined as a predetermined variable, which means that it is not allowed to be affected by the other variables. This assumes that the campsite sector does not affect the exchange rate, which seems realistic for the Norwegian economic structure.

Recent research has shown that a depreciation in the Norwegian currency has increased the inflow of foreign visitors to Norwegian campsites (Idsø and Opstad 2021; Opstad et al. 2021a). We postulate the following hypothesis:

Hypothesis 4 (H4). *There is no correlation between currency rate and growth ($\gamma_1 = 0$).*

If H4 does not hold, this inflow of foreign visitors translates into higher/lower growth for the campsites, indicating that campsite revenue is sensitive to macroeconomic conditions. If this is the case, we would expect the variable to be positively significant.

Lastly, we include the debt level as a firm-specific variable with the hypothesis:

Hypothesis 5 (H5). *Firms' debts are not associated with growth ($\gamma_2 = 0$).*

Hypothesis five (H5) assumes that growth is independent of the level of firm debt. However, limited access to capital can prevent businesses from growing, which means that firms need capital to grow; again, we expect that if the assumption does not hold, it will be positively significant, indicating that firms that have more access to capital (through debt) have higher rates of growth.

First, we test these hypotheses for the whole sample, and then investigate further splitting the sample into three. By splitting instead of including size dummies and/or interaction terms, we can apply the complete analysis to each size segment without unnecessary complications.

5. Methodology

The Sample

The account information is taken from the Norwegian public register for firms (Brønnøysund Register Center). The population consists of 292 campsites from 2010 to 2019 (10 years). Campsites with zero or very low revenue during the period were excluded, and

so were campsites with two workers or less. All campsites in the sample have been in business for the entire time period.

The proportion of foreign visitors is about 25%. Due to the devaluation of the Norwegian currency (see Figure 1), more foreigners are visiting Norwegian campsites [45].

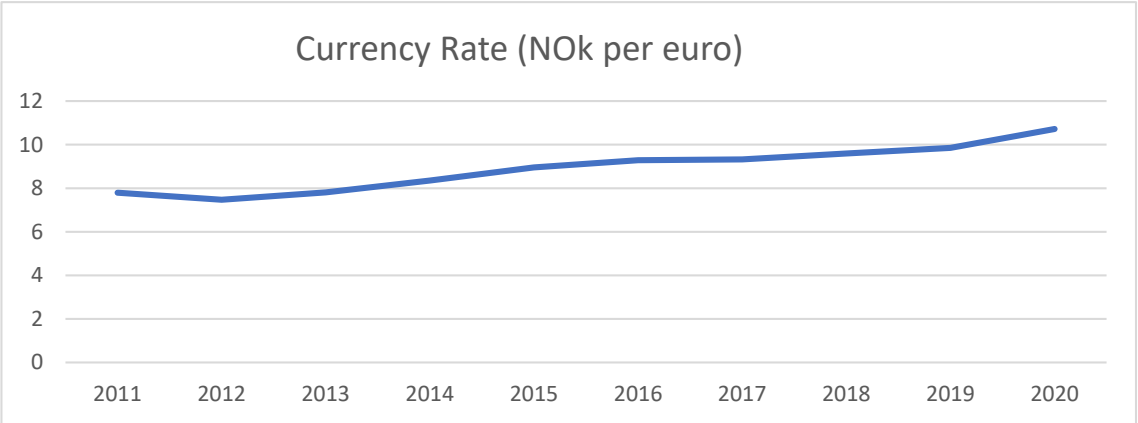

Figure 1. Exchange rate 2010–2020 (Source: Norwegian Central Bank).

Regarding the removal of campsites with few employees, these may indicate farmers or others who have a family-run enterprise in addition to other activities. Some of the removed 'campsites' were not in fact campsites, and there were missing data, uncertain figures, and considerable variation. We therefore removed all companies with two employees or fewer (see Table 1). Some other firms were excluded due to missing data or no revenue in at least one year. The final sample includes 176 campsites in Norway in a period from 2010 to 2019. The total observations thus total 1760. The companies are divided into three groups depending on the number of employees (Table 1)—small (3–9 employees), medium (10–25 employees), and large (more than 25 employees)—with, respectively, 81, 56, and 39 campsites in each of the groups. The larger campsites are mostly in the Norwegian southeast, these having more in common with the campsites of continental Europe. This contrasts with the northwestern campsites, which face harsher natural restrictions, as well as state regulations that serve to protect the unusual nature of these regions. Of the 81 small campsites, 54 are northwestern, whereas 23 of the 39 large campsites are southeastern. A total of 31 of the 56 medium-sized campsites are in the North West.

Table 1. Descriptive statistics with mean values, standard deviations in parenthesis, and min and max values in brackets.

	All	**Removed** [(1)]	**Small Firms**	**Medium Firms**	**Large Firms**
	(*n* = 277)	**(*n* = 97)**	**(*n* = 81)**	**(*n* = 56)**	**(*n* = 39)**
Revenue (1000 NOK)	4643 (7225) [0,84,336]	1720 (3032) [0,20,548]	2943 (1860) [466,9673]	6416 (5968) [932,30,375]	13,070 (13,819) [2598,84,336]
Employees No.	10.4 (13.8) [0,82]	0.5 (0.8) [0,2]	5.7 (2.0) [3,9]	24.9 (4.4) [10,25]	38.7 (13.9) [26,82]
Debts (1000 NOK)	4623 (6316) [15,70,160]	3432 (4953) [15,32,396]	3412 (3669) [72,22,906]	5129 (5474) [85,30,004]	9495 (11,089) [827,70,160]

Notes: [(1)] Firms with under 3 employees. Mean, (st.dev), [Min,Max].

The applied statistical methods are the Arellano–Bond (FD-GMM), Blundell-Bover (SYS-GMM), and Moral-Benito et al. (ML-SEM) estimators. The dependent variable, size, is measured by the level of firm revenue in the period. The extended model is estimated

with the system GMM estimator, and so are the tests. Robust standard errors are used, and whereas the robust standard error properties for ML-SEM have not been investigated, there is no immediate reason to think that they are invalid, and they do not differ much from the robust standard error properties of the two other estimators.

6. Findings

Tables 2 and 3 present the results. Notice in Table 2, the three different estimator methods give almost the same result. With the sample used in this analysis, the choice of estimator method has little impact on the conclusion in the testing of Gibrat's LPE. Consequently, the focus will be on the estimates from the SYS-GMM in the subsequent discussion, as this is the most widely used estimator for these purposes.

Table 2. Dynamic panel data estimators testing Gibrat's Law for Norwegian campsites over a 10-year period (2010–2019) (Robust Standard error in parentheses).

	All	**Small Firms**	**Medium Firms**	**Large Firms**
	(n = 176)	**(n = 81)**	**(n = 56)**	**(n = 39)**
AB-GMM				
AR(1)	0.8608 *	0.6758	0.8480 **	0.8951
(Auto Regression)	(0.071)	(0.237)	(0.065)	(0.079)
MA(1)	0.067	0.0558	0.0174	0.1599 **
(Moving Average)	(0.049)	(0.128)	(0.111)	(0.051)
SYS-GMM				
AR(1)	0.8533 **	0.6438	0.7721 ***	0.855
(Auto Regression)	(0.073)	(0.246)	(0.069)	(0.098)
MA(1)	0.0736	0.0239	0.0092	0.1538 ***
(Moving Average)	(0.05)	(0.145)	(0.579)	(0.046)
Heteroskedasticity(t)	−9.20 **	−10.41 **	−14.35 ***	0.31
Autocorrelation(p)	0.321	0.273	0.539	0.096 *
Cross-sectional dependence	34.50%	36.70%	31.20%	35.60%
ML-SEM				
AR(1)	0.8653 *	0.6917 **	0.8532 **	0.915
	(0.077)	(0.132)	(0.065)	(0.08)
AR(2)	0.0392	−0.0195	0.212	
	(0.052)	(0.18)	(0.058)	

Notes: AR(1) tests H1 ($\beta = 1$), MA(1): H2 ($\rho = 0$) and Heteroscedasticity(t): H3 ($\delta = 0$). Not possible to estimate AR(2) for large firms *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 3. SYS-GMM with including control variables. Dependent variable: Growth.

	All		**Small Firms**		**Medium Firms**		**Large Firms**	
SYS-GMM	**Mod 1**	**Mod 2**	**Mod 1**	**Mod 2**	**Mod 1**	**Mod 2**	**Mod 1**	**Mod 2**
AR(1)	0.853 **	0.757 ***	0.644	0.472 ***	0.772 ***	0.673 ***	0.855	0.736 *
(Auto)	(0.073)	(0.052)	(0.246)	(0.182)	(0.069)	(0.078)	(0.098)	(0.126)
MA(1)	0.0736	0.052	0.024	−0.043	0.009	−0.003	0.154 ***	0.153 ***
	(0.05)	(0.047)	(0.145)	(0.135)	(0.115)	(0.095)	(0.046)	(0.048)
Exchange Rate		0.382 ***		0.798 ***		0.462 ***		0.39
(NOK per euro)		(0.116)		(0.256)		(0.222)		(0.324)
Debt		0.081 ***		0.109		0.117 *		0.120 **
		(0.035)		(0.070)		(0.062)		(0.056)

Notes: Mod 1 is without control variables (see Table 1). Mod 2 includes control variables. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Hypothesis H1 is rejected in favour of $\beta < 1$ for the whole sample with a significance level of 5%, and for medium campsites with a significance level of 1%. For large firms, we cannot reject the hypothesis $\beta = 1$; there is no evidence that they do not follow a random

walk. The coefficient is close, but below unity for this subsample. We cannot reject a random walk for the smallest firms either, but this is not due to the coefficient being close to unity. Instead, the standard error is too large. This indicates that the smallest campsites have large variations in their growth paths, where most revert quickly to their mean, whereas others may follow random walks, and still others may even have explosive growth paths. The same dynamic of small, medium, and large campsites, where there seems to be a threshold size where the campsites' path changes, is also reflected in the moving average parameter, the heteroskedasticity tests, and the autocorrelation tests.

Firstly, from the size-related heteroskedasticity test, we can see that, for the whole sample—and the small and medium firms—the variation in their size (revenue) decreases the larger the firms are. This indicates that there may be a threshold size for campsites, where additional size does not translate into more stable revenue.

We see the same threshold dynamic in the moving average component, where the only significant MA component is found in the large firms. The revenue-deviations of large campsites spill over from one year to another, one year's success being a significant predictor of success in the following year. The success or failure of large campsites in one year persists into the next year, whereas the success/failure of small and medium campsites is absorbed into their revenue in the year the success/failure happens. That is, shocks that occur to large campsites have a certain inertia as it pertains to their size (revenue). This is reflected in the test for second year autocorrelation, which is only significant for large campsites. Consequently, the moving average parameter, the heteroskedasticity tests and the autocorrelation test all point to there being a threshold size for campsites at which their growth paths change.

The absolute average value dependence across the sample is 34.5%, and it is quite stable regardless of the size of the campsites. One reason might be competition between campsites, whereas another is that they are all affected by the same market forces and consumer tastes. Model 2 includes two other independent variables (exchange rate and debt; see Table 2). Both have the expected positive signs, and both are significant at the one percent level. A depreciation in the exchange rate has been shown to lead to more foreign visitors, but it might also lead to more Norwegians choosing to stay in the country for their vacation.

7. Discussion

7.1. Hypotheses H1 to H3

The median firm sub-sample reflects the whole sample well. For all campsites, the value of β equal to 1.0 is rejected at the 5% significant level (SYS-GMM estimates) in favour of $\beta < 1.0$. Consequently, there is a tendency for Norwegian campsites to revert to some mean, steady state, or natural size. This is in contradiction to previous studies of campsites, but not in contradiction to other studies using the SYS-GMM estimator with moderately long time dimension. The results suggest that smaller campsites are growing significantly faster than larger ones. For the smallest campsites, there is considerable variation in the estimates, and this gives an uncertain result. The picture is different for the medium-sized campsites, in which the smallest firms grow significantly more than the mean company in this segment. This result is not found for large campsites, indicating that after the campsites have reached a certain level (more than 25 employees), the growth for the individual enterprise is independent of its size. We can thus conclude that the growth of a company within the camping sector is also independent of its size after a certain size is reached. Because the campsites belong to a labour-intensive sector in which there are limited localization opportunities (e.g., near the sea or lake), the possibility of economies of scale may be limited, explaining the results for the mean reversion for the Norwegian camping sector as a whole. Consequently, the crux of Gibrat's Law, the random walk of firm size for the sector, is rejected in favour of mean reversion.

Notice also that H2 ($\rho = 0$) is only rejected for large companies in favour of $\rho > 0$ with a significance level of 1%. This is an interesting result. If a large campsite does something

extraordinary in a year that contributes to higher growth, this will keep going into the following year, which will show above average growth as well. That is, it has a spill-over effect for the next period, and therefore the company achieved in higher-than-average growth also for the subsequent period. The company will also have an advantage in subsequent periods based on the prior year's success. Similarly, a fiasco one year resulting in lower growth will persist from one period to the next. For the camping sector generally, however, there is no significant spill-over effect from year to year.

The volatility of companies in camping services is strongly dependent on size. With a negative significant value for the heteroskedasticity test, this means small campsites have a greater variation in growth than the average company in the sector. This confirms the results of other researchers with data from other sectors (Calvino et al. 2018; Coad 2008). There is noticeably more stability within large firms than among small ones. Smaller firms show greater fluctuation in their growth than the others. This is strongly the case for small- and medium-sized enterprises. The exception is for campsites with more than 25 employees; in this category, volatility does not depend on firm size. Volatility is highly dependent upon size, meaning that H3 is also rejected in line with existing literature.

Analysis from other sectors suggests this difference between large and small may be due to better use of technology, more differentiated activity that reduces risk and longer company history (Begenau et al. 2018). It is reasonable to assume that large campsites are more likely to have several units with different geographical locations and with a focus on multiple segments (year-round operation, winter and summer holidays, cabins, campers) and various types of activities (family activities, hiking, fishing, etc.) aimed at both domestic and foreign visitors. In this way, the risk is spread out and the firm is less vulnerable if there is a decline in any individual field (bad weather, a reduction in foreign visitors, etc.). Smaller companies cannot spread out their activity and risk in the same way and therefore become more vulnerable, which causes greater fluctuations. The larger corporations seem to be working on a longer time scale, a dynamic that is often observed both in economics and in nature.

7.2. Other Explanatory Variables (H4 and H5)

A fall in the Norwegian currency rate contributed to increased visits by foreigners. It is therefore no surprise that this caused increased growth in the camping sector. However, this does not apply to campsites with more than 25 employees. One possible explanation is that the large companies have such a diversified portfolio of activities that they are less vulnerable to the inflow of foreign visitors. They may also have a supply that has a more inelastic demand regarding fluctuations in the exchange rate. Large enterprises may also adjust prices to compensate for changes in demand due to such exchange rate fluctuations. Alternatively, foreign visitors could be visiting small- and medium-sized campsites disproportionately more than they visit large campsites. Either way, H4 is rejected in favour of a deprecation leading to higher revenue, except for the large campsites, whereas small campsites are more sensitive to the exchange rate than medium-sized campsites. A weaker Norwegian currency increases growth in the camping sector.

As for H5: A 1% increase in the level of debt in one year is estimated to translate into a 0.08% increase in the revenue in the same year for the entire sample, when controlling for the other variables. Although this effect may seem small, it must be remembered that we have controlled for the previous year's revenue, and debt levels might be expected to work on a larger timescale and/or with a certain time-lag. Even then, the results are telling, especially when looking at the sub-samples. In essence, the larger the campsite is, the more significant the level of debt is in explaining its level of growth. This indicates that larger campsites are more successful in turning investments into revenue than smaller campsites, which can either be due to smaller campsites being less experienced in carrying out projects, or that their investments fall through more often due to their sensitivity to market forces or consumer tastes.

8. Conclusions and Contribution

The crux of Gibrat's Law is that the best prediction one can make about future firm size is current firm size. This is the starting point of Gibrat's Law, whereas the stricter version adds to more hypotheses. Firstly, all deviations from this initial size come from a white noise error term, and secondly, the variance of this error term is independent of size. If all three hypotheses hold, we can say that the firms follow 'pure' random walks.

This is not the case for Norwegian campsites, in contrast to Italian and Dutch campsites, but in line with most other sectors and industries. We find that the size of Norwegian campsites is mean reverting, and its volatility decreases with size. Hypotheses 1 and 3 are thus rejected, the firms converge towards a 'natural' steady state, and they become more stable as they grow. Gibrat's Law does not hold for Norwegian campsites.

Furthermore, we find evidence of a threshold size for the Norwegian campsites, at which point their growth processes switches. At the point of about 25 employees, the distinction between the medium and large sub-samples, the processes change. When the threshold size is reached, there is no longer any gain of increased size in the stability of growth, and the current success/fiasco becomes a predictor of future success/fiasco. In addition, we can no longer reject a random walk after this threshold size. Consequently, hypothesis 2 is rejected for the large Norwegian campsites, whereas hypotheses 1 and 3 are not. This is the opposite result of the general result we obtained for all Norwegian campsites, and more in accordance with previous studies of campsites in Italy and the Netherlands.

As for hypothesis 4, we can see that a depreciation of the Norwegian Krone translates into higher revenue for the sector, as more foreign tourists choose to visit the country, whereas fewer domestic tourists choose to leave the country. The differing degree to which the exchange rate affects the three sub-samples is grounds for further research.

Hypothesis 5 shows that higher leverage leads to higher revenue streams, but not for small campsites. This can be due to an unwillingness or inability to invest or gain the means to do so. Whether the level of debt is positively related to profitability is another issue, investigated by Opstad et al. (2021b).

We used three estimators to obtain the autoregressive and moving average components of Norwegian campsites, the FD-GMM, SYS-GMM, and ML-SEM estimators. Although they have differing strengths and weaknesses, the results were similar. The steady state assumption of the SYS-GMM seems to not cause too many problems, comparing it to the other two. The Monte Carlo evidence against the FD-GMM estimator when the autoregressive component approaches unity would seem to make it inappropriate for testing Gibrat's Law, although our study does not show it conclusively. The ML-SEM estimator, combining the weak assumptions of the FD-GMM estimator with better precision than the SYS-GMM estimator, seems to be the best choice for testing the dynamic properties of firms, according to Monte Carlo evidence. We are not aware of any studies using it to investigate Gibrat's Law in the literature yet, this being an introduction of the estimator to the literature.

To conclude, another novel contribution of our paper to the general Gibrat's Law literature, is the evidence of a threshold size, for the tourism industry at least. We show evidence of this threshold size (non) rejection of hypotheses 2 and 3, and to a lesser degree hypothesis 1. At the point of 25 employees, in the case of Norwegian campsites, size no longer translates into more stability for the firm, but rather into a spill-over dynamic where current success/fiasco is carried over into the next year.

9. Limitations and Further Research

The data analysed were limited to 10 years and from only one country, and were also based on public statistics (from the Brønnøysund Register Center), thus some information from individual campsites that would have been of interest (e.g., prices) is lacking. There is limited research that applies such analysis to campsites, which limits the ability to compare

the present results with other findings, but we hope this article can be an important contribution in helping to explain the growth in campsites.

Furthermore, there is no data available to differentiate the different types of campsites in the sample. Analysis on how different types of campsites grow, and in which specific market they operate (sightseeing, exploring, pitstop) and which customers they specialize in (domestic, foreign, one time-or yearly visitors) are fields in which further research can be carried out. Additionally, access to data from campsites in other countries can help investigate whether our differing results are due to differences in country-specific factors, or due to methodological differences. A comparison of campsites across countries, or a comparison of different sectors in the Norwegian tourism industry are obvious paths to take for further research. Inclusion of additional macroeconomic variables, such as the exchange rate, can give more answers that are relevant for the tourism industry of all countries, as tourists can only go one place at a time.

Our analysis is limited in that the data at hand only contain firms that have been active for the entire sample period. Including entry/exit into the analysis could shed light on the high variance of the growth paths of the small firms. For instance: what decides which newly created campsites converge towards the steady state, and which fail? Accordingly, why do some campsites follow (potentially) explosive paths, whereas other campsites almost follow white noise paths? Another choice could be to include age as an explanatory variable. These points will help us to learn more about the life cycle of firms, where some become successful businesses, but whereas most die out.

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Customer-Based Brand Equity for a Tourism Destination: The Case of Croatia

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Abstract: Tourism has been negatively impacted by the global COVID-19 pandemic, making it even more important for tourist destinations to focus on their brand equity from the perspective of their customers—visitors. The aim of this paper is therefore to verify and modify the model of customer-based brand equity for a tourism destination (CBBETD) and its attributes for the destination of Croatia from the perspective of Czech tourists, among whom primary research was conducted using the CAWI method (n = 451). The main CBBE dimensions were extracted using factor analysis and a model with four dimensions (awareness, image, quality and loyalty) was created. The identified attributes explain between 55% and 82% of the variability of a given dimension. Although the study's results follow the published models of CBBETD, the attributes in each dimension and the subdimension in the image dimension reflect the specificities of the destination of Croatia. Thus, the results of this paper extend the economic theory with another model and are also applicable in the field of destination management.

Keywords: brand equity; customer-based brand equity; Croatia; destination; destination awareness; destination brand; destination image; destination loyalty; destination management; destination quality; tourism; visitors' loyalty

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1. Introduction

In the current era, which is heavily influenced by the global pandemic caused by COVID-19, with international tourist arrivals falling by 74% in 2020 (UNWTO 2021), it is crucial for tourist destinations to work on their brand and bear themselves in the eyes of tourists as a safe and secure place to spend their holidays. In the past decades, an increasing number of tourist destinations—cities, countries and regions—have applied marketing and branding practices to attract visitors and investors (Gertner 2011). Destination branding is one of the main topics in tourism marketing in terms of enhancing differentiation and competitiveness. This urgent need for destination branding has led to an increase in the number of investigations done on different destinations' brand equity (Oliveira and Panyik 2015).

Destination brands are very different from product brands. Destinations provide another quality than a material or financial one that can be refunded. Gartner (2014) stated, "Destinations are places of life and change". Change is the measure of brand stability, one of the main elements of branded consumer products. Destinations are multidimensional and provide different experiences to different tourists (Ruzzier 2010). Destination brands lack the brand stability that most product brands have. Several market segments consume it simultaneously; each consumer is compiling their unique product from the services on offer. Thus, destination marketers have less control over the brand experience than marketers of concrete material products or services (Hankinson 2009).

This article presents the results of a research focused on the evaluation of the CBBE destination of Croatia from the perspective of the citizens of the Czech Republic. This destination was chosen because it has been very popular in the last years in the Czech Republic. The aim was to find out what dimensions of CBBE are important in the case of

holidays in Croatia and what attributes constitute them. Croatia is the 18th most popular tourist destination in the world. Most of the tourists come from Germany, Slovenia, Austria and the Czech Republic. Tourism is one of the main sources of state revenue; it accounts for 20% of the GDP. Thanks to its location in the Mediterranean and the rugged Adriatic coast with many islands, Croatia is one of the typical summer destinations with a predominant seaside tourism. Tourists also visit many historic cities such as Dubrovnik, Split, Zadar, Sibenik or Rijeka. There are ten monuments on the UNESCO list in the country (e.g., Plitvice Lakes National Park, the historic town of Trogir or the old town of Dubrovnik) (Croatian National Tourist Board 2021). For several years, Croatia has been one of the top destinations visited by Czech residents in terms of the number of arrivals. Before the pandemic, approximately 800,000 Czech tourists visited Croatia annually (ČSÚ 2021). A sharp decline occurred in 2020, when tourism worldwide was affected by the global COVID-19 epidemic and only 481,000 Czech tourists visited Croatia, despite the fact that Croatia was one of the first countries to open its borders to Czech tourists (Ministry of Tourism 2021). It is reasonable to assume that the total number of Czech tourists in Croatia will be lower in 2021, although the destination has set favourable conditions for tourist arrivals even before the summer season. It should be mentioned that the results presented in this article were obtained by research done in 2019, when the occurrence of coronavirus infections was not anticipated.

2. Literature Review

2.1. Branding

Branding is one of the most critical tasks in the development of a marketing strategy. Kotler (1991) defined a brand as " . . . a name, term, sign, symbol or design . . . intended to identify the goods or services of one seller or group of sellers and to differentiate them from those of competitors". Brands are important markers of international resources and communicators of the marketing intent of an organization (Hunt 2019).

2.2. Brand Equity

A brand receives its value from customers by providing an image of stability, performance and other traits in reaction to a company marketing strategy. Therefore, customers know what to expect in the way of product performance. Keller (1993) named this response "customer-based brand equity". The definition of brand equity has evolved over time and academic understanding varies. Brand equity has been perceived as the added value of a product when consumers have a good impression about a brand, as the source of brand loyalty and even as the increased cash flow on branded products. Brand equity ensures higher margins compared to non-branded products. It can give a sustainable and differentiated competitive advantage (Kim and Lee 2018).

2.3. Customer-Based Brand Equity for a Tourism Destination

Brand equity is measured from two different perspectives. First, there is the financial value of the brand to the firm and then there is the measure of the value to the customer (Keller 2003; Pappu and Christodoulides 2017). The financial value of the brand to the firm is measured by the result of customer-based brand equity. There are several studies that developed and tested accounting methods for the appraisal of the asset value of a brand name (Lassar et al. 1995). However, our paper focuses on brand equity from the perspective of the value to the customer.

Customer-based brand equity (CBBE) is at present more than 20 years old and a well-developed construct, the roots of which lead us to the 1980s (Fayrene and Lee 2011). During these years, this concept received much attention (Ruzzier 2010). The CBBE concept was defined "as the differential effect that brand knowledge has on consumer response to the marketing of that brand" (Keller 1998). There have been numerous attempts to summarize measures of brand equity, approaching the construct from different perspectives. The Table 1 below demonstrates those dimensions (Almeyda and George 2020).

Table 1. Customer-based brand equity dimensions.

Aaker (1991)	Keller (1993, 1998, 2003)	Lassar et al. (1995)	Konecnik and Gartner (2007)	San Martín et al. (2019)
Brand awareness	Brand salience	Performance	Destination awareness	Destination awareness
Brand perceived quality	Brand performance Brand imagery	Social image	Destination perceived quality	Destination quality
Brand association	Brand judgements Brand feelings	Price/value Trustworthiness	Destination image	Destination image Destination satisfaction
Brand loyalty	Brand resonance	Identification/attachment	Destination loyalty	Destination loyalty

Source: (Almeyda and George 2020).

The basic concept of CBBE is that the measure of the brand strength depends on how consumers feel, think and act with respect to the brand. To achieve consumer resonance a brand first needs to elicit emotional reactions from consumers. To achieve that, a brand must have an appropriate identity and the right meaning. At best, customers therefore consider the product as relevant and "their kind" (Koththagoda 2017). The model of customer-based brand equity for a tourism destination was proposed and verified by Konecnik and Gartner (2007). It was confirmed that the level of CBBETD is positively related to an extent to destination brand equity dimensions, which are presented further.

2.4. Dimensions of the Customer-Based Brand Equity

Based on the CBBE model, Konecnik and Gartner (2007) have investigated the different dimensions of customer-based brand equity for a tourism destination (CBBETD). Our paper continues their work, which listed awareness, image, quality and loyalty as the dimensions of a destination as antecedents to CBBETD. Tourists from different backgrounds sense various dimensions of a destination distinctly.

2.4.1. Destination Awareness

The term destination awareness was introduced in behavioural studies of consumer and was described in the tourism decision process by Goodall and Ashworth (1993). Aaker (1991) defined destination awareness as "the ability of a potential buyer to recognize or recall that a brand is a member of a certain product category". Brand awareness increases a destination's potential of being preferred more often than other unknown destinations (Kladou and Kehagias 2014). It also brings a better chance of being chosen by potential customers among all rival destination brands (Hoyer and Brown 1990).

Staying focused on destination brand awareness is important because it provides optimistic information and creates positive emotions that are likely to increase the possibility of making a purchase (Baldauf et al. 2003). Destination brand awareness also plays a critical role in tourists' destination quality perception (Buil et al. 2013; Nikabadi et al. 2015).

Awareness is only the first and necessary step in the decision process, and may lead to visit a destination; on the other hand, it is insufficient, because the very awareness provides only a set of choice (Goodall and Ashworth 1993). For getting more tourist visits, destination brand must first achieve awareness and then a positive destination image.

2.4.2. Destination Image

Destination image is formed by the interaction of people and places (Pearce and Stringer 1991). Based on subjective interpretations, a tourist's thoughts and feelings toward the destination are generated and affect their image formation (Tasci et al. 2007; Veasna et al. 2013). Destination image is described as "the sum of beliefs and impressions that a person has of a destination" (Chiu et al. 2014).

Despite the significant effect of destination image on CBBETD, only a limited amount of research has focused on the moderating effect of destination image. Line and Hanks (2016) identified the moderating effect of destination image in relation to guests' perceptions and

behavioural intentions in the green hotel industry. Other researchers have considered destination image as an antecedent of the intention to revisit a destination (Stylos et al. 2016) or as an outcome of destination marketing (Wong et al. 2016).

For the purpose of this paper, destination image represents "an interactive system of thoughts, opinions, feelings, visualizations, and intentions toward a destination" (Tasci et al. 2007). It has been proven that destination image has a large impact on customer loyalty. The image of a destination is the most important and significant dimension of CBBETD model. A leading destination image brings more customers to make an effort to visit or revisit a destination and also to recommend it (behavioural and attitudinal loyalty). Destination image creates an impact on loyalty through satisfaction (Marine-Roig 2021).

2.4.3. Destination Quality

Another key aspect of CBBETD is the quality of a destination. Destination quality is defined as a visitor's evaluation of the standard of tourism products at the destination (infrastructure of attractions, tourist facilities and services). Tourists judge if the destination products meet their requirements or expectations according to their real perceptions (Le Chi 2016).

Nevertheless, quality measurement is a very difficult and complex process. In order to find out the quality, it is necessary to research the tourists' evaluation of products and services and the tourists' experience in the destination. All these elements affect consumer behaviour and preference. The aspect of destination quality is the most important component of CBBETD. When researching destination quality, attention should be paid to a distinction between perceived quality and tourists' satisfaction (Ruzzier 2010).

2.4.4. Destination Loyalty

From a marketing perspective, loyalty is defined as customers' behaviour or intentions to re-buy or re-patronize certain product or service, causing repetitive purchasing of the same brand products (Hawkins et al. 1995). Loyalty measures a consumer's strength of affection towards a brand. It is based on a consumer brand preference or their intention to buy a product of a certain brand. Customer satisfaction, customer experience, value, service quality, performance, price and brand name all contribute to loyalty (Backman and Crompton 1991). In destination brand research loyalty plays a big role, but it should be examined in a long-term range. It can serve as a useful tool for prediction of future destination choice (Oppermann 2000).

2.5. Executed Research on Customer-Based Brand Equity

The concept of CBBETD started to be tested for many destinations by various researchers and from many perspectives more than 10 years ago. For example, Boo et al. (2009) measured the CBBE for Las Vegas and Atlantic City. However, in contrast to our paper, besides awareness, image quality and loyalty, they added another dimension of destination brand value to their model. Yousaf and Amin (2017) measured the CBBE for a tourist destination named the Kashmir valley in India. Their study suggests particular steps to ensure a strong brand equity of the Kashmir valley. Almeyda and George (2020) compared the CBBEs of Puerto Rico and the US Virgin Islands while using different dimensions of the CBBETD model (value, social image, performance, trustworthiness and identification). Their study claims that the core dimension that explains more than ninety percent of the customer-based brand equity is brand performance, which is a substitute of the destination quality in our CBBETD model.

The study executed by Suta et al. (2019) investigated empirical information for testing the concept of cultural differences on the integration of variables in the CBBETD. The subject of their research was the tourist destination of Bali. Furthermore, their research applied the CBBETD model to investigate cultural differences as a mediating indicator of the correlation among brand loyalty and other indicators in the CBBETD.

Another study that needs to be listed is an empirical CBBETD study of the Liberec region in the Czech Republic executed by the authors of this paper (Červová and Pavlů 2018). The previous study used the same dimensions of CBBETD and also tested the concept very well.

Based on the literature review, the following research questions are addressed in this study:

- RQ 1: Is the model of CBBETD proposed by Ruzzier (2010) applicable also to Croatia from the perspective of Czech visitors?
- RQ 2: Are the dimensions of the proposed model identical?
- RQ 3: Are there any subdimensions that can be identified?

3. Methodology

The purpose of this paper is to verify and modify the CBBETD model in the context of the destination of Croatia from the perspective of Czech visitors. The research methodology is based on the CBBETD concept introduced and modified by Ruzzier (2010). This concept of brand equity consists of four subdimensions, namely, awareness, image, quality and loyalty. Since the attributes within the subdimensions of awareness (three attributes) and loyalty (three attributes) are generally applicable regardless of the destination, they were adopted without change from the original model by Ruzzier (2010). However, the attributes included in the image and quality subdimensions had to be adapted to fit the characteristics of the destination. To this end, focus group research was conducted in the first phase of the research, involving 25 potential respondents. The aim of the focus group interviews was to identify suitable attributes specific to Croatia from the perspective of Czech visitors that would have an impact on image and quality. The focus groups were conducted with an emphasis on subjective perceptions, expectations and experiences; therefore, no attribute options were presented to the participants in order not to influence their opinion. The output of the focus groups was 21 attributes falling into the image subdimension and 9 attributes falling into the quality subdimension. Thus, the brand equity of the destination of Croatia was measured using a total of 36 attributes.

In the second phase of our research, the data were collected through a structured questionnaire (see the Appendix A) using the method of online interviewing (CAWI). The first part of the questionnaire consisted of questions characterizing the respondents' travels to Croatia (such as frequency of visits, length of stay, sources of information, way of organizing holidays, etc.). The second part of the questionnaire focused on the attributes of CBBETD, which were transformed into statements and rated on a scale of 1 to 5, with 1 indicating total disagreement and 5 total agreement with the statement.

The respondents were selected by a quota selection method according to gender and age so that the sample would correspond to the profile of a Czech visitor to Croatia (Czechtourism 2019). However, only people over 18 years of age could participate in the survey. The data were analysed using IBM SPSS Statistics software. Factor analysis using principal components and the varimax rotation method was performed to identify significant attributes determining the four subdimensions of CBBETD. The appropriateness of using exploratory factor analysis was verified using Barlett's test of sphericity, which showed significant correlations in the correlation matrix (value of 0.000 for all analyses performed). The validity and reliability for each of the subdimensions were verified using Kaiser–Meyer–Olkin (KMO) values and Cronbach's alpha coefficients. All variables could be considered valid as KMO values ranged from 0.701 to 0.940. The values of Cronbach's alpha coefficients were 0.803 to 0.934, indicating acceptable to excellent results. The identified factors within the four subdimensions explained 55.11 to 81.03% of the total variability. Three factors were identified in the image subdimension and one factor each in the other subdimensions (see Table 2).

Table 2. Validity and reliability check.

Dimension	Number of Attributes Assigned to Subdimension	KMO	Cronb. Alpha	Total Variance Explained (%)	Number of Extracted Factors (Attributes)
Awareness	3	0.701	0.803	72.18	1 (3)
Image	21	0.940	0.934	60.32	3 (20)
Quality	9	0.888	0.873	55.11	1 (8)
Loyalty	3	0.706	0.879	81.03	1 (3)

Source: own processing.

There were 465 completed questionnaires. Nevertheless, the elimination of problematic questionnaires reduced the sample size to 451. In terms of gender of the visitors, 47% were male and 53% female. Out of the total number of respondents, 30% of tourists were 18–30-year-olds, 22% were 31–40-year-olds, 25% of respondents were 41–50-year-olds, 12% were 51–60-year-olds and 11% were older than 61. As per the monthly net income of the household it was found that 31% earned less than CZK 25,000, 22% earned in the range of CZK 25,001–35,000, 19% in the range of CZK 35,001–45,000, 11% in the range of CZK 45,001–55,000 and 17% earned more than CZK 55,000 a month (Table 3).

Table 3. Sample characteristics.

Number of Respondents	N	451
Sex	male	46.80
	female	53.20
Age	18–30	29.70
	31–40	22.40
	41–50	25.10
	51–60	11.80
	61 and older	11.10
Income (CZK) *	less than 25,000	31.10
	25,001–35,000	21.80
	35,001–45,000	19.00
	45,001–55,000	11.30
	55,001 and more	16.80

* Exchange rate (3 November 2021): 25.50 CZK/1 EUR. Source: own processing.

4. Results

A factor analysis was conducted to test and eliminate attributes within the four CBBETD subdimensions. The first subdimension examined was awareness. As can be inferred from Table 4, respondents rated awareness very well (means ranging from 4.34 to 4.40). All three attributes examined reached a factor loading of more than 0.500, thus constituting a single factor ("awareness"), explaining 72.18% of the total variability.

Table 4. Awareness.

Variables	Mean	Factor Loading
Popular TD	4.40	0.869
Attractive and known TD	4.34	0.867
Imagining of TD	4.35	0.810
% Variance extracted	**72.18**	

Note: TD = tourist destination. Source: own processing.

The second subdimension analysed was image. In this case, the factor analysis was conducted a total of three times with the successive elimination of variables that were not

part of either factor. The aim of this procedure was to eliminate variables with low factor loading (less than 0.500) and to explain as much of the variability as possible. The third factor analysis identified three factors explaining 60.32% of the variability (see Table 5). The first factor, named attractions, includes variables such as towns and villages, nature, cultural attractions, beaches, mountains and historical attractions. The second factor can be named amenities and includes opportunities for water recreation, opportunities for recreational activities, wide range of gastronomy and accommodation facilities, pleasant weather, summer destination, friendly and hospitable people and easy accessibility. Within the image subdimension, a third factor was also identified and named ambiance. It contains variables such as modern wellness resorts, shopping facilities, exciting atmosphere, good nightlife and entertainment. Looking closely at the averages of all variables within the image subdimension, it is clear that the variables that respondents rated the highest were summer destination, opportunities for recreational activities including water recreation, pleasant weather, relaxing atmosphere (means from 4.18 to 4.63). On the other hand, the lowest rated variables were wellness resorts (2.98), shopping facilities (3.30) and exciting atmosphere (3.45). Similar results emerged from the qualitative study (focus groups) in which participants most frequently mentioned Croatia as a summer, relaxing destination with many opportunities for recreation at the seaside, including a variety of beaches.

Table 5. Image.

Variables	Mean	Factor Loading		
		Attractions	Amenities	Ambiance
Lovely towns and villages	4.04	0.705	0.339	0.239
Beautiful nature	4.16	0.692	0.392	0.157
Interesting cultural attractions	3.75	0.687	0.197	0.437
Beautiful beaches	4.00	0.684	0.339	0.113
Beautiful mountains	3.91	0.678	0.180	0.163
Interesting historical attractions	3.78	0.658	0.144	0.462
Good opportunities for water recreation	4.27	0.152	0.742	0.254
Good opportunities for recreation activities	4.34	0.278	0.738	0.155
Pleasant weather	4.22	0.317	0.717	0.076
Wide range of gastronomy facilities, local food	4.00	0.171	0.702	0.391
Summer destination	4.63	0.122	0.672	−0.133
Wide range of accommodation facilities	4.11	0.207	0.670	0.316
Friendly and hospitable people	4.07	0.267	0.660	0.206
Transportation accessibility	4.10	0.235	0.646	0.125
Relaxing atmosphere	4.18	0.438	0.614	0.117
Good opportunities for adventure	3.92	0.197	0.545	0.534
Modern wellness resorts	2.98	0.189	−0.017	0.788
Good shopping facilities	3.30	0.139	0.143	0.758
Exciting atmosphere	3.45	0.290	0.222	0.682
Good nightlife and entertainment	3.84	0.297	0.348	0.526
% Variance extracted		**60.32**		

Source: own processing.

Within the third subdimension "quality", one factor explaining 55.11% of the variability (see Table 6) was identified. A factor analysis was conducted twice in total, with the successive elimination of variables that did not reach a factor loading of 0.500. The quality subdimension included variables such as quality of gastronomy, services, accommodation, infrastructure, unpolluted environment, good value for money and personal safety. The latter two variables were also rated the highest by respondents—a mean of 3.85 for personal

safety and a mean of 3.82 for good value for money. In contrast, the lowest rated attribute was the level of cleanliness (3.30).

Table 6. Perceived quality.

Variables	Mean	Factor Loading
High quality of gastronomy	3.54	0.839
High quality of services	3.56	0.821
High level of cleanliness	3.30	0.774
Unpolluted environment	3.63	0.746
High quality of accommodation	3.61	0.728
High quality of infrastructure	3.37	0.722
Good value for money	3.82	0.645
High level of personal safety	3.85	0.641
% Variance extracted	**55.11**	

Source: own processing.

The last subdimension was loyalty. The factor analysis performed showed high loadings on a single factor ("loyalty"), which explained 81.03% of the total variability (see Table 7). Tourists visiting Croatia would recommend a visit to this destination to their friends and acquaintances (mean of 3.90) and would also visit again in the future (mean 3.86). The evaluation of the variable choice of Croatia as a holiday destination was slightly worse, even if the cost of a holiday in Croatia increased (mean of 3.24).

Table 7. Loyalty.

Variables	Mean	Factor Loading
Recommend TD	3.90	0.929
Visit TD in future	3.86	0.924
Visit TD even if costs increase	3.24	0.845
% Variance extracted	**81.03**	

Note: TD = tourist destination. Source: own processing.

5. Conclusions

In conclusion, it can be argued that the model of customer-based brand equity for a tourism destination proposed by Ruzzier (2010) can be used in a modified form (Figure 1) for the destination of Croatia from the perspective of Czech tourists (referring to RQ 1). In respect of the RQ 2 it can be stated that our modified concept of CBBETD consists of the same dimensions of awareness, image, quality and loyalty.

The model is very useful as it provides Croatia with strategic options to improve its position in the eyes of current and potential tourists. However, the outputs of the factor analyses showed that the only problematic item compared to the original model was the image subdimension, the attributes of which were already modified on the basis of qualitative research in the form of focus groups to reflect the specifics of the destination. Regarding RQ 3, the results of this research showed that the image subdimension is made up of three factors, namely attractions, amenities and ambiance. Thus, the results of this research build on the work of Cooper et al. (2005) who identified six "As" of a destination: attractions, accessibility, amenities, ancillary services, available packages and activities. The variables under the latter mentioned factor of ambience (modern wellness resorts, good shopping facilities, exciting atmosphere, good nightlife and entertainment) scored worse compared to the other variables of the image subdimension, indicating room for improvement in order to increase the brand equity of this destination. Other variables that Croatia as a destination should focus on improving were cleanliness and quality of infrastructure (quality subdimension). Furthermore, it was found that although

respondents expressed high levels of loyalty, there was a lower willingness to visit Croatia even if costs were to increase. This is something that Croatia should be careful about and the increase in costs or prices should be accompanied by an increase in the value offered, so that tourists do not prefer other competitive destinations. A destination brand is a competitive identity that distinguishes a place from others. The destination brand should be the basis for the strategy of all destination management organisations as well as for communication with the public. Thus, the Croatian National Tourist Board can use the results of this research in its concept.

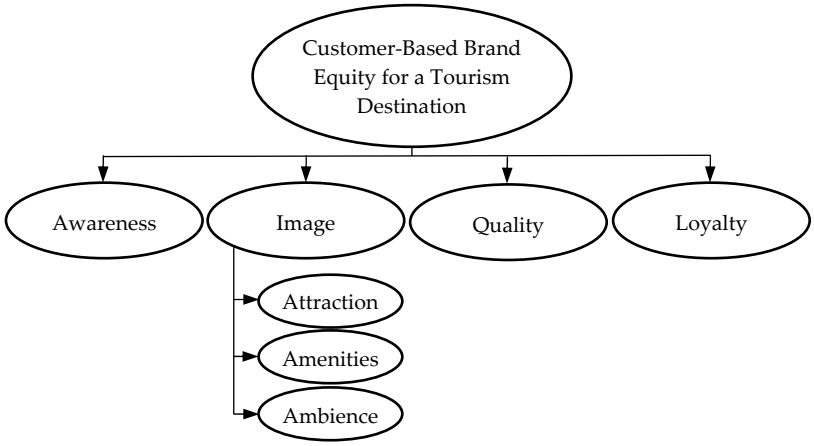

Figure 1. Customer-based brand equity model for Croatia. Source: own processing.

As noted above, data collection was conducted in the pre-COVID-19 period, so further research should look at how COVID-19 has affected customer-based brand equity. It is likely that tourists' perspectives on different destinations may have changed due to new circumstances, and a new dimension could have been added to the CBBETD model as well, to assess the set conditions for travel in the COVID-19 pandemic. It should also be noted that this model is based on visitor opinion only. A more holistic view of the brand equity of a tourist destination could be provided by a deeper analysis that also takes into account the views of other stakeholders (residents, local businesses and their employees). Furthermore, future research could focus on the relationship of individual factors (attributes) to overall satisfaction, for example by integrating Kano's model (Kano 1984), which would identify those factors (attributes) that contribute most to increasing visitor satisfaction and therefore to increasing visitor loyalty.

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Appendix A. Questionnaire

1. How many times have you visited Croatia in last 3 years?
   (1) 1x (2) 2x (3) 3x (4) 4x and more
   (5) I haven't been to Croatia in last 3 years. => *Continue to Q. 8*
2. How long did your last stay in Croatia take?
   (1) 3–6 days (3) 11–14 days
   (2) 7–10 days (4) More than 15 days
3. Who did you spend your last stay in Croatia with?
   (1) I was there alone. (3) Partner (5) Work colleagues
   (2) Friends (4) Family (6) Other, please specify:
4. How did you organize your last stay in Croatia?

	by myself	travel agency/tour operator
Transportation	☐	☐
Accommodation	☐	☐
Meals	☐	☐
Programme	☐	☐

5. How did you get to Croatia to spend your last holiday?
   (1) car (3) airplane (5) combination
   (2) coach bus (4) train (6) other, please specify:
6. Where were you accommodated during your last stay in Croatia?
   (1) Hotel (3) Apartment (5) Bed and breakfast
   (2) Campsite (4) My friends' or relatives' house (6) Others, please specify:
7. What type of meal plan did you choose for your last stay?
   (1) Self-catering (3) Breakfast and dinner included (5) All inclusive
   (2) Breakfast included (4) All meals included
8. How do you perceive Croatia as a tourist destination? For each statement, please choose if you strongly disagree, disagree, neither agree nor disagree, agree or strongly agree.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Croatia is a popular tourist destination.	☐	☐	☐	☐	☐
I can easily imagine how the holidays in Croatia look like.	☐	☐	☐	☐	☐
Croatia is quite attractive and known.	☐	☐	☐	☐	☐
Croatia has a beautiful nature.	☐	☐	☐	☐	☐
Croatia has beautiful mountains.	☐	☐	☐	☐	☐
Croatia has beautiful beaches.	☐	☐	☐	☐	☐
Croatia has lovely towns and cities.	☐	☐	☐	☐	☐
Croatia has attractive cultural attractions.	☐	☐	☐	☐	☐
Croatia has interesting historical attractions.	☐	☐	☐	☐	☐
Croatia offers good opportunities for nightlife and entertainment.	☐	☐	☐	☐	☐
Croatia offers good opportunities for recreation activities.	☐	☐	☐	☐	☐
The people in Croatia are friendly and hospitable.	☐	☐	☐	☐	☐
Croatia has a pleasant weather.	☐	☐	☐	☐	☐
Croatia is politically stable.	☐	☐	☐	☐	☐
Croatia has a wide range of accommodation facilities.	☐	☐	☐	☐	☐
Croatia has good opportunities for water recreation.	☐	☐	☐	☐	☐
Croatia has a wide range of gastronomy facilities and offers local food.	☐	☐	☐	☐	☐
Croatia offers good opportunities for adventure.	☐	☐	☐	☐	☐
Croatia is easily accessible regarding transportation.	☐	☐	☐	☐	☐
Croatia has a relaxing atmosphere.	☐	☐	☐	☐	☐
Croatia is a summer destination.	☐	☐	☐	☐	☐
Croatia offers modern wellness resorts.	☐	☐	☐	☐	☐
Croatia has good shopping facilities.	☐	☐	☐	☐	☐
I can easily speak Czech in Croatia.	☐	☐	☐	☐	☐
Croatia has exciting atmosphere.	☐	☐	☐	☐	☐
Croatia is safe and secure.	☐	☐	☐	☐	☐
Croatia has a high quality of accommodation	☐	☐	☐	☐	☐
Croatia has a high quality of infrastructure.	☐	☐	☐	☐	☐

Croatia has a high level of cleanliness.	☐	☐	☐	☐	☐
Croatia has a high quality of gastronomy services.	☐	☐	☐	☐	☐
Croatia has a high quality of services.	☐	☐	☐	☐	☐
Croatia offers good value for money.	☐	☐	☐	☐	☐
Croatia has an unpolluted environment.	☐	☐	☐	☐	☐
I intent to visit Croatia again.	☐	☐	☐	☐	☐
I would like to recommend Croatia to my friends and relatives.	☐	☐	☐	☐	☐
I would choose Croatia for my holiday even if the costs were higher.	☐	☐	☐	☐	☐

9. Gender: (1) Male (2) Female
10. Age: (1) 18–30 (2) 31–40 (3) 41–50 (4) 51–60 (5) 61 and older
11. Net monthly household income (CZK)
    (1) Less than 25,000
    (2) 25,001–35,000
    (3) 35,001–45,000
    (4) 45,001–55,000
    (5) 55,001 and more

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Article

Sustainable Tourism and Renewable Energy's Potential: A Local Development Proposal for the La Florida Community, Huaral, Peru

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Abstract: Tourism contributes 10% to global gross domestic product (GDP), yet it generates 5% of all anthropogenic CO_2, while 50 to 60% of carbon emissions are indirectly related to the sector. High levels of poverty afflict rural areas in developing countries, and sustainable tourism based on renewable energy is an ideal approach to generate local development. Our objectives are thus to gauge sustainable tourism's influence on local development in the community of La Florida, Huaral, Peru and to evaluate the potential of renewable energy (solar and wind power) to propose an eco-efficient business alternative. A non-experimental, quantitative approach was used, in which 265 local residents completed a survey to ascertain their perspectives on the proposal. Moreover, the potential for solar and wind energy was measured to identify sustainable alternatives that residents might incorporate into local ventures. The results demonstrate a relationship between sustainable tourism and local development, as tourism activity enables community members to improve their quality of life and offers them the opportunity to generate new enterprises. Likewise, the assessment of renewable energy potential confirms its feasibility in this area.

Keywords: local community; community development; sustainable community; tourism and renewable energy

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1. Introduction

Tourism has become one of the fastest growing industries in the world, creating millions of jobs, increasing global income, helping to curb inflation, and spurring the development of diverse infrastructure (Khan et al. 2021). Tourism now contributes 10.3% of global GDP and 319 million jobs, meaning one in ten jobs are attributed to this sector (Li et al. 2019; Tian et al. 2020; WTTC 2021). The popularity of tourist destinations is linked to demand for various resources and to the supply of accommodation, food, and various types of services (Becken et al. 2003; Becken et al. 2001). This implies the provision of significant logistics services and especially high energy demand. The latter is a serious impediment to the development of sustainable tourism, particularly in Latin America where a high proportion of tourist centers are located in rural areas with high poverty rates and little or no access to energy resources (Gössling 2010; Carbone 2005). The Economic Commission for Latin America and the Caribbean (ECLAC) revealed that, in 2019, 30.8% of the population was below the poverty line, with 11.5% in a situation of extreme poverty (CEPAL 2019). This rate has increased considerably in response to the COVID-19 pandemic, and ECLAC estimate that in 2020 the extreme poverty rate will stand at 12.5%, while the poverty rate will reach 33.7% (CEPAL 2021).

Accordingly, our main research question is the following: How might sustainable tourism, in terms of the use of renewable energy resources, influence the local development of the La Florida community?

Researchers involved in the development of sustainable technologies have begun to propose strategies (Calderón-Vargas et al. 2019; Calderón-Vargas et al. 2021) that can eliminate barriers to sustainability and to direct their interest toward the use of renewable energy sources such as solar and wind. Alongside the development of sustainable infrastructure with an emphasis on energy demand issues (Nguyen and Su 2021), other researchers emphasize the need for tourism to be sustainable. An example of this is the use of renewable energy in tourist destinations (Nguyen and Su 2021; Gössling 2010; Le and Nguyen 2020).

Accordingly, the World Tourism Organization (UNWTO) describes sustainable tourism as a model of economic development conceived to improve the quality of life of the host community and to provide visitors with a high quality experience while maintaining the quality of the environment (Cardoso Jiménez 2006). Moreno Freites et al. (2019) argue that sustainable tourism means satisfying the needs of tourists and local development, minimizing poverty and exclusion, and ensuring the sustainable use of biodiversity without neglecting the protection of local values, customs, and historical context. Relevant strategies must thus be created to help reduce poverty. Sustainable tourism is a comprehensive scheme that must not only contribute to sustainability and present a sustainable tourism product but also generate local development.

Previous work emphasizes the importance of sustainable tourism in local development. Varisco, in his study of tourism and local development, highlighted the importance of the degree of endogeneity in tourism development processes, analyzing its impact on local development. He concluded that tourist activity contributes to local development but cannot be generated purely as an isolated activity (Varisco 2008). Likewise, Mora, in his study of local development and community tourism under globalization, examined the case of San Gerardo de Dota and concluded that the community is endowed with various types of endogenous resources that have the capacity to contribute economic value based on community capital (Mora Sánchez 2012). Consequently, Álvarez and Gil proposed tourism as an engine of economic growth in Colombia, since departmental public investment in tourism has contributed positively to GDP growth in each department (Álvarez Cáceres and Galvis 2019).

This study aims to measure the influence of sustainable tourism, in terms of the use of renewable energy resources, in motivating local development in the community of La Florida, Huaral, Peru and ensuring that it becomes a sustainable destination. It is important to note that tourism has already generated basic development in the community under study, producing both direct and indirect employment and forging an appreciation of the local customs and environment.

2. Literature Review

Despite the great economic benefits that tourism generates in various countries, the sector presents an environmental concern, as it gives rise to massive CO_2 emissions (Li et al. 2019). A study carried out by the UNWTO and the United Nations (UN) reveals that tourism contributes 5% of all anthropogenic CO_2, while between 50 and 60% of carbon emissions are indirectly related to the industry (Dwyer et al. 2010; Calderón-Vargas et al. 2019; OMT-a 2019). The need thus arises to direct tourism activity using sustainability guidelines and to think about sustainable tourism. The latter must fully take into account current and future economic, social, and environmental repercussions while satisfying the needs of visitors, the industry, the environment, and host communities (UNWTON 2021). Some authors firmly believe that the sustainability of tourism development is based on the creation of a tourism product with particular characteristics that suit the present and future needs of tourists (Michalena et al. 2009). The concept of "sustainable tourism development" thus refers to economic, social, and environmental development that continually aims to improve the experiences of tourists. For others, this type of development is an additional opportunity for local communities to benefit from the products of their particular local identity and natural resources (Burns and Sancho 2003; Michalena et al. 2009). Sustainable

tourism is positively linked to economic development and has been an important source of income (Comerio and Strozzi 2019). The optimal management of sustainable tourism must take into account the principles of sustainability, encompassing the environmental, economic, and sociocultural aspects of tourism development. An adequate balance must be struck between these three dimensions to guarantee long-term sustainability.

In this sense, well-articulated sustainable tourism contributes effectively to local development. This in turn allows a society to offer alternatives for collective well-being, using the potential of local residents to generate innovative ideas that are economically beneficial to their home community (Mendoza-Moheno et al. 2021). Vásquez Barquero classifies this as a strategy that seeks social progress and local sustainable development based on the continuous improvement of available resources, particularly historical and cultural heritage, and thus contributes to improving the well-being of the population (Vázquez Barquero 2009). Conversely, Sergio Boisier maintains that local development is an endogenous process that occurs in small territorial units and human settlements capable of promoting economic dynamism and improving the population's quality of life (Boisier 2005). Local development involves three fundamental aspects: the local economy, the process of reactivating and revitalizing the local economy, and the efficient use of an area's existing endogenous resources to stimulate economic growth, create jobs, and improve quality of life. This implies a participatory and equitable process that promotes the sustainable use of local and external resources and in which key local actors are encouraged to generate employment and income to improve the population's quality of life (Silva and Sandoval 2012). Dinis maintains that, if the environmental component is integrated into local development, one can speak of sustainable local development as socially equitable, economically viable, and environmentally friendly (Dinis et al. 2019).

It is thus necessary to consider the importance of fostering sustainable tourism that generates local development through the care and preservation of the environment. Accordingly, since several authors affirm a positive correlation between the consumption of renewable energy and economic growth (Chen et al. 2021; Apergis and Payne 2010; Omri 2013; Ozturk and Bilgili 2015), we propose a study of renewable energy and its influence on local development and sustainable tourism. Apergis's study of OECD countries reveals a long term equilibrium relationship between real GDP, renewable energy consumption, real gross fixed capital formation, and the labor force. This long term relationship indicates that a 1% increase in renewable energy consumption increases real GDP by 0.76%; a 1% increase in gross real fixed capital formation increases real GDP by 0.7%; and a 1% increase in the labor force increases real GDP by 0.24% (Apergis and Payne 2010). Tourism is a driving force for both economic growth and environmental sustainability, so the interaction between pollution and renewable energy consumption requires more attention (Sarpong et al. 2020). Tourism-related CO_2 emissions can be mitigated through the use of renewable energy in the tourism industry (Ali et al. 2021). Moreover, it is reported that tourists are willing to pay for activities that are likely to promote environmental quality (Sarpong et al. 2020). The regions of Central and South America have the potential to generate 100% of their electricity from renewable sources (Ben Jebli et al. 2019).

Ideally, Peru should move gradually toward "cleaner" growth that generates fewer emissions and does not compromise economic and social development, thus improving its competitiveness and productivity. This must be done, however, through the gradual implementation of clean technologies, beginning with those that offer the lowest costs (Gamio Aita 2021). It is also necessary to take advantage of the country's exceptional wind resources, great potential for solar energy, and products of its geographical and climatological characteristics (Ministry of Energy and Mines (MINEM) 2001). The Wind Atlas of Peru estimates the country to possess 20,493 MW of usable wind resources out of a total wind resource of 28,395 MW, which is of interest for the installation of wind power generation systems (MOCICC—Movimiento Ciudadano frente al Cambio Climático 2020b). Conversely, the most important technical and economic determining factor for the

installation of thermoelectric solar systems is to have an annual direct solar radiation not less than 2000 kWh/m^2, while the total potential of Peru is 2860 MW (MOCICC 2020a).

3. Materials and Methods

A quantitative approach was used, as numerical data were collected and subjected to statistical analysis to verify the correlation of two variables, as well as the generalization and objectification of sample results. The design was non-experimental since there was no manipulation of the variables; rather, they will be examined and compared as they occur in the natural environment. The design is transverse, as data was collected only for the year 2021 (Hernández Sampieri 2010).

This research focuses on a case study of the rural community of La Florida, located in the Atavillos Bajo District, Huaral Province, Lima Department, Peru. The community is considered the base tourist center of the "Rúpac-Marca Kullpi" archaeological complex, also called "El Machu Picchu Limeño", which was designated as national cultural heritage through National Directorial Resolution 283/INC on 25 June 1999. This archaeological site dates to 1200 CE and belongs to the pre-Inca culture of Los Atavillos (Congreso de la República 2017a). During the research process, direct contact was made with residents of La Florida to obtain information and to learn about the residents' perspective on the relationship between sustainable tourism and local development in their area. The statistical population was delimited by a selection criterion for those over the age of majority. All individuals over 18 years of age who live in this population center were considered, yielding a total of 843 persons of undifferentiated sex. Using a simple random probability sampling under the finite population formula, given a confidence level of 95% and a margin of error of 5%, a sample number (n) of 265 inhabitants was selected. These individuals participated in a structured survey with closed questions based on the Likert scale, addressing relevant social, economic, and environmental dimensions

To certify the quality of the survey's content, it was subjected to an expert judgment process. Three specialists, in community development, sustainable tourism, and methodology, respectively, evaluated the consistency, clarity, and concordance of the questions. Regarding the statistical reliability of the survey questionnaire, Cronbach's Alpha test (α) was applied. This test establishes a coefficient that theoretically varies from 0 to 1, distributed as follows: values from 0 to 0.2 are considered to indicate very low reliability, 0.2 to 0.4 low reliability, 0.4 to 0.6 moderate reliability, 0.6 to 0.8 good reliability, and 0.8 to 1 high reliability. If α is close to 0, then the quantized responses are not reliable at all, and if close to 1 the responses are very reliable. As a general rule, if $\alpha \geq 0.8$, the answers are considered reliable (Leontitsis and Pagge 2007). After all the surveys had been administered, the results were processed using the statistical software SPSS version 27. To obtain test results, the following procedure was used: first select the "Analyze" option, then the "Scale" option, and third "Reliability Analysis." Then, select the items to evaluate, and finally choose the option "Alpha Model." Following these steps, an α value of 0.8 was obtained, thus indicating high reliability according to the Alpha scale.

To carry out relevant documentary analysis, an extensive search was undertaken for scientific articles indexed in prestigious databases such as Scopus and Web of Science with the keywords: sustainable tourism, sustainable tourism and local development, benefits of local development, tourism and renewable energy. This search extended to official national and supranational organizations: World Tourism Organization (UNWTO), MINEM, Instituto Nacional de Estadística e Informática (INEI), and Peruvian Institute of Economy (INEI). Figures from accommodation associations, travel agencies and the like (AHORA), and the Ministry of Foreign Trade and Tourism (MINCETUR) have also been used to obtain tourism data and identify new trends in the national and international tourism market.

The analysis of renewable energy potential was specifically linked to the use of solar and wind energy, involving the use of photovoltaic panels and wind turbines, respectively. For this purpose, computer simulations were used to determine solar radiation intensity through SOLARGIS, a simulator belonging to the World Bank, and EnAir, a simulator that

generates energy demand and/or generation calculations (in kWh) for a given geographic location. On this basis, we performed calculations to estimate projected energy demand and contributions by the aforementioned systems, all with a high degree of precision (98.5%). Various studies have considered the use of geographic information tools to evaluate tourism resources and renewable energy potential (Valjarević et al. 2018; Rahayuningsih et al. 2016).

4. Results and Discussion

In September 2015, the UN General Assembly adopted the 2030 Agenda with the aim of promoting sustainable development through an action plan that seeks to end poverty, safeguard our planet, and ensure peace and prosperity (UNWTO 2015). The SDGs that take up and expand on the Millennium Development Goals include 17 goals and 169 targets and will be the framework for the new world development agenda for the next 15 years (ONWTO Organización Mundial del Turismo 2015). It is acknowledged that each country faces specific challenges in its search for sustainable development. Accordingly, UN member states recognize that the world's greatest challenges are the elimination of poverty and the preservation of the environment (UNWTO 2015).

Within the 2030 agenda's framework, the World Charter for Sustainable Tourism +20 is recapitulated, recognizing that SDGs present an opportunity to direct tourism activity along inclusive and sustainable pathways (Naciones Unidas 2015a). The document thus stipulates that tourism must contribute effectively to reducing inequality, promoting peaceful and inclusive societies, achieving gender equality, and creating permanent opportunities for all. It also highlights that the ecological footprint of tourism can be significantly reduced, and that this process should drive innovation by developing green, inclusive, low carbon economies. Finally, it emphasizes that indigenous cultures, traditions, and local knowledge, in all their forms, must be respected and valued, underlining the importance of promoting the full participation of local communities and indigenous peoples in tourism development decisions that affect them (Urkullo 2015).

Regarding the Peruvian legislative framework, tourism activity is governed by Law 29408, the general tourism law, which aims to promote, encourage, and regulate the sustainable development of tourism activity and is mandatory at all three levels of government: national, regional, and local. This legal framework applies to the development and regulation of tourist activity, and MINCETUR is the national governing body for matters related to tourism. Article 3 of this law sets out the principles of tourism activity, which are: sustainable development, inclusion, non-discrimination, promotion of private investment, decentralization, quality, competitiveness, fair trade in tourism, tourism culture, identity, and conservation (Congreso de la República 2017a).

It is necessary to ascertain a community's conditions prior to designing an implementation of sustainable tourism that can contribute to its local development. La Florida, together with the Pampas community, is strategically located as a base location for the reception of tourists intending to visit the archaeological center of Rúpac, the traditional local festivals, the anniversary of Rúpac, the festival of San Salvador de Pampas, etc. All of these result in an increasing number of visits each year, but with very short stays. The surveys undertaken in our study reveal that 52.5% of residents believe tourists stay in the area less than a day, which is a very short time to provide opportunities for active economic revitalization.

The "Rúpac Marca Kullpi" archaeological complex belongs to the Atahuallos culture that flourished from 900 until the mid-1400s CE (IPerú 2016). It is presently called the "Lima Machu Picchu" since it is located at the top of the mountain (3580 MSL) and, despite its age, is well-conserved. The archaeological complex is a citadel with fortified vaulted ceilings and stone structures up to 10 m high. (IPerú n.d.). In 2016, Bill 1012/2016-CR was presented and passed, which made the recovery, conservation, protection, and promotion of the Rúpac Marca Cullpi archaeological site a public necessity and preferential national interest (Congreso de la República 2017a). Nonetheless, much remains to be done to ensure that the mountain range of the city of Huaral is a tourist focus for Lima. Rúpac

is not yet prepared to receive a large influx of tourists, while neighboring population centers still lack optimal infrastructure and facilities to accommodate additional tourism. The president of the Association of Hotels, Restaurants and Related—Huaral (AHORA—Huaral) has stated that approximately 10,000 tourists visit the area annually, of whom 10% are foreign (Andina 2019). Conversely, he affirms that the place has become highly attractive to national and foreign tourists because of its inclusion in the Short Routes of Lima. To reach Rúpac, one must first take a bus from Lima to Huaral, then take local transport from Huaral to the town of La Florida and Pampas, and finally undertake a walk of approximately three and a half hours to the complex. La Florida's role as a base center is the reason for this study's focus on that rural community. The town had 843 inhabitants as of the most recent census (carried out in 2017), of whom 53% were female (INEI 2017). Our surveys indicate that 58.9% of residents have completed secondary school but only 7.9% have higher education, while the remainder of the population has an educational level between primary and initial (Naciones Unidas 2015b).

4.1. Economic Aspect

The main economic activities revolve around tourism and the agriculture sector. The predominant crops include peaches, avocados, apricots, potatoes, and corn, which are cultivated and harvested by the local community. Nonetheless, a visit to the town center revealed that the population's limitations have been improving in response to the development of tourist activity. According to community members, as recently as five years ago they lacked basic services, i.e., in the populated center there was no water, sewage, electricity, or gas service. Much was therefore needed to improve their quality of life. For example, preparation of food required the use of wood stoves, while access to water involved the local government occasionally sending cisterns to fill containers that had to last the inhabitants for a certain period. Thanks to development spurred by tourist activity, precariousness has diminished, and now the community has access to all basic services and even internet. This is a direct consequence of increased tourist activity, which has boosted the economy and attracted the interest of local and regional governments.

Economically, sustainable tourism development must take the necessary steps to maximize economic benefits to the host community while creating strong links with the local economy of the destination and with other economic activities in the environment. Thus, the UNWTO proposes that sustainable tourism should promote the creation of viable economic activities in the long term. These should provide all agents with well-distributed socio-economic benefits, including opportunities for stable employment, to obtain income and social services for host communities and to help reduce poverty (UNWTON 2021). In the community under study, the survey indicated that 32.1% of the population has tourism as its main economic activity, with restaurant and accommodation services being predominant, as 7.5% of residents are employed in each area. The second most important economic activity in the community is agriculture, which is the main occupation for 26.4% of the population (see Table 1).

Table 1. Main economic activity, according to La Florida residents.

Activity	Frequency	Percentage
Tourism	85	32.1
Agricultural	70	26.4
Commerce	52	19.6
Forest	32	12.1
Construction	26	9.8
Total	265	100.0

Source: Prepared by the research team on the basis of data from the survey of La Florida's residents.

While 71.3% of residents are aware that tourist activity always generates work and continuous income, which contributes to revitalizing the economy of local households,

94.8% of residents indicate that the development of tourism activity has improved basic family income (see Figure 1). Thus, 63.8% of residents claim that before tourism development they had an average income of between 100 and 150 USD per month, whereas with the development and promotion of tourism, 87.5% of residents claim that they have now considerably exceeded this income (see Table 2).

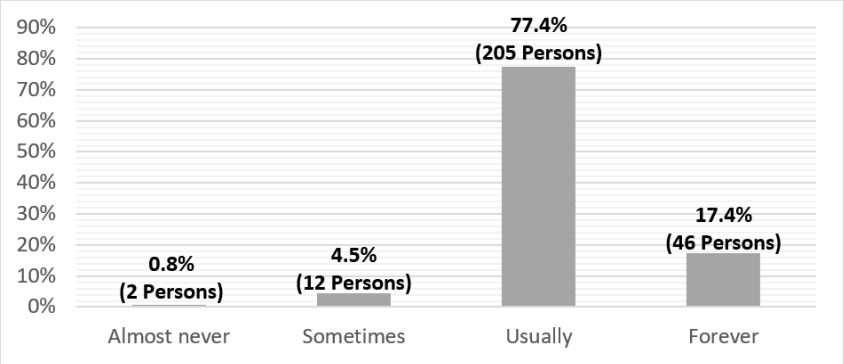

Figure 1. Contribution to the improvement of basic family income. Source: Prepared by the research team on the basis of data from the survey of La Florida's residents.

Table 2. Monthly income after tourism development.

Monthly Income	Frequency	Percentage	Valid Percentage
100 USD–150 USD	33	12.5	12.5
More than 150 USD	232	87.5	87.5
Total	265	100.0	100.0

Source: Prepared by the research team on the basis of data from the survey of La Florida's residents.

Given the above, tourist activity has clearly helped to generate income for the community's residents, encouraging local development based on production and employment opportunities that energize and diversify the local economy. Nonetheless, much work remains, since the poverty index is still above average. Moreover, it has been noted that many informal services exist, particularly in the areas of catering and accommodation services. During contact with the population, it was observed that lodgings are provided within people's homes (rustic and improvised). When tourists visit, they stay in said houses sharing a small room with several people and paying for each bed that is used, rather than per room. A similar pattern holds true for restaurants, which are informal and scarce establishments (there are only three in the entire community) located in inhabitants' homes. Because they are rustic, these establishments lack quality and safety control for the handling and preparation of food. It is recognized that tourism-related income from informal activities can benefit a community significantly (Ketchen et al. 2014). If, however, steps are not taken to regularize this informality, challenges may arise, e.g., government regulations that limit access to resources such as capital and commercial space. Moreover, there is a latent risk that those involved may encounter problems such as low salaries, long working hours, high work intensity, poor work environment, and lack of social welfare (Tian and Guo 2021; Damayanti et al. 2017; Briassoulis 2001).

It should be noted that SDGs 1, 2, and 10 stipulate that tourism must be promoted to promote economic growth and development at all levels. Moreover, by providing income through job creation, tourism must contribute to reducing poverty and reducing inequality. Tourism is among the sectors with the most rapid economic growth and is capable of generating development at all levels and of providing income through job creation. It also contributes to rural development by giving community members the opportunity to prosper in their place of origin (ONWTO Organización Mundial del Turismo 2015). The development of sustainable tourism, and its impact on communities, can be

linked to national poverty reduction objectives. This is particularly true of objectives related to the promotion of entrepreneurship and small businesses and to the empowerment of less favored groups, particularly women and youth (ONWTO Organización Mundial del Turismo 2015; Urkullo 2015). The UNWTO affirms that tourism is an effective means for developing countries to participate in the world economy. In 2014, the least-developed countries received 16.4 billion USD in exports from international tourism, up from 2.6 billion USD in 2000. This considerable increase has made tourism an important pillar of developing economies, constituting 7% of total exports and helping some to ameliorate their condition (ONWTO Organización Mundial del Turismo 2015).

4.2. Sociocultural Aspect

Socioculturally, tourism activity should be directed to empower local communities and endogenous peoples and to facilitate their participation in tourism planning and development (Urkullo 2015). The UNWTO argues that this ensures respect for the sociocultural authenticity of host communities, helping to conserve cultural and architectural assets and traditional values while contributing to intercultural understanding and tolerance (UNWTON 2021). Thus, to achieve local development, the preservation and revaluation of customs must also be taken into account. In this vein, 55.1% of La Florida's residents indicated having had positive interactions with tourists in their community, which enhances their awareness of the value of their endogenous customs. Moreover, 92.8% of residents indicated that said tourist activity in their community significantly promotes and influences the valuation of their culture and customs (Table 3). Finally, 84.2% of residents indicated that tourism in their community encourages respect and tolerance for interculturality. To this end, awareness workshops are planned to help spread their culture and traditions.

Table 3. Promotion of interculturality, valuation of culture, and interaction with tourists.

Valuation	Interculturality	Culture Valuation	Interaction with Tourists
Never	0.4%	0.0%	0.4%
Almost never	0.8%	0.0%	5.3%
Sometimes	3.0%	0.0%	20.8%
Usually	11.7%	7.2%	18.5%
Always	84.2%	92.8%	55.1%
Total	100.0%	100.0%	100.0%

Source: Prepared by the research team on the basis of data from the survey of La Florida's residents.

It is well appreciated that local populations take initiative to continuously undertake activities that elevate their culture, customs, and cultural manifestations, thus helping to strengthen their identity and endogenous customs and encouraging the revaluation of their traditions. The World Tourism Charter indicates that tourism activity must be directed to empowering local communities and indigenous peoples and to facilitating their participation in the planning and development of tourism (Urkullo 2015). Thus, in destination management, it is necessary to ensure the revaluation of culture. This applies in places where tangible and intangible cultural heritage coexist, which is the most important cultural tourist resource (Lin et al. 2021) and where the cultural aspect is the main inspiration of the visitor to learn, discover, experience, and consume the cultural heritage of their destination (Liu 2020). The development of a sustainable cultural tourism policy may thus be a practical way to foster a new business model that increases employment and promotes the conservation of heritage landscapes (Aquino et al. 2018). Notably, and pertinently to the alliance between tourism and culture in Peru, the UNWTO states that society, culture, and tourism maintain a symbolic relationship. Artistic and craft activities, dance, rituals, and legends that run the risk of falling into oblivion among new generations can be reactivated if tourists show great interest in them (OMT 2016).

4.3. Environmental Aspect

Particular emphasis is placed on the optimal use of environmental resources, which are fundamental elements of tourism development, while maintaining essential ecological processes and conserving natural resources and biological diversity (UNWTON 2021). A wide range of economic sectors have joined strategies to reduce climate change, and tourism is no stranger. Thus, strategies can be promoted that contribute to lowering the carbon footprint through the management of sustainable destinations and the construction of ecological tourist infrastructure (Urkullo 2015). In this regard, 73.2% of La Florida's residents affirm that they always promote the social responsibility of tourists to protect natural attractions, while 9.4% do so regularly. Nonetheless, this leaves 17.4% with whom local governments must to work to achieve greater awareness (Table 4). Meanwhile, 78.5% claim to actively collaborate in programs, workshops, and training for the care and preservation of green areas, while 15.5% do so regularly. Similarly, 66.8% confirm that they always take into account the conservation of local resources. They also note a commitment from the local government, in which the municipality promotes action and awareness to maintain green areas in good condition.

Table 4. Promotion of social responsibility to safeguard natural attractions, active collaboration in workshops, and conservation of biodiversity.

Valuation	Social Responsibility to Safeguard Natural Attractions	Active Collaboration in Workshops	Conservation of Biodiversity
Never	0.0%	0.0%	0.0%
Hardly ever	0.0%	0.4%	1.1%
Sometimes	17.4%	5.7%	11.7%
Usually	9.4%	15.5%	20.4%
Always	73.2%	78.5%	66.8%
Total	100.0%	100.0%	100%

Source: Prepared by the research team on the basis of data from the survey of La Florida's residents.

Excessively high tourist influxes are known to entail a series of negative aspects, e.g., environmental pollution, degradation of ecosystems, soil erosion, and even desertification (Drius et al. 2019). Challenges introduced by overtourism have also been reported in Barcelona, Amsterdam, and Rio de Janeiro (Brtnický et al. 2020).

Our results indicate that, while the community is positively predisposed toward the preservation and care of the environment, it needs a more concrete understanding of what environmental sustainability encompasses. The entire community must be involved in developing plans and strategies, not only in terms of local knowledge but also in taking action and implementing sustainable tourism infrastructure, since the greatest threat to the planet is the construction of new infrastructure (Davenport and Davenport 2006). The seriousness of global environmental problems now requires rapid action at the highest level to avoid catastrophic degradation (Thommandru et al. 2021). Such actions are not only the responsibility of government, but also of each individual, each district, and each community, all of whom must help in any way they can to achieve this objective (Thommandru et al. 2021).

SDGs 7 and 9 assert that tourism activity can incentivize national governments to renew infrastructure and modernize industry. When based on the use of renewable energy sources, this can contribute to reducing greenhouse gas emissions, mitigating climate change, and implementing new and innovative energy solutions (ONU 2022).

4.4. Renewable Energy Potential in La Florida as an Alternative for Sustainable Development

Given new national and international demands, it is important for any projection of tourism development to include the involvement and empowerment of local communities to boost their economy. Likewise, it must help to address climate change by aiming to

progressively reduce greenhouse gases (GHG) emissions, thereby growing in a sustainable way (Urkullo 2015). This can be achieved by implementing eco-efficient technologies and processes in all areas of the tourism industry, including buildings, infrastructure, etc., and by reducing energy consumption and using renewable sources, especially in the transport sector and accommodation. All of this can be achieved if the implementation of renewable energy sources in tourist destinations is promoted to reduce the carbon footprint of the tourism sector (Urkullo 2015).

Peru has significant potential for developing sustainable tourist destinations, since it has a diversity of geographical contexts accompanied by a variety of climates, providing the country with a range of options to take advantage of renewable energy sources. This context is addressed from a technical-professional perspective that undertakes an analysis of Peru's energy potential.

Sustainable tourism activity managed in an appropriate way can be a strategic ally to preserve the environment, generate economic growth, and safeguard endogenous customs and traditions (Calderón-Vargas et al. 2019). To this end, the Peruvian state has been supporting programs that encourage members of different local communities to establish their own businesses. As of 2017, this includes the "Turismo Emprende" program, an initiative of the Ministry of Foreign Trade and Tourism to promote the economic reactivation and reconversion of micro and small businesses (Mypes). The goal is for these businesses to promote the tourism sector by providing accommodation, food, tourist operations, travel agencies, and crafts, while improving and strengthening local businesses to enable them to adapt to current market needs. In 2020, a non-refundable 4,500,000 USD was allocated to rejuvenate the country's tourism businesses (MINCETUR 2021). Another program is the Inter-American Institute for Cooperation on Agriculture (IICA), which supports small renewable energy ventures in rural areas of Peru. To date, 35,000 homes and 191 institutions have benefited from the IICA's efforts to reduce rural poverty (El Peruano 2019). The MINEM plans to continue supporting projects that promote sustainable development through renewable energy (MINEM 2021). Finally, ENGIE "Energía Perú", one of the country's largest electricity generation and infrastructure companies, seeks to strengthen the technical and infrastructure capacities of small local entrepreneurs. These entrepreneurs are encouraged to implement proper business management practices for insertion into commercialization chains or to start their own enterprises and thus improve the standard of living and income of families (ENGIE 2021).

An evaluation of renewable energy potential was carried out, specifically of solar and wind, in the vicinity of La Florida, located in the province of Huaral, department of Lima (−11.308177, −76.795476). Energy demand was calculated for a total of 10 lodging houses, each containing five basic bedrooms with a maximum capacity of two people (these calculations reflect the total annual proportion of visitors to the study location). The energy demand for each basic lodging house was evaluated first, followed by the average energy contributions in kWh/month for each type of renewable energy source and the engineering design necessary to respond to demand (photovoltaic panels and wind turbines). Finally, in light of the sustainable project profile, a calculation was made of equivalent savings in CO_2 emission, equivalence in trees planted per hectare, and economic savings (based on local electricity cost per kWh), both for solar (photovoltaic panels) and wind power (wind turbines).

Table 5 shows values for average daily solar photovoltaic electric potential (PSEP) based on the electric production of a solar photovoltaic (PV) plant of 1 kWp (generation capacity of a solar panel) as evaluated with two types of software (EnAir and Solargis). For this purpose, precise coordinate values were used for the study location. Averaging the figures provided by the two programs yielded a solar electric potential of around 4.40 kWh/day, which is within the desired range.

Table 5. Solar radiation intensity in La Florida.

Source	Photovoltaic Solar Electric Potential (kWh/Day)
EnAir	3.8
Solargis	5.012
Average	4.406

Source: Data from EnAir and Solargis simulators.

Because the town of La Florida is located within a rugged and mountainous geographical context, it has good conditions in terms of average hours of sunshine per day (9 h), from roughly 8:00 to 17:00, with the highest intensity being from May to September. Figure 2 presents the relevant values in a heat map, with red representing the maximum values reached and light blue the minimums.

(a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
0-1												
1-2												
2-3												
3 - 4												
4 - 5												
5-6												
6 - 7												
7 - 8	249	106							167	464	589	349
8 - 9	568	480	505	658	389	201	202	585	741	718	698	554
9 - 10	560	487	510	684	818	845	850	858	821	762	725	567
10 - 11	496	420	431	626	836	889	901	906	855	755	702	515
11 - 12	400	315	308	492	799	902	919	917	844	714	677	445
12 - 13	339	231	191	381	748	889	913	909	807	642	589	362
13 - 14	187	123	110	285	681	857	891	876	748	542	497	229
14 - 15	117	68	61	211	615	812	853	819	657	443	403	168
15 - 16	88	55	54	182	540	736	785	748	563	361	328	132
16 - 17	84	56	68	175	455	618	666	630	441	297	276	117
17 - 18	75	80	85	106	146	193	287	337	224	110	111	61
18 - 19			7									
19 - 20												

(b)

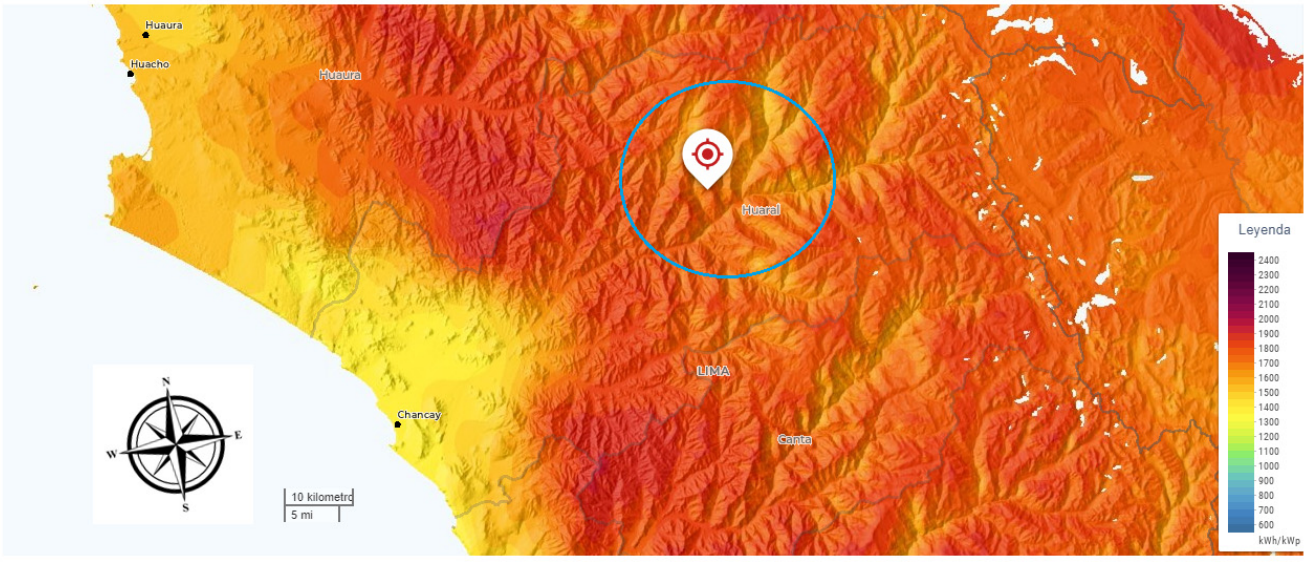

Figure 2. (**a**) Average hourly profiles of direct normal solar irradiation (Wh/m^2), (**b**) Solar resource map at the study site. The circumference shows the location of the La Florida community. Source: SOLARGIS.

Table 6 presents detailed values for solar irradiation characteristics, which are necessary for determining the engineering design of photovoltaic electrical systems. The units, kWh/m^2, represent values of energy and time specifically related to electricity generation

by a 1 kWp photovoltaic system. Note the similar values for direct and inclined normal solar irradiance, typical of altitudinal sectors that do not impose limits on the configuration of photovoltaic (PV) systems.

Table 6. Characteristics of solar irradiance.

Solar Potential and Air Temperature: Annual Average	
Global horizontal irradiation	5.556 kWh/m^2
Direct normal irradiation	5.012 kWh/m^2
Diffuse horizontal irradiation	1.881 kWh/m^2
Slanted global irradiation	5.754 kWh/m^2
Air temperature	18.3 °C

Source: Solargis.

As for wind potential, the geomorphological characteristics of the area are a main factor supporting the use of this type of energy. Table 7 provides figures for the wind potential of La Florida, assuming the introduction of a basic wind generation system (wind turbine) with an energy production of 200 kWh/day. Such a design would meet the basic energy demands of, e.g., a lodging house, given an operating range based on wind speeds of 8–11 m/s.

Table 7. Average wind potential in La Florida.

Wind Potential	
Wind energy	4.2 kWh/day
Average output potential	180 W
Annual energy	1522 kWh
Average monthly energy	127 kWh
Average wind speed	1.2 m/s

Source: EnAir.

The characteristics of the wind turbine system are based on the energy generated (described above). A wind turbine with three blades would require a diameter of 9.8 m, with a lateral length for the blade system and generator of 2.3 m, a total mass of 1000 kg, and an active regulation system by vane (aerodynamic orientation). A three-phase generator configuration is needed: 500 V direct transmission, nominal speed of rotation 120 rpm, and inverter.

Table 4 set out the basic energy demand (kWh) and design of a lodging house with five bedrooms and capacity for a maximum of 10 people. The total energy demand is 186.2 kWh, with an equivalent cost of 40.51 USD.

Based on these results, the use of a single PV system generates 114 kWh/month, while a wind turbine system produces 126 kWh/month, yielding an available total of 240 kWh/month. This exceeds the necessary demand per home (186.2 kWh/month) (Table 8).

Figure 3 displays the monthly variation in energy contributions for each system installed in a lodging house. Note the greater degree of contribution of PV systems. When designing a hybrid system (solar—wind), it is necessary to adapt to meet energy demands. While an alternate scenario might consider a purely PV system, for a period of five months the solar irradiation is inadequate (Figure 3); therefore, a hybrid design is suggested.

As discussed, the application of systems that meet energy demand through renewable sources can also help contribute to sustainability. Thus, Figure 4 displays a directly proportional relationship between the number of houses with such systems installed and sustainability measures such as reductions in CO_2 emission, equivalence in trees planted per hectare, and annual economic savings (in USD). Figure 4a treats wind turbine systems while Figure 4b is for the PV systems.

Table 8. Basic demand and monthly cost per lodging house in La Florida.

No. Elements	Artifacts	Power (W)	Monthly Use (Hours)	Consumption/Month (kWh)	Monthly Cost (USD)
5	TV	575	60	34.5	6.21
10	LED lighting	150	150	22.5	4.05
1	Computer	300	40	12	8.52
1	Inverter refrigerator	70	720	50	9
1	Microwave	1100	60	66	11.88
1	Inverter washing machine	30	40	1.2	0.852
Total				186.2	40.512

Source: Adaptation of data from the Ministry of Energy and Mines—Peru.

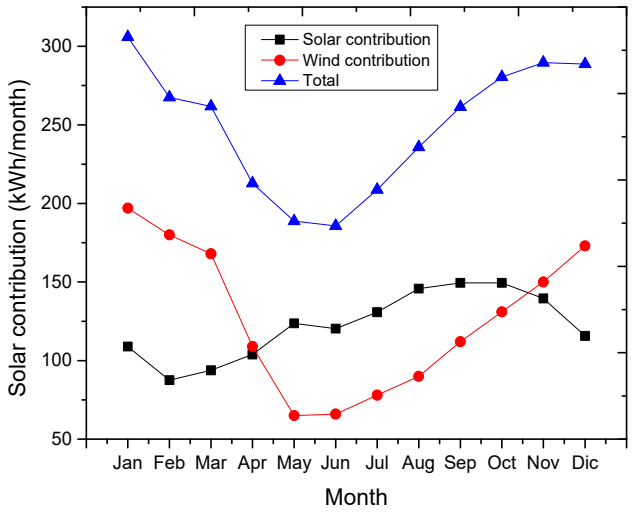

Figure 3. Monthly contributions of solar, wind, and total energy available in La Florida. Source: adapted from EnAir and Solargis data.

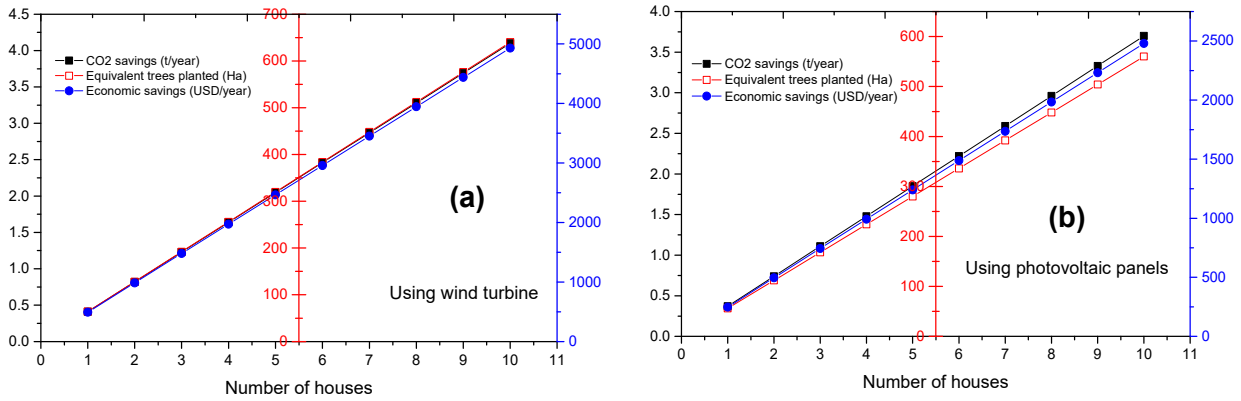

Figure 4. Contribution to reduction in CO_2 emissions, equivalence in trees planted/ha, and economic savings/year based on the number of houses (**a**) with a wind turbine system and (**b**) with a photovoltaic (PV) system. Source: Authors' calculations, based on data from EnAir and Solargis.

5. Conclusions

Tourism was identified as a main focus for economic activity in La Florida, with more than 32% of the population employed primarily in this field. Moreover, the degree of

influence between sustainable tourism and local development was found to be at a medium level. Thus, as tourist activities develop gradually, they contribute to improving the quality of life of locals, providing better job opportunities and entrepreneurship, and generating an economic boost. Nonetheless, it was noted that existing development is premature, since it is evident that income from tourism is below the average, with 12% of inhabitants not generating an income greater than 150 USD per month.

Environmentally, the inhabitants were found to exhibit a positive awareness of the issue, since they have been undertaking activities to conserve their natural environment. The influence of professionals is needed, however, to help direct the community toward sustainability and to take advantage of natural sources of renewable energy. This might support the creation of sustainable accommodations, which would in turn increase the likelihood of tourists staying longer than one day. This would result in an increase in income to the inhabitants.

The evaluation of local renewable energy potential revealed the existence of sufficient solar and wind energy for the generation of electricity through the use of photovoltaic systems and wind generators. It would easily be possible to meet the energy demands of a house-lodging in the study site, thus consolidating an alliance between tourism and the sustainable use of clean energy sources. This in turn has implications in reducing the fixed and variable costs associated with energy supply.

It is worth mentioning that this research faces some limitations. Care must be taken when comparing our results with studies of other countries whose populations' standards of living, national legislation, geographical conditions, etc. may differ. Moreover, the carbon footprint linked to tourist activity in the study location is unknown. However, this work is presented in hopes of stimulating further research elsewhere to validate the tourism—renewable energy binomial and thus to motivate the practice of sustainable tourism in rural communities.

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Article

The Application of a Two-Stage Decision Model to Analyze Tourist Behavior in Accommodation

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Abstract: As tourism products are not necessities for people's livelihood, zero consumption data are usually observed while conducting studies on topics that are relevant to tourism expenditure using cross-sectional research data, and a similar problem exists in tourist accommodation expenditure. This study adopts a two-stage process to examine the factors influencing tourist accommodation decisions in the domestic market, applying the dependent double-hurdle (DDH) model while using the dataset on Survey of Travel by R.O.C. (Taiwan) Citizens for the years 2014–2018. The findings reveal that, in the two decision-making equations, the social stratum, family life cycle, residential area, tourism behavior, vacation policy, and economic variables have different degrees and directions of influence on the intention to use and expenditure on tourist accommodation. Such information presents the processes involved in deciding to accommodate and how much to spend on accommodation, thereby indicating that it is inappropriate to use the single-equation analysis consisting of zero consumption expenditure data and to assume that the same variables influence the participation and consumption decisions.

Keywords: two-stage decision model; zero expenditure; dependent double-hurdle model; demand for accommodation

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1. Introduction

Tourism is a major force in global trade that plays a vital role in the social, cultural, and economic development of most nations (Smith 1995). According to statistics compiled by the World Travel and Tourism Council, in 2019, the scale of the global tourism industry reached USD 8.9 trillion, with a contribution rate of 10.3% to the world's gross domestic product. At the same time, the industry employed 330 million people worldwide, accounting for approximately 10% of global employment. A country's tourism market generally consists of two markets with different customer sources, namely, inbound and domestic tourism. The domestic tourism market gradually expands with economic growth, increases in residents' income, and adjustments to vacation arrangements. According to the World Tourism Organization, the scale of the domestic tourism market is 10 times that of the international market (Page et al. 2001). Therefore, domestic tourism contributes significantly to a country's tourism revenue.

If one considers the example of Taiwan, in 2019 the number of inbound tourists reached 11.86 million, of which 90% were from within Asia, and the tourism revenue amounted to USD 14.411 billion (Tourism Bureau, Ministry of Transportation and Communications 2020). There were 169 million domestic travelers, 14.24 times the number of inbound tourists, although the tourism revenue was USD 12.698 billion, or 88 percent of that for the inbound tourism market. The key reason for the substantial disparity in the number of tourists despite identical revenue levels was the differences in tourist behavior between the two tourism markets. The average length of stay of inbound tourists was 6.20 nights, whereas that of domestic tourism was mainly 1.51 days, with 66% choosing to return the same day without staying in accommodation facilities. The low level of demand for accommodation

was the main reason why the performance of domestic tourism failed to surpass that of inbound tourism. Therefore, understanding the factors influencing the demand for accommodation on the part of domestic tourists in order to increase the duration of stay is an important topic when it comes to expanding the domestic tourism market.

When establishing an econometric model to discuss the factors influencing the demand of domestic tourists for accommodation, the first issue is to deal with a large influx of tourists who do not spend any money on accommodation. The traditional least squares method assumes that dependent variables have continuity and can be measured. If this approach is used to estimate model parameters when observed values are constrained by censored data, it may result in such parameters being biased and inconsistent (Maddala 1983; Judge et al. 1988). As tourism is not necessary for livelihood, the phenomenon of zero expenditure widely exists in research on tourism spending (Dardis et al. 1994; Hong et al. 1996; Cai 1999; Lee 2001; Zheng and Zhang 2013; Weagley and Huh 2004; Nicolau and Màs 2005; Jang and Ham 2009; Alegre et al. 2013; Bernini and Cracolici 2015; Sun et al. 2015). This fact makes the choice of appropriate econometric techniques crucial for the consistency of the empirical results (Maddala 1983; Amemiya 1984). With regards to zero expenditure in tourism, the models commonly used by scholars include the double-hurdle (DH) model (Cragg 1971) and the Heckit model (Heckman 1979). Unlike traditional economic models that consider the purchase and consumption decisions of consumers to occur simultaneously, these two models divide consumer behavior into two decision-making processes, i.e., whether to buy and how much to buy—also referred to as the two-stage decision model. According to the two-stage decision model that is in line with the theory of consumer behavior, consumers will collect information before purchasing products and will use that information as a reference to decide whether or not to buy, and then decide how much to spend once they have made their purchase decision.

Past studies on tourism expenditure reveal that a few of the discussions focus on the demand for tourist accommodation, for example, Hong et al. (1996) and Cai (1999). However, while both studies have adopted the Tobit model that considers zero expenditure as no consumption (Su and Yen 1996), they neglect the fact that no consumption may be the result of a lack of willingness to participate. Thus, using the Tobit model to analyze tourist accommodation expenditure may have certain limitations, resulting in an inability to grasp different influencing factors between the intention to make use of and the decision to actually spend money on tourist accommodation. More recently, a few studies have discussed this issue by using a different approach. For example, Masiero et al. (2015) utilized a quantile regression model to analyze the relationship between key travel characteristics and the price paid to book the accommodation. Ismail et al. (2021) adopt a two-step Chi-square automatic interaction detection (CHAID) procedure to segment spending on accommodation for visitors according to demographic, trip-related, and psychographic factors.

Accommodation is a major component of tourist expenditure (Laesser and Crouch 2006). However, in the case of domestic tourism, accommodation may not be made use of by everyone, i.e., not all individuals participate in this expenditure activity, thus reporting values of expenditure equal to zero. Therefore, the analytical tool should be adequate to account for a large proportion of observations with a value of accommodation expenditure equal to zero. This study considers a data-oriented approach, employs the nonnested test method and selects an appropriate two-stage decision model to discuss the factors influencing the consumer behavior of domestic tourists in regard to accommodation. By estimating the double-hurdle model, the effects of the associated determinants on the intention to use tourist accommodation and expenditure decisions can be identified. Furthermore, despite numerous empirical studies that examine the determinant factors of total tourism expenses, a particular determinant factor may have varying impacts on a specific expenditure type. The research results may help to improve the economic benefits of the domestic tourism market and serve as valuable reference for relevant businesses in developing marketing strategies.

2. Literature Review

2.1. Studies on Tourism Expenditure Using the Tobit Model

In past empirical studies, the Tobit model was the first model to be applied (Tobin 1958) to discuss the phenomenon of zero expenditure. Hong et al. (1996) used consumer expenditure survey data for the United States in 1990 and adopted the Tobit model to discuss the factors influencing accommodation expenditure in relation to family trips. Cai (1999) used consumer expenditure survey data for the United States in 1993 and investigated 3176 households while adopting the Tobit model to discuss the relationship between family characteristics and accommodation expenditure in leisure tourism. In the Tobit model, zero expenditure represents a true corner solution, whereas other possible factors causing zero expenditure are ignored. Other studies on tourism expenditure using the Tobit model include those by Dardis et al. (1994), Lee (2001), and Zheng and Zhang (2013).

2.2. Studies on Tourism Expenditure Using the DH Model and the Heckit Model

A few researchers have also employed the DH model or the Heckit model in studies on tourism expenditure. Weagley and Huh (2004) used the DH model to discuss the factors influencing the leisure expenditures of retired and near-retired households in the United States. Nicolau and Màs (2005) decomposed the tourist choice process into two stages using the Heckit model, namely, taking a holiday and holiday expenditure. They found that the expenditure decision is correlated with that of taking a holiday. Jang and Ham (2009) used the Consumer Expenditure Survey (CES) and performed Heckman's DH analysis to provide information on the two-step process for making travel consumption decisions. Alegre et al. (2013) examined Spanish household tourism participation and expenditure decisions by adopting a Heckit model. By means of the hurdle model, Bernini and Cracolici (2015) analyzed two stages of the tourist decision process: whether or not to participate in the domestic and overseas tourism markets in Italy and how much to spend. The DH model has also been applied in relation to expenditure on dining out (Jang et al. 2007).

2.3. Studies on Tourism Expenditure Using Other Models

In recent years, in order to better understand tourists' expenditure behavior, some researchers have employed new modeling frameworks to perform in-depth analyses. D'Urso et al. (2020) propose the fuzzy double-hurdle model, which combines the double-hurdle model with fuzzy set theory to take into account the effect of satisfaction on tourists' expenditure behavior. The new model allows the researchers to handle the imprecision of both collected information (i.e., levels of satisfaction) and the kind of measurement used (i.e., a Likert-type scale). Pellegrini et al. (2021) investigated tourists' expenditure behavior by implementing a framework that jointly adopts the stochastic frontier (SF) regression and multiple discrete–continuous extreme value (MDCEV) models. This framework allows the researchers to not only identify the maximum level of spending that the individual is willing to incur but also to assess two interrelated decisions: whether to allocate a budget for a specific expenditure category as well as the amount to be spent on that chosen category. Besides, a conditional quantile regression model has been applied in identifying leisure tourism expenditure patterns (e.g., Alfarhan et al. 2022).

In addition, other explanatory factors that may influence tourists' decision-making have been considered using various analytical techniques. Park et al. (2020) applies different estimation procedures, namely, ordinary least squares (OLS), two-stage least squares (2SLS), the Heckit model, and quantile regression (QR) to perform an analysis of the determinant factors in relation to total expenses. The role of information sources in predicting travel spending behaviors represents new possibilities for analyzing the determinants of expenditure by using QR. Chulaphan and Barahona (2021) investigated the determinants of tourist expenditure per capita in Thailand by utilizing an autoregressive distributed lag model (ARDL) and using panel-estimated generalized least square (EGLS). Such knowledge is essential for tourist authorities to develop profitable and sustainable

tourism projects in destinations whose natural resources have been affected by profit-seeking tourism.

2.4. Proposed Research Framework

According to the two-stage decision model, the decision on the intention to use tourist accommodation and that of accommodation expenditure constitute the consumer behavior of tourist accommodation. Based on a summary of the previous literature on tourism expenditure (e.g., Dardis et al. 1981, 1994; Cai 1999; Nicolau and Màs 2005; Sun et al. 2015) and by considering the implementation of vacation policy, the variables influencing the intention to use and actual expenditure on tourist accommodation can be classified into six categories, namely, the economic factor, social stratum, geographical location, family life cycle, tourism behavior, and vacation policy. In this study, it is assumed that the economic factor influences the expenditure on tourist accommodation but does not influence the intention to use accommodation. This is mainly because if the same explanatory variable is included in the two sets of decision equations, it may be impossible to correctly identify the model's parameters (Newman et al. 2001). Therefore, it is necessary to add certain exclusion restrictions (Jones 1992; Newman et al. 2001; Aristei et al. 2008) to facilitate the estimation of the parameters in the model equations. In terms of the empirical application, it is usually assumed that the participation equation is a function of noneconomic factors; thus, the economic factor can be excluded from this equation (Newman et al. 2001; Aristei et al. 2008). The research framework of this study is presented in Figure 1. The research hypotheses are presented as follows.

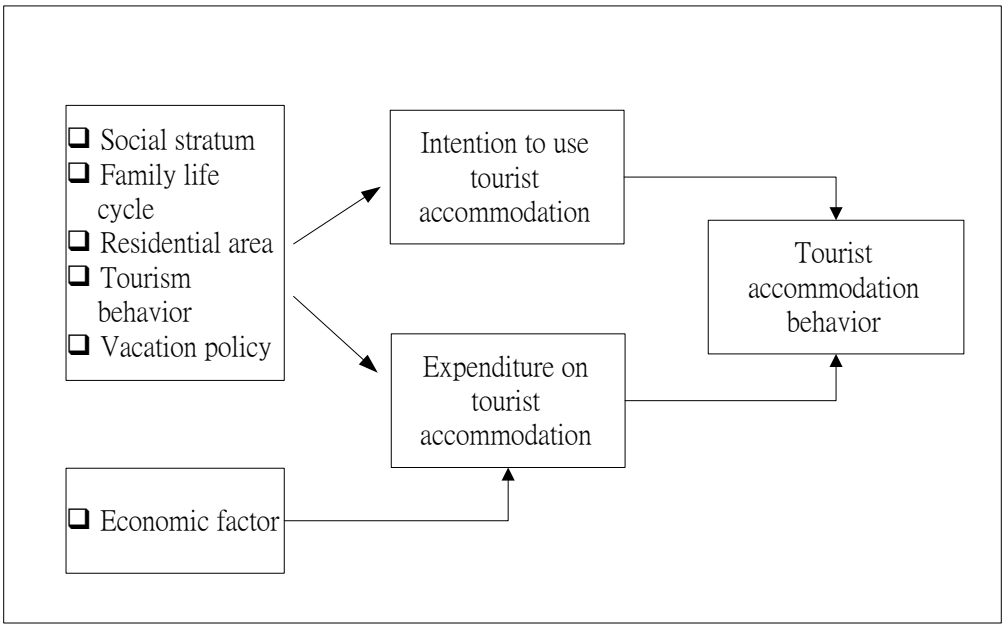

Figure 1. The research framework for the two-stage decision model of the intention to use and consumption expenditure on tourist accommodation.

2.4.1. Participation Decision

According to Nicolau and Màs (2005), Jang and Ham (2009), Alegre et al. (2013), and Bernini and Cracolici (2015), there is a positive link between the tourism participation decision and an individual's education level. Indeed, higher educational levels may provide training and preparation for some types of recreational activities (Dardis et al. 1981) and also easier access to information and knowledge (Cai 1998). Such information and knowledge are likely to increase the desire to discover new destinations and enjoy new experiences (Bernini and Cracolici 2015). Furthermore, individuals with a high level of education are more likely to reach adequate job positions and a higher level of income, which could be spent on non-basic needs like tourism. Occupation status was found to be a significant

social discriminating factor in tourism participation (Bernini and Cracolici 2015). Thus, we propose the following hypothesis:

Hypothesis H1a. *The social stratum has a significant impact on the intention to use tourist accommodation.*

In Jang and Ham's (2009) study, the variables of age and marital status were found to be significant for the travel decisions of elderly seniors. The research findings of Alegre et al. (2013) indicated that a positive effect was detected for tourism participation in the case of the presence of children in the household. Bernini and Cracolici (2015) found that the tourism participation decision was affected by cohort effects: the oldest cohorts were more inclined to participate in tourism than the youngest ones. The empirical results of Sun et al. (2015) indicated that the family travel intention varies at different stages of the household life cycle. Therefore, we hypothesize the following:

Hypothesis H1b. *The family life cycle has a significant impact on the intention to use tourist accommodation.*

By referring to Cai (1998), Nicolau and Màs (2005), Jang and Ham's (2009), and Bernini and Cracolici (2015), the empirical analysis has emphasized the role of population location and consequently the attributes of the tourists' region of residence. These studies have found that geographical variables are significant to the tourism participation decision. In a wider sense, the residential area takes in both territorial differences in tourism resources and socio-economic differences among residents' living conditions. Therefore:

Hypothesis H1c. *The residential area has a significant impact on the intention to use tourist accommodation.*

Four variables have been selected to represent tourism behavior, including days of the trip, travel season, travel date, and favorite activity during the trip. Li et al. (2021) revealed that tourists' behaviors in selecting travel seasons and the associated trip duration were influenced by a few factors and the correlation between these two tourism decisions was conditional upon the covariates. Dellaert et al. (1998) argued that tourists may be restricted by school holidays when choosing the period in which to travel. Indeed, time factors, including time convenience, were the most often cited reasons for not participating in recreational tourism (McGuire 1984). The finding of Wu et al. (2011) indicated that time constraints reduced the number of long trips, the number of short trips, and, to a greater extent, travel intention.

Tourists expect to recover more completely during a vacation by removing themselves from daily settings and actively engaging in various restful activities. Laybourn (2004) stated that the decision-making of festival participants may be associated with personal factors, such as lifestyle. Nicolau and Màs (2005) concluded that a greater propensity to go on holiday was associated with a favorable opinion of going on holiday. Both lifestyle and tourists' favorable opinions may reflect on their engagement in a certain activity which implies the benefits they seek (Moscardo et al. 1996). Those who seek more benefits from leisure and recreational activities may tend to lay emphasis on the high quality of travel and the use of accommodation. Thus, we hypothesize the following:

Hypothesis H1d. *Tourism behavior has a significant impact on the intention to use tourist accommodation.*

A vacation has been regarded as a basic human right which involves time off from work by the United Nations since 1948 and by the World Tourism Organization since 1980. In China, a vacation has been recognized as a form of human welfare (Chen et al. 2013). Vacation policies reflect the economic prosperity of a nation and have been classified into three categories: regulations regarding public holidays, regulations regarding weekly working hours, and regulations regarding paid holidays (Richards 1999). According to Chen et al. (2013), Chinese people legally have over 115 days off from work each year,

including 104 days of weekends and 11 days of vacation; in addition, employees enjoy 5 to 15 days of paid annual leave.

In Taiwan, the vacation policy changed from the original "labor has one fixed day off weekly" to "one fixed day off and one flexible rest day" in 2017. A fixed day off is compulsory to cap the number of consecutive workdays for the protection of employees' physical and mental health. A cycle of 7 days shall contain at least 1 fixed day off, and employees are not allowed to work more than 6 consecutive days unless otherwise specified. The finding of Zhang et al. (2016) indicates that the vacation policy changes adopted in China in 2007 have had a significant effect in changing the domestic tourism demand. When Taiwan has adopted a new vacation policy, it is possible that there may be a causal link between the demand for domestic tourism and the vacation policy attributes. Thus:

Hypothesis H1e. *The vacation policy has a significant impact on the intention to use tourist accommodation.*

2.4.2. Consumption Decision

Apart from the effects that the variables have on the decision to participate in tourism, Nicolau and Màs (2005), Jang and Ham (2009), and Alegre et al. (2013) have found evidence of a positive relationship between higher educational levels and greater tourism expenditures. As a matter of fact, those with higher levels of education are more likely to have the chance to obtain a good job and to provide their family with the opportunities to expend more money on tourism. Thus, we propose the following hypothesis:

Hypothesis H2a. *The social stratum has a significant impact on the expenditure on tourist accommodation.*

In the study by Nicolau and Màs (2005), the variables of age and marital status were found to have an effect on the level of tourism expenditure. The empirical study by Alegre et al. (2013) showed that the presence of children in the household had a positive effect on tourism demand, thereby increasing the household's tourism expenditure. Therefore, we hypothesize the following:

Hypothesis H2b. *The family life cycle has a significant impact on the expenditure on tourist accommodation.*

The geographical location of the household is an important factor influencing tourism expenditure (Dardis et al. 1981; Hong et al. 1996; Cai 1999; Zheng and Zhang 2013). Nicolau and Màs (2005) found that a long distance between the origin and destination leads to long holidays and, in turn, to higher expenditure. It also tends to result in money being spent on accommodation. Thus, we propose the following hypothesis:

Hypothesis H2c. *The residential area has a significant impact on the expenditure on tourist accommodation.*

Travel characteristics play a significant role in determining expenditure, such as the number of nights away (Jang et al. 2004). Among the variables related to tourism behavior, the days of the trip and the travel date are associated with trip duration, which is based on the condition of the initial decision of whether to take a trip or not. The engagement of activities may be related to how much time is spent on recreation and location (Lee 2001). These also influence itinerary planning and accommodation arrangements. Thus, we hypothesize the following:

Hypothesis H2d. *Tourism behavior has a significant impact on the expenditure on tourist accommodation.*

With regard to the vacation policy/tourism expenditure relationship, it is logical to assume that, once the initial decision to travel has been taken; individuals or families spend more on tourism expenditure, given that the related services required are greater

(Zhang et al. 2016). Likewise, the need for accommodation and related services may contribute to more expenditure. Thus,

Hypothesis H2e. *The vacation policy has a significant impact on the expenditure on tourist accommodation.*

In line with past studies (e.g., Nicolau and Màs 2005; Alegre et al. 2013), income influences tourism consumption patterns. A positive relationship between income and tourism expenditure has been identified. Thus, the hypothesis is as follows:

Hypothesis H2f. *The economic factor has a significant impact on the expenditure on tourist accommodation.*

3. Methodology

3.1. Two-Stage Decision Model

The two-stage decision model is comprised of limited dependent variable models of the participation decision and consumption decision, primarily the DH model (Cragg 1971) and the Heckit model (Heckman 1979). Cragg (1971) recognized that zero expenditure may be caused by consumers choosing not to participate in the decision-making stage or choosing to participate in the first stage, but not actually spending due to certain factors when it comes to the consumption decision. In other words, the observed values for zero expenditure in the DH model not only exist in the participation decision stage but also in the consumption decision stage. According to Heckman (1979), zero spending occurs predominantly during the participation stage, with positive consumption expenditure occurring once consumers make a purchase decision.

3.1.1. DH Model

The idea behind the DH model is that a consumer has to overcome two hurdles before recording a positive expenditure. These two hurdles are: (1) the participation market (potential consumers), and (2) actual consumption (Angulo et al. 2001). A complete DH model consists of the participation and consumption decisions, with equations set as follows (Jones 1989; Aristei et al. 2008):

Observed consumption:

$$Y_i = D_i * Y_i^{**} \tag{1}$$

Participation decision:

$$\begin{gathered} D_i^* = Z_i\alpha + \mu_i\,,\ \mu_i \sim N(0,1) D_i = 1\ if\ D_i^* > 0 \\ D_i = 0\ ,\ else \end{gathered} \tag{2}$$

In Equation (2), a value of D_i^* larger than 0 and a value of D_i of 1 indicates that consumers decide to participate in the consumption. A value of D_i^* equal to or less than 0 and a value of D_i of 0 indicates that consumers will decide not to participate in the consumption. Z_i is a variable influencing the participation decision.

Consumption decision:

$$\begin{gathered} Y_i^* = X_i\beta + v_i\,,\ v_i \sim N\left(0,\sigma^2\right) \\ Y_i^{**} = Y_i^*\ if\ Y_i^* > 0 \\ Y_i^{**} = 0,\ else \end{gathered} \tag{3}$$

In Equation (3), Y_i^* is the latent consumption variable and X_i is the variable influencing consumption expenditure. It can be clearly observed from Equations (2) and (3) that zero expenditure can appear in the participation decision stage when consumers choose not to participate or else choose to participate but do not have actual consumption expenditure.

Assuming that the error terms of the participation decision and consumption decision equations are mutually independent, the log-likelihood function of the independent DH model can be expressed as follows (Moffatt 2005; Aristei et al. 2008):

$$lnL = \sum_{0} ln\left[1 - \Phi(Z_i\alpha)\Phi\left(\frac{X_i\beta}{\sigma}\right)\right] + \sum_{+} ln\left[\Phi(Z_i\alpha)\frac{1}{\sigma}\phi\left(\frac{Y_i - X_i\beta}{\sigma}\right)\right] \quad (4)$$

In Equation (4), $\Phi(.)$ is the cumulative distribution function, $\phi(.)$ is the standard normal density function, 0 means zero consumption, and + means that the consumption value is positive.

Assuming that the error terms of the participation and consumption decision equations are correlated and that simultaneous participation and consumption decisions are possible, the bivariate normal distribution of the error terms of the two equations of the DDH model is as follows:

$$\begin{pmatrix} \mu_i \\ v_i \end{pmatrix} \sim \left[\begin{pmatrix} 0 \\ 0 \end{pmatrix}, \begin{pmatrix} 1 & \rho\sigma \\ \rho\sigma & \sigma^2 \end{pmatrix}\right] \quad (5)$$

In Equation (5), ρ is the degree of correlation between the error terms of the participation and consumption decision equations. After adding the correlation coefficient, the log-likelihood function of the DDH model is as follows (Jones 1992):

$$lnL = \sum_{0} ln\left[1 - \Phi\left(Z_i\alpha, \frac{X_i\beta}{\sigma}, \rho\right)\right] + \sum_{+} ln\left[\Phi\left(\frac{Z_i\alpha + \frac{\rho}{\sigma}(Y_i - X_i\beta)}{\sqrt{1-\rho^2}}\right)\frac{1}{\sigma}\phi\left(\frac{Y_i - X_i\beta}{\sigma}\right)\right] \quad (6)$$

The data distribution of limited dependent variables often reveals a significant positive skew, which is therefore unable to fulfill the hypothesis of a normal distribution of error terms. Therefore, if the maximum likelihood method is used to estimate the model, it is not possible to maintain parameter consistency. Through the inverse hyperbolic sine (IHS), dependent variables can generate consistent parameter estimates for model estimation (Newman et al. 2001). The IHS conversion function is as follows:

$$T(\theta Y_i) = log\left[\theta Y_i + \left(\theta^2 Y_i^2\right)^{1/2}\right]/\theta = sinh^{-1}(\theta Y_i)/\theta \quad (7)$$

After the dependent variables are converted through the IHS, the log-likelihood function of the DH model can be expressed as follows:

$$\begin{aligned} lnL = \sum_{0} ln\left[1 - \Phi(Z_i\alpha)\Phi\left(\tfrac{X_i\beta}{\sigma}\right)\right] + \\ \sum_{+} ln\left[\left(1 + \theta^2 Y_i^2\right)^{-\frac{1}{2}}\Phi(Z_i\alpha)\tfrac{1}{\sigma}\phi\left(\tfrac{[T(\theta_i Y_i) - X_i\beta]}{\sigma}\right)\right] \end{aligned} \quad (8)$$

When using the DH model, different explanatory variables can be chosen for the participation and consumption decision equations (Jones and Yen 2000; Martínez-Espineira 2006). Early studies that applied the DH model were on cigarette and tobacco expenditures (Jones 1989, 1992; Garcia and Labeaga 1996; Aristei and Pieroni 2008) and alcoholic beverage expenditures (Angulo et al. 2001). Over the past few years, the model has been applied in a variety of fields, such as expenditure on cumulative loans (Moffatt 2005), meat products (Jones and Yen 2000; Newman et al. 2001), and nonmarket financial evaluation (Clinch and Murphy 2001; Martínez-Espineira 2006; Okoffo et al. 2016).

3.1.2. Heckit Model

Heckman (1979) proposed a two-step estimation method to resolve the problem of sample selection bias caused by using observable sample data. The two-step estimation method first uses the probit method to estimate the coefficients of all observed values and calculates the inverse Mills ratio (IMR). It has subsequently used the ordinary least squares method to estimate nonzero observed values, to include the IMR as an explanatory

variable, and to estimate the coefficients of the model. The Heckit model mainly comprises a selection equation and an outcome equation:

Selection equation:

$$d_i^* = z_i\alpha + \mu_i\,,\ u_i \sim N(0,1) \tag{9}$$

$$\begin{gathered} d_i = 1\ if\ d_i^* > 0 \\ d_i = 0,\ else \end{gathered} \tag{10}$$

In Equation (9), d_i^* is the latent variable, z_i is the explanatory variable influencing participation and consumption, and α is the corresponding coefficient. Equation (9) reflects the relationship between d_i^*, the latent variable of the selection mechanism, and d_i, the dichotomous dummy variable actually observed (Huang and Wang 2016).

Outcome equation:

$$y_i^* = x_i\beta + v_i\ ,\ v_i \sim N\left(0,\sigma^2\right) \tag{11}$$

$$y_i = y_i^*\ \ if\ \ d_i = 1 \tag{12}$$

In Equation (11), y_i^* is the latent consumption expenditure variable, y_i is the observed consumption expenditure variable, x_i is the variable influencing consumption expenditure, and β is the corresponding coefficient. The Heckit model assumes that the error terms (μ_i and v_i) of the selection equation and the outcome equation are correlated, with the degree of correlation being expressed by ρ. The normal distribution of the error terms of the two equations is represented in Equation (5).

Apart from the two-step estimation method, the Heckit model can also adopt the maximum likelihood method to estimate the parameters, and its log-likelihood function is as follows (Aristei et al. 2008; Wodjao 2007):

$$lnL = \sum_0 ln[1-\Phi(z_i\alpha)] + \sum_+ ln\left[\Phi\left(\frac{z_i\alpha + \frac{\rho}{\sigma}(y_i - x_i\beta}{\sqrt{1-\rho^2}}\right)\frac{1}{\sigma}\phi\left(\frac{y_i - x_i\beta}{\sigma}\right)\right] \tag{13}$$

3.2. Description of Data and Variables

This study employs domestic tourism data from the "Survey of Travel by R.O.C Citizens" conducted by the Tourism Bureau of the Ministry of Transportation and Communications of Taiwan from 2014 to 2018. The sample covers 60,817 individuals, with 26,085 having tourist accommodation and an average accommodation expenditure of NTD 1824. As for the dependent variables, the discrete nature of the decision "having accommodation" is represented as a dichotomous variable, in such a way that it takes a value of 1 if tourists have accommodation, and 0 if otherwise. This variable, related to accommodation expenditure, is found by a quantitative variable that represents the cost incurred during the accommodation. The six categories of explanatory variables are described as follows.

1. Economic factor: The individual's average monthly income. This variable is divided into six categories: no income, under NTD 30,000, NTD 30,001–50,000, NTD 50,001–70,000, NTD 70,001–100,000, and over NTD 100,001 (Table 1). The group with less than NTD 30,000 in average monthly income accounts for the largest proportion at 39.0%, followed by NTD 30,001–50,000 at 27.62%.

2. Social stratum: Education level and occupation. The education level is divided into five categories, namely, elementary (junior) high school and below, senior high (vocational) school, college, university, and postgraduate school or above, with the level of elementary (junior) high school and below as the benchmark for comparison. Among the five categories of education level, university accounts for the largest proportion at 31.38%. Occupation is divided into five categories as follows: white-collar worker, blue-collar worker, housewife, retiree, and others, with the blue-collar worker as the benchmark. Among the five categories of occupation, blue-collar workers account for the largest proportion at 45.33%.

3. Family life cycle: Includes variables, such as gender, traveling companions between the ages of 7 and 11, traveling companions between the ages of 0 and 6, marital status, and age. In terms of gender, females make up the majority, accounting for 56.67%. Marital status is divided into three categories, namely, unmarried, married, divorced/ separated, or widowed, among which the married group accounts for the largest proportion at 71.49%. Age is divided into seven categories, with 20–29 as the benchmark, and the 40–49 age group accounts for the largest proportion at 22.0%. The average number of children is 0.2 for the groups "traveling with children between the ages of 0 and 6" and "traveling with children between the ages of 7 and 11."

4. Residential area: This study classifies the residential area of respondents into five regions, namely, northern, central, southern, eastern, and other regions. Among them, the northern region accounts for the largest proportion at 43.45%, with other regions being used as the benchmark.

5. Tourism behavior: Includes the days of the trip, travel season, travel date, and favorite activity during the trip. The average days for domestic trips are 1.72 days. There are four travel seasons, and individuals primarily travel in the first season, which accounts for 27.5%. The travel date is divided into national holidays, workdays, weekends, and Sundays; most individuals travel during weekends and Sundays, which accounts for 54.25%. Favorite activities during the trip include sightseeing, cultural experience, sports, visiting amusement parks, tasting food and snacks, visiting family and friends, and others. Among them, sightseeing accounts for the largest proportion at 40.45% and visiting amusement parks accounts for the smallest proportion at 2.04%.

6. Vacation policy: The Taiwanese government has implemented a leave policy that enforces a five-day work week with "one fixed day off and one flexible rest day" since December 2016.

Table 1. Explanatory variables, measurement method, and statistical values of decision models for the intention to use and expenditure on tourist accommodation.

Variable	Description	Measurement Method		Statistical Value
	Economic Factor			
DSP	No income	1: Yes	0: No	13.40%
	Average monthly income under NTD 30,000	2: Yes	0: No	39.00%
	Average monthly income between NTD 30,001–50,000	3: Yes	0: No	27.62%
	Average monthly income between NTD 50,001–70,000	4: Yes	0: No	12.10%
	Average monthly income between NTD 70,001–100,000	5: Yes	0: No	4.41%
	Average monthly income over NTD 100,001	6: Yes	0: No	3.47%
	Social Stratum			
EDU1	Education level of elementary (junior) high school and below	Omitted variable		15.06%
EDU2	Education level of senior high (vocational) school	1: Yes	0: No	28.92%
EDU3	Education level of college	1: Yes	0: No	16.37%
EDU4	Education level of university	1: Yes	0: No	31.38%
EDU5	Education level postgraduate school or above	1: Yes	0: No	8.27%
OCU1	Occupation of white-collar worker	1: Yes	0: No	14.56%
OCU2	Occupation of blue-collar worker	1: Yes	0: No	45.33%
OCU3	Occupation of retiree	1: Yes	0: No	12.02%
OCU4	Occupation of housewife	1: Yes	0: No	17.94%
OCU5	Others	Omitted variable		10.14%

Table 1. *Cont.*

Variable	Description	Measurement Method	Statistical Value
		Family Life Cycle	
SEX	Gender	1: Male 0: female	43.33%
A11	The number of traveling companions between the ages of 7 and 11	The number of traveling companions between the ages of 7 and 11	0.20 people
A06	The number of traveling companions between the ages of 0 and 6	The number of traveling companions between the ages of 0 and 6	0.20 people
MAR1	Unmarried	1: Yes 0: No	23.67%
MAR2	Married	1: Yes 0: No	71.49%
MAR3	Divorced/separated or widowed	Omitted variable	4.84%
AGE1	12–19	1: Yes 0: No	5.93%
AGE2	20–29	Omitted variable	12.64%
AGE3	30–39	1: Yes 0: No	16.48%
AGE4	40–49	1: Yes 0: No	22.00%
AGE5	50–59	1: Yes 0: No	21.65%
AGE6	60–69	1: Yes 0: No	15.56%
AGE7	Over 70	1: Yes 0: No	5.74%
		Residential Area	
RN	Resides in the northern region	1: Yes 0: No	43.45%
RC	Resides in the central region	1: Yes 0: No	22.85%
RS	Resides in the southern region	1: Yes 0: No	27.99%
RE	Resides in the eastern region	Omitted variable	4.38%
RO	Resides in other regions	1: Yes 0: No	1.34%
		Tourism Behavior	
TDS	Days of the trip		1.72 days
SEA1	Travel season between January and March	1: Yes 0: No	27.50%
SEA2	Travel season between April and June	Omitted variable	24.29%
SEA3	Travel season between July and September	1: Yes 0: No	24.45%
SEA4	Travel season between October and December	1: Yes 0: No	23.76%
TD1	National holidays	1: The travel date is during national holidays 0: Others	14.30%
TD2	Weekends and Sunday	1: The travel date is during weekends and Sunday 0: Others	54.25%
TD3	Workdays	1: The travel date is national workdays 0: Others	31.45%
ACT1	Sightseeing	1: Sightseeing is the favorite activity during the trip 0: Others	40.45%
ACT2	Cultural experience	1: Cultural experience is the favorite activity during the trip 0: Others	11.75%
ACT3	Sports	1: Sports is the favorite activity during the trip 0: Others	3.10%
ACT4	Amusement park activities	1: Amusement park activities is the favorite activity during the trip 0: Others	2.04%
ACT5	Tasting food and snacks	1: Tasting food and snacks is the favorite activity during the trip 0: Others	12.87%
ACT6	Others	1: Other activities are the favorite activities during the trip 0: Others	14.16%
ACT7	Visiting family and friends	Omitted variable	15.62%

Table 1. *Cont.*

Variable	Description	Measurement Method	Statistical Value
	Vacation Policy		
HP	"One fixed day off and one flexible rest day" policy	1: Between 2017 and 2018 0: No	0.6

Source of data: Summarized by this study.

4. Results and Discussions

This study uses four two-stage decision models, namely, the Heckit model, DH model, DDH model, and IHS DH model. Moreover, it adopts the nonnested Vuong testing method to select models suitable for the demand for accommodation in domestic tourism. Vuong (1989) used the log-likelihood function value as the basis, applied simple conversion equations, and proposed modified likelihood ratio testing for the nonnested maximum likelihood estimation. This study uses *STATA* software to perform the maximum likelihood estimation for limited dependent variable models, namely, the Heckit model, DH model, DDH model, and IHS DH model. The final log-likelihood function values of various models are depicted in Table 2, and these figures are further tested via nonnested specification tests. In terms of the nonnested test for the Heckit model vs. the DH model, the Vuong value is 3.21 (Table 3), indicating that the Heckit model is significantly better than the DH model. In terms of the nonnested test for the Heckit model vs. the IHS DH model, the Vuong value is 24.18, indicating that the Heckit model is better than the IHS DH model. In terms of the nonnested test for the Heckit model vs. the DDH model, the Vuong value is −102.78, indicating that the DDH model is better than the Heckit model. It can be determined through a series of nonnested tests that the DDH model is significantly better than the Heckit model, DH model, and IHS DH model. Based on the above results of the specification tests, of the four limited dependent variable models, this study suggests that the DDH model is more appropriate for explaining the decision-making behaviors in relation to the intention to use and the expenditure on accommodation in domestic tourism.

Table 2. Maximum likelihood function values of various limited dependent variable models.

Model	Log-Likelihood Function Value
Heckit	−38,734.4
Double-Hurdle	−38,811.3
Dependent Double-Hurdle	−38,732.0
IHS Double-Hurdle	−38,744.6

Table 3. Specification tests.

Model	Test Type	Test Value
Heckit vs. Double-Hurdle	Vuong	3.21
Heckit vs. IHS Double-Hurdle	Vuong	24.18
Heckit vs. Dependent Double-Hurdle	Vuong	−102.76

4.1. Results of Participation Decision

Table 4 depicts the estimated coefficients of the DDH model with regard to the decisions on the intention to use and the expenditure on accommodation in domestic tourism. The Wald test (Table 5) and Table 4 reveal that the variables for the social stratum, family life cycle, tourism behavior, residential area, and vacation policy have a significant impact on people's intention to use accommodation in domestic tourism, supporting hypotheses H1a, H1b, H1c, H1d, and H1e.

Table 4. Estimated coefficients of the DDH model of the intention to use and expenditure decision on tourist accommodation.

Variable	Consumption Decision			Participation Decision		
	Coefficient	SD	z	Coefficient	SD	z
DSP	0.0369 **	0.0031	12.07			
SEX	−0.0537 **	0.0098	−5.50	0.0361 *	0.0145	2.50
EDU2	0.0199	0.0172	1.15	0.0878 **	0.0236	3.72
EDU3	0.0373	0.0191	1.95	0.1719 **	0.0266	6.47
EDU4	0.0617 **	0.0186	3.31	0.2220 **	0.0256	8.67
EDU5	0.1039 **	0.0227	4.58	0.2205 **	0.0327	6.74
OCU1	−0.0098	0.0266	−0.37	0.2620 **	0.0367	7.14
OCU2	−0.0110	0.0237	−0.46	0.1713 **	0.0330	5.19
OCU3	0.0721 *	0.0286	2.52	0.0957 *	0.0413	2.32
OCU4	0.0997 **	0.0263	3.79	0.0535	0.0379	1.41
A711	−0.1303 **	0.0081	−16.06	0.0957 **	0.0126	7.60
A06	−0.1060 **	0.0084	−12.55	0.0336 *	0.0132	2.55
MAR1	0.0407	0.0283	1.44	−0.0541	0.0407	−1.33
MAR2	0.0151	0.0232	0.65	0.0987 **	0.0329	3.00
TDS	0.3303 **	0.0090	36.50	0.9531 **	0.0075	127.66
HP	−0.0481 **	0.0090	−5.37	0.0974 **	0.0133	7.32
AGE1	0.0416	0.0303	1.37	0.0221	0.0428	0.52
AGE3	0.0705 **	0.0190	3.71	−0.0038	0.0283	−0.13
AGE4	0.0693 **	0.0200	3.46	−0.0021	0.0297	−0.07
AGE5	0.1662 **	0.0218	7.62	−0.0553	0.0319	−1.74
AGE6	0.2009 **	0.0246	8.17	−0.0483	0.0360	−1.34
AGE7	0.2515 **	0.0321	7.82	−0.1516 **	0.0464	−3.27
SEA1	0.0271 *	0.0128	2.12	−0.0889 **	0.0190	−4.68
SEA3	−0.0095	0.0123	−0.77	0.0623 **	0.0186	3.34
SEA4	−0.0101	0.0128	−0.79	0.0484 *	0.0188	2.58
RN	0.1056 **	0.0202	5.21	−0.0222	0.0315	−0.7
RW	0.0178	0.0213	0.84	0.0443	0.0330	1.34
RS	0.0030	0.0208	0.14	0.0543	0.0324	1.67
RO	0.1739 **	0.0446	3.90	−1.1776 **	0.0636	−18.52
TD1	0.0902 **	0.0149	6.03	−0.3690 **	0.0222	−16.6
TD3	0.0398 **	0.0099	4.03	0.0741 **	0.0151	4.91
ACT2	0.0578 **	0.0152	3.79	−0.3049 **	0.0215	−14.16
ACT3	0.0716 **	0.0194	3.69	0.2876 **	0.0354	8.13
ACT4	0.1740 **	0.0272	6.39	0.0416	0.0435	0.96
ACT5	0.0902 **	0.0143	6.32	−0.2617 **	0.0204	−12.8
ACT6	0.1717 **	0.0130	13.24	−0.1328 **	0.0193	−6.89
ACT7	0.2994 **	0.0244	12.27	−1.2333 **	0.0247	−49.93
Con	2.0239 **	0.0517	39.18	−1.5307 **	0.0647	−23.64
ρ	0.6057 **	0.0061	99.12			

Note: ** represents the null hypothesis with a significance level of 1% and a coefficient of 0, and * represents the null hypothesis with a significance level of 5% and a coefficient of 0.

Table 5. Wald test for the DDH model.

Variable	Participation Decision	Consumption Decision
Social stratum	$\chi^2_{(8)}$ = 236.27 **	$\chi^2_{(8)}$ = 101.18 **
Family life cycle	$\chi^2_{(11')}$ = 133.12 **	$\chi^2_{(11)}$ = 218.2 **
Residential area	$\chi^2_{(14)}$ = 17,162.87 **	$\chi^2_{(14)}$ = 3595.58 **
Tourism behavior	$\chi^2_{(4)}$ = 472.73 **	$\chi^2_{(4)}$ = 128.71 **

Note: ** represents the null hypothesis with a significance level of 1% and all coefficients of 0.

As regards to the individual variables, we first observed the impact of the variables for the social stratum on the intention to use tourist accommodation. There is a positive relationship between the education level and the intention to use tourist accommodation with the coefficients of the variables for the four education levels being significantly differ-

ent from 0, of which the group with a university level education (EDU4) has the highest intention to use tourist accommodation in domestic tourism, followed by the group with a postgraduate school or above education level (EDU5). As for the occupation variables, the occupation of students and unemployed (OCU5) is used as the benchmark, and the variable coefficients for white-collar workers (OCU1), blue-collar workers (OCU2), and retirees (OCU3) are significantly different from 0. Through observing the estimated coefficients of the occupation variables, the white-collar group has the highest intention to use tourist accommodation, followed by the blue-collar group, indicating that employed workers have a relatively high demand for vacation and tourism quality beyond their busy schedules, whereas the group of students and unemployed has the lowest intention to use tourist accommodation. The results related to education level and occupation variables are consistent with previous studies (Nicolau and Màs 2005; Jang and Ham 2009; Alegre et al. 2013; Bernini and Cracolici 2015).

With respect to the family life cycle, females have a significantly higher intention to use tourist accommodation compared to males. The numbers of traveling companions between the ages of 0 and 6 (A06) and 7 and 11 (A711) have a significant positive impact on the intention to use tourist accommodation. In terms of the marital status variables, the married group (MAR2) has the highest intention to use tourist accommodation with a significant estimated coefficient; the unmarried group (MAR1) has the lowest intention to use tourist accommodation with an insignificant estimated coefficient. In terms of the age variables, the 12–19 age group (AGE1) has the highest intention to use tourist accommodation and the over 70 age group (AGE7) has the lowest intention to use tourist accommodation, with a coefficient that is significantly different from 0. As age increases, the intention to use tourist accommodation declines (Figure 2). With regard to the residential area, the eastern region (RE) is used as the benchmark, and among the four residential areas, only the variable coefficient for other regions (RO) reaches the significance level. From the perspective of the estimated coefficients, tourists residing in the southern region (RS) have the highest intention to use accommodation, and those residing in other regions have the lowest intention to use accommodation. The results provide proof for the argument of Jang and Ham (2009) and Bernini and Cracolici (2015) that the family life cycle, and in particular, having children in the household, is a determinant of the travel decision and, as a result, of the accommodation decision.

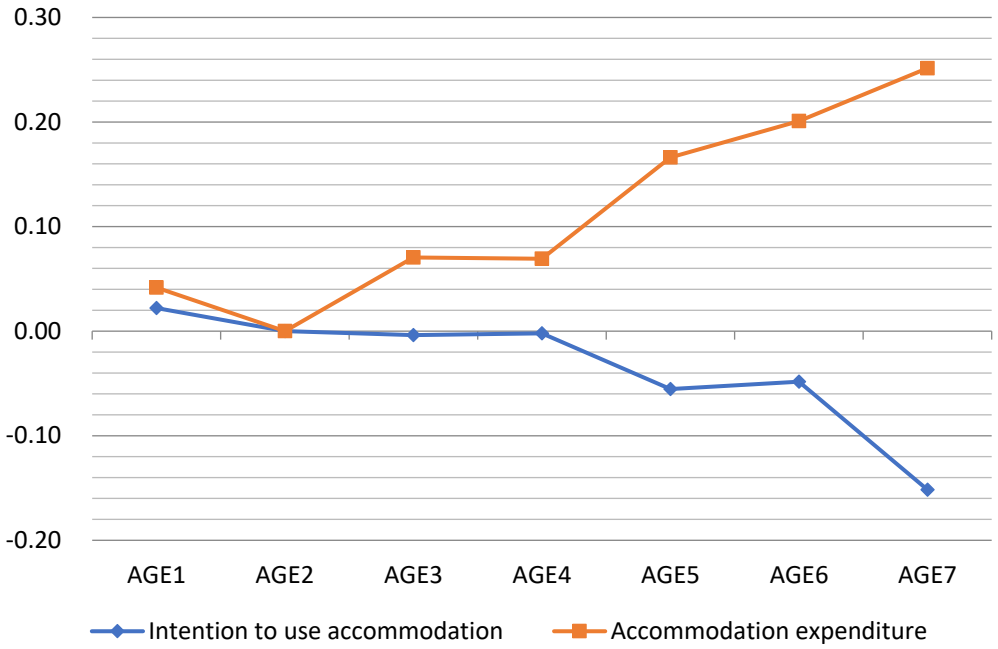

Figure 2. Estimated coefficients of age variables regarding the intention to use and expenditure on accommodation in domestic tourism.

In terms of the tourism behavior variables, the variable coefficients for the three travel seasons are significantly different from 0, and the third season (SEA3) witnesses the highest intention to use tourist accommodation, whereas the first season (SEA1) witnesses the lowest. Workdays (TD3) witness the highest intention to use tourist accommodation, whereas national holidays (TD1) witness the lowest intention to use tourist accommodation; the estimated coefficients of the two variables are significantly different from 0. Regarding the variables for the favorite activity during the trip, except for visiting amusement parks (ACT4), other variables are significantly different from 0; individuals who prefer sports (ACT3) and visiting amusement parks (ACT4) have a higher intention to use accommodation, whereas those who prefer visiting families and friends (ACT7) and cultural experience (ACT2) have a lower intention to use accommodation. Days of the trip (TDS) reveal a significant positive impact on the intention to use tourist accommodation. The implementation of the "one fixed day off and one flexible rest day" policy has a significant positive impact on the intention of Taiwanese to use tourist accommodation. Therefore, the vacation policy variable is a determinant of the accommodation decision, in line with Zhang et al. (2016).

Tourist accommodation, to a certain extent, reflects the importance attached by individuals to tour quality, and the single-day tour approach often sacrifices tour quality due to time constraints. The above analyses can be summarized as follows: females, people with a university level of education, white-collar workers, tourists traveling with children between the ages of 0 and 6 and 7 and 11, married people, people aged 12–19, residents of the southern region, people traveling during the third season, people traveling during normal days, and people preferring sports and visiting amusement parks are those with a high intention to use accommodation in domestic tourism.

4.2. Results of Consumption Decision

As for the consumption decision regarding expenditure on accommodation in domestic tourism, the economic factor, social stratum, family life cycle, residential area, tourism behavior, and vacation policy are variables with significant influence (see Tables 4 and 5). Research hypotheses H2a, H2b, H2c, H2d, H2e, and H2f are all supported. In terms of the economic factor, an individual's average monthly income has a significant positive correlation with the tourist accommodation expenditure; in other words, with an increase in income, the amount of money a family spends on tourist accommodation during domestic trips also increases. This research result is in line with the research findings by Thompson and Tinsley (1978), Dardis et al. (1981), Davies and Mangan (1992), Dardis et al. (1994), Hong et al. (1996), Fish and Waggle (1996), Cai (1999), Weagley and Huh (2004), Alegre et al. (2013), and Sun et al. (2015), i.e., there is a positive correlation between income and tourism expenditure.

In terms of the social stratum, among the education level variables, only EDU4 and EDU5 reach the significance level, indicating that there is a positive correlation between the education level and accommodation expenditure in domestic tourism. As the education level increases, the accommodation expenditure in domestic tourism also increases. Studies conducted by Dardis et al. (1981), Dardis et al. (1994), Hong et al. (1996), Cai (1999), Weagley and Huh (2004), Alegre et al. (2013), Bernini and Cracolici (2015), and Sun et al. (2015) also obtained the same result. In terms of occupation, the coefficients for retirees and housewives are significantly different from 0; housewives have the highest tourist accommodation expenditure, and blue-collar workers have the lowest tourist accommodation expenditure.

With regard to the family life cycle, the accommodation expenditure of females is higher than that of males, with a coefficient significantly different from 0. In terms of marital status, the coefficients are all insignificant; the unmarried group has the highest tourist accommodation expenditure, followed by the married group, and the divorced/separated or widowed group has the lowest expenditure. There is a significant negative correlation between the numbers of traveling companions between the ages of 0 and 6 and 7 and 11 and tourist accommodation expenditure, mainly because the higher the number of traveling companions between the ages of 0 and 6 and 7 and 11, the higher the tourism expenditure,

and thus the accommodation budget needs to be reduced. In terms of the age variables, only AGE1 is insignificant, and the other age groups are all significantly different from 0, with individuals over the age of 70 having the highest tourist accommodation expenditure. Among those over the age of 40, as age increases, the tourist accommodation expenditure also increases (Figure 2). Compared with the study by Nicolau and Màs (2005), we obtained similar results in terms of age and marital status, showing their effect on the level of accommodation/tourism expenditure. Unlike Alegre et al. (2013) who found evidence of a positive and increasing relationship with the household's tourism expenditure, we found that the accommodation expenditure behavior in Taiwan is negatively affected by the presence of children in the household.

In terms of tourism behavior, the first season witnesses the highest tourist accommodation expenditure with a coefficient significantly different from 0. The reason for this is that the first season coincides with the school winter vacation and the Lunar New Year festival, which is the peak tourism season in Taiwan, and the demand for accommodation significantly rises, thereby increasing tourist accommodation expenses. The fourth season witnesses the lowest tourist accommodation expenditure, with an insignificant coefficient. In terms of the travel date, the two variables are both significantly different from 0; national holidays witness the highest tourist accommodation expenditure, followed by workdays, and then weekends and Sundays. In terms of the favorite activity during the trip, the coefficients of all six variables reach the significance level. Individuals visiting family and friends and those visiting amusement parks have the highest tourist accommodation expenditure, whereas those engaging in cultural experience and sightseeing activities have the lowest accommodation expenditure. There is a significant positive correlation between the days of the trip and tourist accommodation expenditure, in line with the finding from Nicolau and Màs (2005), indicating that longer stays lead to higher spending levels.

With regard to residential areas, other regions witness the highest tourist accommodation expenditure, followed by the northern region, and the coefficients of both reach the significance level, with tourists residing in the eastern region having the lowest accommodation expenditure. The days of the trip (TDS) have a significant positive impact on tourist accommodation expenditure. The implementation of the "one fixed day off and one flexible rest day" policy has a significant negative impact on tourist accommodation expenditure. This might be because, following the implementation of the policy, employees of private enterprises have more vacations and more opportunities to travel overseas, thereby reducing the accommodation expenditure in domestic tourism. Zhang et al. (2016) obtained a similar finding: as China implemented a new vacation policy, the domestic tourism demand was substituted by an increasingly large outbound tourism market.

Based on the above analyses, it can be determined that females, those in high income groups, people with a postgraduate school or above education level, housewives, people traveling with fewer children between the ages of 0 and 6 and 7 and 11, people over the age of 70, people traveling during the first season, people traveling during national holidays, people who prefer visiting family members and friends and visiting amusement parks, and residents of other regions are those with higher accommodation expenditure in domestic tourism.

5. Conclusions and Implications

Increasing the demand for accommodation in domestic tourism is currently an important topic for developing the tourism industry, in particular when international tourism is faced with the difficulties brought about by the COVID-19 pandemic. As tourism products are not necessities for livelihood, situations where there is zero consumption and accommodation expenditure in tourism frequently occur. When conducting relevant research on tourism expenditure using cross-sectional survey data, it is necessary to incorporate zero consumption expenditure into the demand estimation model. In the discussion of tourism expenditure, it is necessary to face and deal with the issues of using appropriate analytical

models, understanding the selection process of consumption, and analyzing the factors influencing participation and consumption decisions.

This study employs a two-stage decision model to discuss the factors influencing tourist accommodation expenditure in domestic tourism in Taiwan. It considers a data-oriented approach, uses the nonnested test method and selects the DDH model as the analytical model. According to the empirical results, the participation decision to make use of accommodation in domestic tourism is influenced by five categories of variables, namely, the social stratum, family life cycle, tourism behavior, residential area, and vacation policy. The decision to engage in tourist accommodation expenditure is influenced by six categories of variables, namely, the economic factor, social stratum, family life cycle, tourism behavior, residential area, and vacation policy. The variables in the two decision equations have different degrees and directions of impact on the intention to use accommodation and to spend money on it. Therefore, it is inappropriate to use single-equation analysis consisting of zero consumption expenditure data and to assume that the same variables influence the participation and consumption decisions. This study contributes to the existing literature by being the first to attempt to apply a two-stage model specification to the accommodation decision process, that is, whether or not to use accommodation and how much to spend.

In terms of the individual variables, there is a significant positive correlation between an individual's average monthly income and tourist accommodation expenditure. There is a significant positive correlation between an individual's education level and intention to use accommodation in domestic tourism. People usually have higher-paying occupations when they have a higher education level (Nicolau and Màs 2005). With the increase in education level, the intention to use accommodation in domestic tourism increases, thereby increasing the accommodation expenditure. White-collar workers have the highest intention to use accommodation in domestic tourism, whereas students and unemployed people have the lowest intention. In terms of accommodation expenditure, housewives have the highest expenditure, followed by retirees, then students and unemployed people. Females have a higher intention to use and higher expenditure on accommodation in domestic tourism compared to males. The number of traveling companions between the ages of 0 and 6 and 7 and 11 has a significant positive impact on the intention to use accommodation in domestic tourism, but a negative impact on accommodation expenditure. While this does not mean that the number of traveling companions between the ages of 0 and 6 and 7 and 11 acts as a hindrance to accommodation in domestic tourism, in considering the limitations of their overall travel budget, those tourists may have to reduce their accommodation expenditure.

As for marital status, married people have the highest intention to use accommodation in domestic tourism, whereas unmarried people have the highest accommodation expenditure. People in the 12–19 age group have a higher intention to use accommodation in domestic tourism. As for expenditure on accommodation, for the over 40 age groups, accommodation expenditure increases with age and reaches a peak with the over 70 age group. Every year, the third season witnesses the highest intention to use accommodation in domestic tourism. With regard to accommodation expenditure, the highest amount recorded is in the first season, reflecting the seasonal features and characteristics of the domestic tourism market. In terms of the travel date, workdays witness the highest intention to use accommodation in domestic tourism, whereas national holidays witness the lowest intention to use accommodation. This could be caused by the limited accommodation supply coupled with higher expenses compared with workdays, thereby reducing the demand for accommodation. In practice, national holidays witness the highest accommodation expenditure.

In terms of favorite activities during domestic trips, the two activities of sports and visiting amusement parks have the highest intention to use accommodation in domestic tourism. By contrast, the two activities of visiting family and friends and visiting amusement parks exhibit relatively high expenditure. As for residential areas, tourists residing in the southern region of Taiwan have the highest intention to use accommodation, whereas tourists in other regions incur the highest expenditure. The "one fixed day off and one

flexible rest day" policy has a significant positive impact on the intention to use tourist accommodation, but a negative impact on accommodation expenditure.

To sum up, the results of this study indicate that accommodation expenditure models should allow for the existence of a correlation between the participation decision and the expenditure that is conditional on the participation decision. The effects of the above variables on accommodation expenditure are, however, not totally consistent with previous studies on tourism expenditure. These differences may result from the datasets, or the samples being obtained from people of different nationalities. The reasons for the differences need more investigation in future studies. Two variables, namely, tourism behavior and vacation policy, which were previously seldom included in the model's estimation, were examined in this study for their effects on the accommodation/expenditure decision. Despite the significant effects, it is necessary to more accurately understand the divergent results by performing further investigations.

Based on the analysis of the factors influencing the participation and consumption decisions in relation to domestic tourist accommodation using the two-stage decision model, the results of this research might influence the managerial direction in relation to market segmentation. Such information regarding the demand for accommodation under different economic and demographic conditions is useful to hotel managers in that it provides an alternative perspective for market segmentation. Due to the joint effect or differentiated effect of the variable, hotel managers should reconsider characterizing the profile of tourists with the greatest propensity to use accommodation and to find their expenditure patterns. This is fundamental for the development of marketing strategies. The research results lead to the following specific implications: (1) Attention could be paid to expanding the accommodation market targeted at family travelers who may consider taking children on domestic trips during the summer vacation and will choose accommodation. Therefore, entertainment and leisure space, facilities, and activities for children could be improved to develop business opportunities. (2) Faced with an aging society, there is a strong market potential for tourism for the elderly. This group has the lowest intention to use tourist accommodation but has relatively high tourist accommodation expenditure. The planning of a hospitable environment and travel itinerary for elderly travelers could be strengthened to increase accommodation incentives.

This research has some limitations. First, the model was developed and validated with data from one area. The research should be replicated to test the proposed model and hypotheses of the present research using samples from other regions and other datasets. The second limitation is that the list of variables may not be exhaustive, and thus further exploration should be encouraged. According to Isık et al. (2020), policy-related economic uncertainty plays a significant role in tourists' vacation plans. Thus, the EPU index could be included as a predictor of tourism demand. Third, the impact of the COVID-19 pandemic on travel should be a topic for further research. Tourism and travel demand were reduced to a minimum level during the period of the pandemic and domestic tourism has been the first to recover as the lockdown gradually ended. A detailed analysis of the variations in the intention to use accommodation and accommodation expenditure may be a valuable topic for future research. Finally, some researchers have broadened the knowledge of tourism expenditure by adopting a new analytical approach (e.g., Alfarhan et al. 2022; Chulaphan and Barahona 2021; Pellegrini et al. 2021). With regard to the different levels of service and nature of accommodation, many facets of accommodation expenditure decisions may need to be considered, because accommodation expenditure is not a single product but rather a number of interrelated subproducts. Tourists may additionally arrange several subset decisions within accommodation expense types, such as dining, recreational activities, and travel itineraries. In referring to Park et al. (2020), the analyses of accommodation expenditure across and within expense types could be addressed in future research. A multi-perspective view of modeling is important for gaining an enhanced understanding of tourism/accommodation expenditure patterns.

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Island Development Model Specialisation: A Panel Data Analysis Comparing Evolutionary Tourism Model, Industrial to Community-Based (2010–2019)

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Abstract: Islands are frequently characterised by an economic structure centred on tourism and the service sector. This specialisation has taken different forms and characterisations concerning the chosen or spontaneously developed model. To understand the development choices and patterns, this article analyses sixteen islands and archipelagos in the European Union over ten years from 2010 to 2019. A panel data analysis was based on critical variables identifying the tourism industry model from those that could represent a proxy of the community-based tourism model. The principal component analysis was adopted to compare the evolutionary trends of these two different ways of choosing the island's tourism model. Findings identified before the COVID-19 pandemic crisis include two island clusters. One group of islands followed a spontaneous tourism model based on the local community and small or micro hospitality systems, with auto-entrepreneurship in tourism. The second group of islands followed a planning and industry-based tourist model with an employment system and a relevant hospitality industry. Both paradigms have limitations and identify two different tourism evolutionary scenarios useful for the EU's future island tourism policies.

Keywords: community-based tourism; industrial tourism; islands; economics; panel data; APC model

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1. Introduction

The COVID-19 pandemic pushed markets to evaluate different tourism motivations far from the big and crowded destinations, looking more at small places where contact with nature and local communities is possible (Fernández et al. 2022). Therefore, islands are specific geographical places where local people and nature are often predominant and are considered tourist attractions by a more significant number of travellers and tourists (Ruggieri and Calò 2022). In contrast, islands are also regarded as fragile territories due to the limited resources and the negative impacts they can receive from an unplanned process (Briguglio and Kisanga 2004). Consequently, tourism can be considered a central activity because it easily attracts external economies and, at the same time, is also considered a potential risk for locals and the environment.

The attention to sustainability, particularly for islands, is very relevant in tourism development planning. Thus, new tourism supply models are needed to find an acceptable balance between tourism economies and limited resources.

Accordingly, socio-cultural factors are more requested from tourists, such as experiences and seeing unique cultures, histories, nature, and genuine authenticity. These market trends make tourism development plans for destinations which have built the tourism economy on quantitative rather than qualitative dimensions more difficult (Baggio and Sainaghi 2011). A significant problem for under-developed territories, such as low-income

islands per capita, is that economic benefits dominate social and environmental sustainability issues. Economic added value will not be a primary objective for tourism in the next decade, more so in light of the social and environmental factors that will improve and characterise tourism activity (Sofield 2003). In contemporary research on sustainability issues, it is more accurate to consider social, ecological, and economic components as the combination and interweaving of sustainability elements. Some authors argued the need for a common goal in land planning by finding the proper equilibrium between economic conditions, environmental protection, and the resident's needs (Nugraheni et al. 2020).

Consequently, the environment is often limited, instituting sea and natural reserves, SIC areas, sovra-national initiatives (UNESCO), and national land-use limitations (Zarb 2017). Regarding the social aspect of sustainability in the case of tourism in some places, there is a planned distance between tourist destinations and residents. The human dimension is less considered in sustainable tourism planning. It sometimes becomes relevant in the case of over-tourism or the possibility of adverse effects on the population (Kittinger et al. 2012). The new post-COVID-2019 trend looks at places as islands with a spontaneous and network-organised community based on tourism activities. This trend could be considered a new model for planning and managing different tourism processes by developing a more vital link between the host and visitor and maintaining a sustainability approach (Zarb 2019).

Due to the recent interest in island policies, the EU Commission needs to have some policy indicators for islands and the fragile territory where sustainability represents a pre-condition to keep the value and for new evolution.

This article will focus on islands' development models, addressing some aspects to compare the two different opposite paradigms. Firstly, tourism as an industry based on a quantitative approach has led to the deterioration of many destinations over the past fifty years, bringing about over-tourism, environmental damage, infrastructural overdevelopment, and social challenges, such as increased housing costs and costs of living. Secondly, the sustainable and responsible method for managing tourism is more inclusive and spontaneously indicated as community-based tourism, highlighting the gaps in managing tourism as a socio-cultural activity rather than a spontaneous and ignored local initiative.

The research questions are based on the development path of the tourism model adopted by EU islands and if there are specialisations in community-based or industrial tourism. Starting from those assumptions, the specific research questions are based on the following:

Rq_1: The main dimensions of the industry-based tourism model (IBTM) and community-based model (CBTM);
Rq_2: Comparing islands in the last ten years which followed IBTM or CBTM;
Rq_3: Tourism policy can favour islands in the adoption of sustainable tourism.

The article first analyses the literature regarding the tourism industry and community-based tourism. The second step of the article shows data analysis that adopted a mixed methodology in gathering empirical and secondary data to analyse the situation of tourism in the last ten years and several island destinations. The main supply and demand data for EU islands analysed come from Eurostat and the Observatory of Tourism for Islands Economies (OTIE). After the data presentation, the third step of the article shows the selected critical variables, such as population, establishment types, occupation, and tourism demand, comparing island territories. The variables consider the evolutionary trend over ten years from 2010 to 2019. A factor analysis (FA) is applied to analyse the interrelationship within a group of variables and identify some factors believed to contain basic information about the observed structure. Finally, the article needs to demonstrate the existence of two different tourist development models for islands. Both paradigms have limitations and identify two different tourism evolutionary scenarios useful for the EU's future island tourism policies.

2. Literature Review

In recent years, the growth in tourism demand and increased economies opened the literature debate on tourism development models (Ashley et al. 2007). The COVID-19 pandemic, the shock in tourism demand, and the contained and planned tourism increased the discussion among the hosting communities, residents, stakeholders, and shareholders (Dangi and Jamal 2016). According to this new sensitivity from a tourist destination point of view, tourism planning has become more evident and relevant in supporting decision choices from local policymakers (Baggio 2008). Today, a permanent increase in tourist demand and a rapid increase in tourism supply seems to be an unconscious way to take advantage of tourism economies. Analysing some aspects of the literature, we can identify two directions based on two main drivers: the tourism industry-based model (IBTM) and the community-based model (CBTM). The following scientific literature review supports the two tourism development models.

2.1. The Industry-Based Model

The growing volume and complexity of tourism services have generated the development of a whole tourist industry that justifies treating the phenomenon of tourism as a distinct branch of the growing economy (Sofronov 2018). The tourism industry should also contain delivery systems, which are often not located in a tourism destination. The tourism industry (Leiper 1997) is a group of services and products found in a tourist destination. Manente et al. (1996) defined travel and tourism as a mix of heterogeneous industries interrelated with each other with different participation related to the tourist consumption levels. Therefore, tourism involves several products and services at the tourist destination level. Baggio (2008) provides some evidence to the idea that tourism and its primary representative, a tourism destination, is a complex adaptive system. Therefore, the tourism industry structure changes the motivations for tourists and travellers. Links between tourist expenditure and production are different (Jakulin 2017), and local productions can also participate in the production process if they are not directly related to tourism consumption. McKercher et al. (2021) demonstrate the complex nature of tourism systems and related industries in the production process.

In this way, at the destination level, travel and tourism need a reticulum of productions and activities useful for a complete tourist experience at a destination level (Baggio and Sainaghi 2011). Therefore, the tourism development model based its concept on the need to have a well-structured tourist company network, centrally coordinated or managed. According to the cluster theory (Marshall 1994), this model proposes an industrial organisation that is place-based and able to generate specialisation and agglomeration economies. This evidence in some places was theorised with the tourist destination paradigm. Destinations (Cooper 2002) are often based on the following bullet points.

i. Big hotel establishments;
ii. External investors, such as international hotel chains;
iii. High level of employment in the tourism and travel industry;
iv. High level of the local population;
v. Durable participation of the public sector in providing public services to tourists;
vi. A management destination system—DMO;
vii. Level of product imports to satisfy the international tourist consumption;
viii. Non-direct tourist sectors related to tourism expenditure that receive tourism economies;
ix. An articulated network of tourist services, such as food services, travel agencies, tour operator reservation services, cultural, sports, recreation, agriculture, fashion, manufacturing industries, etc.;
x. Public policies for management, planning, and promoting the destination.

In this way, tourism contributes to a country's economy from different angles. Government and industries realise tourism's contribution to the economy regarding employment, profits, income generation, the balance of payment, and investment (Holloway and

Humphreys 2016). Therefore, from an economic perspective, tourism is also vital for the economy because it generates employment for locals and increases profit margins.

The tourism and travel industrialisation process in EU tourism island destinations has been followed by large and medium EU island destinations, such as Mallorca, Ibiza, Malta, Crete, Cyprus, Tenerife, Elba, Capri, Sardinia, Sicily, etc. The destination-building process followed a cluster model according to a demand driver approach, external investments, international hotel chains, a consistent number of accommodation services, related services, flight connections, and public services. As shown in Table 1, some authors specified the tourism industry concept at the destination level while considering some thematics.

Table 1. Industry-based tourism model literature thematic.

Tourism Industry Supply	Authors
Relations	Ashley et al. (2007); Leiper (2008).
Competitiveness	Navickas and Malakauskaite (2009); Bazargani and Kiliç (2021).
Clusters	Malakauskaite and Navickas (2010).
Organization	Sofronov (2018).
Services	Fernández et al. (2022)
Organization	De Falco (2018)

Source: elaboration on literature analysis.

2.2. The Community-Based Destination Model

In recent years, sustainability aspects, over-tourism evidence, crowding effects on tourism destinations, and uncontrolled demand have increased the need for relational and experience tourism (Ruggieri 2008). Therefore, the need for a new paradigm for the tourist destination was developed spontaneously in rural and isolated areas, and there is a need to support and project this model (Wearing and McDonald 2002). Relevant scientific literature is now more concentrated on the social aspect of tourism, moving the attention from the concept of territory to the concept of locals or residents, defining a community-based tourism paradigm. This model is based on "community development, community survival, community involvement, and local benefits are among the foci here" (Dangi and Jamal 2016). It is considered in the literature as an integrated supply-driven approach based on the local people and companies. This tourism planning and policy model is based on trust, commitment, and synergy among the three key stakeholders. Bramwell and Lane (1993) highlighted two key stakeholders: the tourism industry and host communities.

Therefore, the impacts and responsibilities of the sustainable tourism industry will affect communities rather than sectors of society. Dangi and Jamal (2016) argue that there are apparent differences between sustainable and community-based tourism in planning and implementation. Sustainable tourism planning is a macro-level strategy involving "quasi-governmental, global institutions," whereas community-based tourism involves the "grassroots". Sofield described how community and stakeholder participation may have failed in terms of tourism: "such growing endorsement notwithstanding, participatory development is far from being adopted in practice anywhere in a way that leads to major structural reforms and political structures towards underprivileged people" (1995:26). Indeed, Murphy (1985), Krippendorf (1987), and Britton (1984) tended to be sceptical about the implementation of "community-driven tourism planning." (Murphy 1985).

The experience has shown how the initial thrust towards developing a broader understanding of tourism from a socio-economic industry to a more inclusive socio-cultural activity was positive in terms of the host toward the phenomenon of hospitality and service. However, as it progressed into a more significant commitment, it also changed the traditional tourism concept to one where more stakeholders could participate. Murphy (1985) describes three reasons for developing the basic theory behind community-based tourism. The first reason addresses the "feeling that the growing tourism literature needed some form of synthesis to make it intelligible to the student of tourism and managers of the industry". The second reason was "to offer an approach that would correct the

inadequacies of previous survey texts". The third reason refers to the sustainability and responsibility of tourism since it recognised "that tourism in industrial nations was now reaching a crucial stage in its development, to suggest a planning method that would meet the needs of tourism and integrate them into the general planning process" (Murphy 1985). Beeton (2006) provided some seminal literature that bolstered the research and study to develop an alternative and effective form of tourism activity. Beeton states, "many of those searching for that difference are looking to the people at the places they visit . . . ". Dangi and Jamal (2016) state, "There is a paucity of good research on inequalities in goods, services, and income and related distribution and procedural justice issues". Moscardo (2008) has been an inspiration to the research and study that was carried out for these projects when she speaks about the growth of the socio-economic industry, which contrasts with the slow pace at which sustainable and community-based tourism is growing; perhaps the best explanation for this phenomenon is stated by Moscardo (2008) when she explains, "The challenge for this model is that there exist critical gaps in our knowledge of how to achieve the goals embedded in the community capacity-building approach to tourism development". Indeed, Macbeth (2005) added two other settings that gave this industry a more socio-cultural sense of sustainability and ethics.

In recent years, some critique has been made about the effectiveness and feasibility of community-based tourism (CBT) as an alternative to the mainstream markets (Goodwin and Santilli 2009). Still, the aspect of three key factors can be seen as the driving force in making CBT a primary objective of any local tourism planning strategy and policy. The three factors are commitment, trust, and synergy. It is only by ensuring participation throughout the process by all stakeholders, avoiding "stakeholder fatigue", and consistent consultation with the stakeholders that such an inclusive process of local tourism planning will succeed. Ruggieri and Iannolino (2022) demonstrate the existence of a company network in some island destinations. The relatives and commercial links are managed with trust and by sharing information to create a common vision and high cooperation levels. Following those principles of the community-based model, it is possible to identify some bullet points.

i. Self-employment of local people;
ii. Diffuse entrepreneurship among communities;
iii. Accommodation based on the non-establishment models.'
iv. Small dimension on local businesses;
v. Local services are usually offered to the local population;
vi. Maintaining a local supply;
vii. Self-managed destination;
viii. Community company network based on trust;
ix. The public sector supports the local community and stakeholders;
x. Common vision and policies are shared and decided with all the networks.

This model is more challenging to study due to the lack of information and statistics and several micro hospitality sectors managed by people not involved in the tourism sector. In Table 2, the main theories are recalled for the analysis.

Table 2. Community-based tourism model thematic.

Community-Based Tourism	Authors
Network	Ruggieri and Iannolino (2022)
Activities	Beeton (2006)
Social aspects	Moscardo (2008)
Planning	Murphy (1985); Krippendorf (1987); and Britton (1984)
Model and implementation	Wearing and McDonald (2002)
Community benefits	Dangi and Jamal (2016)

Source: elaboration on literature analysis.

3. Islands Tourism and Planning

The European Union (EU) tourist islands in south Europe are more than 100 and belong to six EU state members. However, despite the diversity and uniqueness of each island, these territories share the same permanent handicaps because of their insularity (Briguglio and Kisanga 2004). The EU has recognised this condition as both a geo-cultural factor and a permanent handicap because of additional constraints on competitiveness in the areas concerned and is seen as the main reason for the formulation of specific policies addressed to these territories. It has led to the insular areas being identified as regions that suffer from severe or permanent natural or demographic handicaps. It is necessary to adopt specific measures to reduce disparities between the levels of development of the various regions and the backwardness of the least favoured regions.

In contrast to these difficulties, EU tourist islands experience strong demand for high levels of tourism consumption with positive effects on local employment and production. Tourism in islands tends to be central to the local economy. However, the islands cannot all be placed at the same stage of tourism development (Butler 1980) because destinations coexist at various stages of development. This makes it impossible to formulate strategic guidelines for sustainable development that are valid and generally applicable on all islands (Baldacchino 2006; Fairbairn 2007). It is, therefore, necessary to start with a comparative analysis of tourism in the islands to develop the most appropriate tourism policies for the territory concerned. Table 3 shows the statistical indicators for the islands.

Table 3. The islands' panel dimensions.

	Population		Hotel Establishments		No-Hotel Establishments		International Arrivals		Employment	
	2010	**2019**	**2010**	**2019**	**2010**	**2019**	**2010**	**2019**	**2010**	**2019**
Malta	414,027	493,559	153	224	7	20	1,118,596	1,821,836	17,196	22,796
La Réunion	821,136	856,547	51	109	6	0	N.A.	63,419	8289	10,314
Corse	309,693	342,256	370	438	251	451	631,599	866,213	3954	9259
Illes Balears	1,083,679	1,188,220	1399	1410	1171	1362	7,302,495	10,703,104	69,861	104,440
Canarias	2,045,163	2,206,901	602	578	2109	1734	7,464,321	10,484,447	101,581	149,063
Região Autónoma dos Açores (PT)	246,900	242,846	82	100	10	283	126,714	361,913	6048	10,107
Cyprus	819,140	875,899	690	814	149	2	1,814,328	2,689,344	42,438	54,478
Voreio Aigaio (Nord Egeo)	200,179	221,098	N.A.	389	N.A.	962	N.A.	369,551	7691	12,893
Notio Aigaio (Sud Egeo = Cicladi + Dodekaneso)	332,652	344,027	N.A.	2113	N.A.	7282	N.A.	6,534,569	27,888	88,065
Kriti	623,113	634,930	N.A.	1611	N.A.	3405	N.A.	5,600,054	29,447	72,469
Sardegna	1,641,347	1,622,257	916	925	2998	4792	840,212	1,738,868	40,015	/
Região Autónoma da Madeira (PT)	266,715	253,945	188	168	9	224	588,019	983,678	13,631	18,222
Ionia Nisia	208,675	203,869	N.A.	956	N.A.	4270	N.A.	2,642,305	15,185	42,573
Sicilia	4,997,429	4,908,548	1306	1328	3462	6145	1,544,488	2,396,508	70,596	/
Guadeloupe	N.A.	417,161	N.A.	45	N.A.	0	N.A.	39,613	/	4343
Martinique	394,173	364,413	73	46	11	0	N.A.	44,858	5520	4976

Source: data analysis on OTIE islands database.

4. Methodology

To describe the trend behaviour of these islands, we have considered some statistical indicators taken from the literature that refers to some macroeconomic dimensions (Table 4). The main supply and demand data for EU islands analysed come from Eurostat and the Observatory of Tourism for Islands Economies (OTIE). The variables consider the evolutionary trend over ten years from 2010 to 2019. The first two variables (variation of the number of hotel accommodations and variation of the number of non-hotel accommodations) measure the increase in the number of hotels and non-hotels during the observation period (Ruggieri and Calò 2022). According to Eurostat, we consider holiday and other short-stay accommodations, camping grounds, recreational vehicle parks, and trailer parks

in the non-hotels categories. These variables are relevant to describe the tourism sector evolution because the accommodation establishments, according to the United Nations World Tourism Organization (UNWTO) statistical convention, are the essential elements of the existence of tourism products.

Table 4. List of variables used.

1.	Development dimension	2.	Variables	3.	Coding
4.	Industrial tourism	5.	Variation of number of hotel accommodation	6.	ZAveragevarhotel
7.	Community-based tourism	8.	Variation of number of non-hotel accommodation	9.	ZAveragevarnohotel
10.	Demography	11.	Variation of population	12.	ZAveragevarpop
13.	Economy	14.	Employers' variation	15.	ZAveragevaremploy
16.	Tourism model	17.	Variation of international arrivals	18.	ZAveragevarinternat

Source: data analysis on OTIE Islands database.

The development of new hotel structures demonstrates the existence of a growing tourism supply and the possibility of containing the increasing tourist demand. Hotel facilities represent essential investments in the territory and have a multiplier effect on economic development and island sustainability. In contrast, non-hotel facilities, on the other hand, are a quick way to meet demand needs. Significant investments are unnecessary in some cases (use of second homes), and the impact on the island's sustainability could be contained or limited. The third and the fourth variables (variation of the population and employer variation) measure the attractiveness of the islands from a social and economic point of view, and it will be used as an attractiveness proxy. When an island has development growth, we expect an increase in employment followed by population growth. The decline of the population and islands is a much-discussed topic in the literature and has been addressed by local governments for several years. Population decline involves reducing community services (think of the closure of hospitals or parts of them) and less social capital (the ageing population).

Finally, the last variable is related to the characteristics of the tourism sector. The dimension associated with international arrivals highlights the interests of the global tourism market for the island. As already stated, all these variables are considered in their evolution in the same observation period. To avoid the danger of overestimation, the starting value of each variable corresponds to the average of the values for the years 2010 and 2011. Similarly, the end-of-period values correspond to the average values for 2018 and 2019. Therefore, their value is a trend linked to territorial transformation paths.

Factor analysis was carried out to analyse the relationships between the five variables. Factor analysis (FA) is a method to analyse the interrelationship within a group of variables and identify some factors believed to contain basic information about the observed structure. This methodology explains the correlation between the observed variables due to fewer non-observed factors. These factors are also known as "components", "dimensions", or "latent factors". Furthermore, the agglomeration of observations is transformed into a simple structure that can "inform" as much as the initial setup (Mignami and Montanari 1994). Of all the techniques of multivariate analysis, FA is of the most significant interest because of its possible application in the business sphere, particularly regarding market research (Iacobucci 1996; Cool and Henderson 1997). Finally, the applied methodology finds the main factors that can identify the two island groups based on chosen variables from the two theoretical models.

Applying the methodology to such a small sample requires caution in interpreting the results. Several contributions in the literature discourage researchers from using FA when

their sample size (N) is too small. Some authors, such as Guilford (1954) and Cattell (1978), recommend a minimum sample size of 200. Other researchers have focused on the number of cases per variable (N/p) (Hair et al. 1979). However, as de Winter et al. (2009) recalled, the absolute N and N/p ratio recommendations were gradually abandoned as erroneous.

Recently, studies have shown that the minimum sample size is a function of several parameters (Gagné and Hancock 2006; MacCallum et al. 2001; MacCallum et al. 1999; Velicer and Fava 1998).

On the other hand, some studies have shown the application of factor analysis to very small samples (Velicer and Fava 1998; Geweke and Singleton 1980; Bearden et al. 1982; Preacher and MacCallum 2002), considering them to be adequate. Aware of these limitations, we used factorial analysis for our study.

5. Data Analysis

The variables used have different units of measurement. Thus, a normalisation process was needed. The eigenvalues of the variance and covariance matrix of the transformed variables are shown in Table 5. The first principal component alone summarises more than 40% of the total variability, namely the information contained in the five variables used in the analysis, while the second is more than 33%. The data analysis has some limitations due to the secondary data delivered from the Observatory of Tourism for Islands Economy and compared with Eurostat ones. The variable considered to better describe the two EU island's tourist models is the only one available for all the EU islands. Sometimes the statistical indicators are different for each country at a sub-regional level; thus, the number of variables considered in this article is comparable but limited.

Table 5. Principal Component Analysis, Extracted Components.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.302	46.040	46.040	2.302	46.040	46.040	2.027	40.535	40.535
2	1.377	27.548	73.588	1.377	27.548	73.588	1.653	33.053	73.588
3	0.782	15.636	89.225						
4	0.444	8.882	98.107						
5	0.095	1.893	100.000						

Source: data analysis on OTIE islands database.

The factor analysis summarised the five variables into two components. In the first, the more critical in terms of expressed variability, we find the variables of social development (population variation), and economic development (interpretation of employers), together with the variable of the development of industrial tourism (variation of hotels). We can define the first component as relating to the product in various forms (social, economic, and tourist).

Thus, we move to a more in-depth analysis of the results by calculating the factor scores (FAC) resulting from the FA calculation and expressing the link between the cases and the extracted components. By placing the ingredients in hierarchical order concerning FAC1 (from the strongest to the weakest link), it is possible to understand the island's "behaviour" (Table 6) and make some reflections on the characteristics of the tourist models on these islands.

Table 6. Rank islands order and variables value considering FAC_1 (value 2010–2011 vs. 2018–2019).

Islands	FAC_1	Variables				
		Population Trend	Hotel Establishments Trend	No-Hotel Establishments Trend	International Arrivals Trend	Employment Trend
Malta	2.475	16.9	38.4	146.7	56.2	48.9
La Réunion	1.190	3.8	116.7	−60.0	54.7	6.9
Corse	1.171	9.1	18.9	67.7	42.9	30.8
Illes Balears	0.556	8.3	0.2	13.1	36.5	19.2
Canarias	0.352	6.7	−3.7	−17.3	32.8	17.8
Região Autónoma dos Açores (PT)	0.239	−1.4	22.8	2520.0	168.1	3.9
Cyprus	0.045	4.9	17.6	−98.6	42.4	3.2
Voreio Aigaio (Nord Egeo)	−0.034	7.8	−8.5	103.4	41.7	2.7
Notio Aigaio (Sud Egeo = Cicladi + Dodekaneso)	−0.232	2.7	−1.2	119.3	110.3	0.5
Kriti	−0.405	1.5	−1.5	13.6	85.0	−0.4
Sardegna	−0.527	−0.4	0.1	49.4	96.4	−1.7
Região Autónoma da Madeira (PT)	−0.707	−4.9	−11.2	2233.3	59.9	0.6
Ionia Nisia	−0.778	−2.3	−0.8	49.5	108.8	−6.4
Sicilia	−0.780	−0.7	0.5	71.5	46.0	−6.6
Guadeloupe	−1.065	−4.2	4.4	−100.0	34.8	−8.3
Martinique	−1.501	−6.8	−32.6	−100.0	42.6	−3.9

Source: data analysis on OTIE islands database.

First, it is evident that, compared to the other islands, Malta has a different tourism development model, strongly influenced by economic and social factors. The other islands in Table 6 have a less intense but evident development trend. In some cases, this economic development is measured only on the basis of the number of hotels. (La Réunion, Corse, Illes Balears, Região Autónoma dos Açores).

On the contrary, on the last five islands (the "marginal" islands), it is noted that despite a population loss and a decrease in hotel and non-hotel facilities, the trend of international arrivals is consistent. It, therefore, seems that the economic conditions towards which this group of islands is moving do not affect the international tourist attraction. The marginality is also evident from the non-growth of hotel structures, contrary to non-hotel systems (which grow in almost all the "marginal" islands).

6. Discussion

Starting from a literature analysis, this article offers the principal dimensions and variables that can separately identify the two tourism models: IBTM and CBTM. Consequently, to understand the development of choices and patterns, this article analysed sixteen islands and archipelagos for the south European Union countries in ten years from 2010 to 2019. A panel data analysis was based on critical proxy variables for IBTM and CBTM. The principal component analysis was adopted to compare the evolutionary trends of these two different ways in the EU islands' tourism model adopted and followed.

According to the research question (Rq_2), the data analysis identified two groups of islands: the first in the past ten years before COVID-19, following a planned and industry-based tourist model with an employment system and a relevant hospitality industry. Malta, La Réunion, Corse, Iles Baleares, Canarias, Azores, and Cyprus developed a reticulum of well-structured tourist industries centrally coordinated or managed (Baggio and Sainaghi 2011). This model proposes an industrial organisation that is place-based and able to generate at different levels the specialisation and agglomeration economies (Marshall 1994). The island's destination followed from 2010 until 2019, a demand driver approach based on external investments, international hotel chains, a consistent number of accommodation services, related services, flight connections, public services, and central policy coordination as a single tourism industry with some exceptions.

Tourism based on industry economies follows economic aspects and works for local economic increase, added value, and employment. Industrial tourism has its fair share of defects, such as unsustainability, over-tourism, and the lack of correct carrying-capacity

studies that have led, in some places, to force fields between construction and infrastructural developments for tourism.

In contrast, the second group of selected islands, such as Voreio Aigaio, Notio Aigaio, Kriti, Sardegna, Região Autónoma da Madeira, Ionia Nisia, Sicilia, Guadeloupe, and Martinique, adopted and followed in ten years a spontaneous tourism model which is supply-driven and based on the local community and small or micro hospitality systems and with auto-entrepreneurship in tourism. For this group, the community-based approach to tourism is based on host–visitor activity in respect of the life quality of the host community, maintaining and guaranteeing economic support to self-managed activities. The community-based approach created an awareness of what sustainable and responsible tourism can offer all stakeholders regarding those economic and social aspects.

7. Conclusions

The concept of the integrated approach to tourism planning needs to be implemented through continuous and consistent dialogue and discussion more focused on the economic, social, and environmental aspects. The analysed theoretical paradigms offer two different and opposite approaches to the EU island tourist destinations. The islands' fragile territories with limitations and evident economic disparities compared with the mainland tourism economies are considered a great opportunity for economic development using local natural resources (Mazzola et al. 2019). The tourism economy specialisation for islands needs to investigate the tourism model adopted or chosen. As explained above, the literature analysis shows two paradigms: the IBTM and CBTM.

Both paradigms have limitations and identify two different tourism evolutionary scenarios useful for the EU's future island tourism policies. The integrated approach (Zarb 2017) could be followed, considering the two presented tourism paradigms. In this way, an integrated approach could ensure commitment, trust, and synergy between all three stakeholders—the local authorities, businesses, and the local community (Murphy 1985; Britton 1984; Krippendorf 1987; Zarb 2017, 2019).

The CBTM limitation in the planning process is related to the difficulty of establishing a fragmented society where the key stakeholders and shareholders work within their dedicated and isolated cells. Therefore, the host community must learn to adapt to the changing situations and cultures affected by the tourism demand. This means looking at the broader socio-cultural activity rather than the sectoral socio-economic area.

Despite working under the sectoral socio-economic area, as in the tourism industry model, the stakeholder often works isolated and based on a single specialisation.

In an integrated approach, stakeholders work consistently and continuously, not simply as observers but as active participants, which will mean that there can no longer be two traditional blocs in the stakeholder structure, that is, those who work directly for the industry and the rest, but the host community has a role to play in enriching the visitor experience. The community must possess a powerful element of commitment, trust, and synergy for all the stakeholders. This synergy must be demonstrated by consistently evaluating the activity and reviewing any timely processes, policies, and strategies. Building such an interpretation of the tourism activity will allow the stakeholders to provide a basis for sustainably and responsibly managing tourism with their involvement.

This article highlighted for EU island destinations the effect of rethinking, redeveloping, and restoring tourism as a socio-cultural activity. Consequently, a sustainable and responsible approach is where the host community, the business community, and the authorities will benefit both in terms of the social and economic factors. The need to reopen the tourism activities now indicates a stubbornness that will surely lead to the decline of tourism as an activity where hospitality and service are vital components but where the emphasis is on making a quick return, irrespective of the long-term damage to the environment and the local communities. Therefore, sustainable tourism in islands could follow a more integrated approach with local communities following relational hospitality based on people. The limitation of this article relates to the small number of variables

considered as a proxy of the two adopted island tourism models. The limited data available for sub-regional territories at the EU level reduces the possibility of deep analysis. Further study must also compare the economic performance and the economic, social, and environmental positive and negative impacts.

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economies

Article

Problems of Tourist Mobility in Remote Areas of Natural Value—The Case of the Hajnowka Poviat in Poland and the Zaoneshye Region in Russia

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Abstract: Tourist destinations are often inaccessible due to mobility problems. The purpose of this paper is to identify the mobility problems of tourist destinations in remote areas of natural value. The research was carried out in the following two tourist destinations with the above-mentioned values: in the Zaoneshye Region in Russia and the Hajnówka Poviat, which includes the priceless resources of the Polish part of the Białowieża Forest. The research was conducted using a survey method. Respondents could download the survey questionnaire onto their mobile devices (smartphone, tablet) by scanning a QR code or provide their answers to the questionnaire on paper or to an interviewer, who recorded them in an electronic version. The respondent group consisted of tourists visiting both regions for tourism purposes. The survey was carried out between 2019 and 2021. The results showed that the car is the preferred means of transport in both regions, and that road works are somewhat or completely necessary. Additionally, tourists in the Hajnowka Poviat travel a lot on foot or by bicycle, as there are more cycling and pedestrian paths available. In contrast, tourists visiting the Zaoneshye Region suggest providing more facilities for tourism and better and more efficient communication.

Keywords: tourism destination; natural value areas; rural areas; mobility problems

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1. Introduction

One of the most important factors contributing to the development of tourism in natural value destinations in remote areas is the improvement of mobility and accessibility. Among the many problems of these areas, there are shortcomings in the transport sector. The lack or limited access to means of transport is essential to limit access to tourist attractions. We may describe this situation as "transport poverty". Poor transport accessibility is often the result of dispersed settlement structures, which makes it difficult to ensure an efficient public transport system. Mobility in remote natural areas, therefore, depends mainly on owning a private car (Soder and Peer 2018), which contributes to the degradation of valuable natural resources. On the other hand, investments in public transport infrastructure are aimed at limiting the negative impact on the natural environment and reducing spatial and social inequalities by improving tourists' access to these attractions, and residents to workplaces and other forms of activity (Oviedo et al. 2019).

The paper describes the current mobility situation in the Zaoneshye Region and the Hajnówka Poviat, and subsequently points out the associated mobility needs of tourists. Following that, there is a description of possible disparities between the current situation and newly revealed needs. The research will provide some recommendations on how to progress with work on mobility in both regions, complemented by a brief summary at the end. The Zaoneshye Region and the Hajnówka Poviat are partners in an EU project that aims to shed light on and improve mobility and accessibility in sparsely populated areas. The project is financed by the Interreg Baltic Sea Region programme. The project was launched in January 2019 and continued until September 2021. The project involves twelve partners from nine countries. The project aims to elucidate the challenges related to

mobility and ease of transport in sparsely populated areas and to investigate to what extent changes in these factors will affect settlement patterns and tourism attractiveness. The study provides a basis towards a better understanding of the current mobility situation in order to identify potential areas of improvement within the current provision. The totality of the survey is emphasised in the analysis, discussion and conclusion.

The main objective of the research is to identify the problems of tourism destination mobility in remote areas of natural value on the basis of research carried out in Zaoneshye District and Hajnówka Poviat.

1.1. Mobility Problems in the Literature

Mobility, according to the definition proposed by Szołtysek (2011), can be defined as the tendency to change one's place of residence or place of work. Therefore, mobility is associated with the crossing of an area and with various forms of mobility treated as the result of certain conditions and processes, without the possibility to influence their outcome (Kruszyna 2010). Rural and peripheral areas suffer from accessibility and mobility problems that challenge their livability and development potential (Vitale Brovarone 2022). The problem of transport accessibility concerns especially seniors (Ahern and Hine 2012; Plazinić and Jović 2018). In order to address these challenges, the spatial, social, cultural and economic components of accessibility need to be recognized and addressed with comprehensive actions that involve actors from different sectors at different scales (Atasoy et al. 2015; Clotteau 2014). Researchers point to numerous mobility problems, constantly looking for answers to the question—why do some regions decline and others develop (Li et al. 2019)? Scientists point to different causes, which was widely discussed at scientific conferences, such as the Conference CIVITAS FORUM (2018), where scientists blamed, among other things, the lack of cooperation in transport planning. Mobility as a Service (MaaS) multidisciplinary concept (Esztergár-Kiss and Kerényi 2019) was developed on the basis of various studies. Another concept is inclusive transport (Jeekel 2019). Also in the European Union, work to improve mobility was consolidated and the European Mobility Management Platform was created (European Platform on Mobility Management-EPOMM 2013). In addition, the third priority of the Interreg Baltic Sea Program (https://www.interregeurope.eu/ accessed on 30 August 2022) is dedicated to sustainable transport, and changes are made in individual regions of the European Union in line with the principles of sustainable transport or smart mobility (Gross-Fengels and Fromhold-Eisebith 2018).

From a tourist's perspective, developed public transport and road infrastructure are becoming increasingly important in rural areas. In fact, from a tourist's perspective, transport infrastructure is a major determinant of a region's accessibility. One of the most important points is the extent to which land-use and transport systems make it possible to visit tourist destinations by means of transport (Geurs and van Wee 2004). Multimodal planning establishes communities where walking, cycling and public transport are possible. This provides various benefits to tourists. Current trends include increasing demand for non-car travel options in rural areas, safety concerns and growing tourism industries (Litman 2019) The expected changes in the mobility of tourists take into account the principles of sustainable tourism (Scuttari and Isetti 2019).

MARA aims to validate the actual mobility needs of residents and tourists with the current mobility offers. The project aims to increase the capacity of regional and local transport actors to address multifaceted mobility needs by improving the existing services, as well as developing and testing innovative sustainable mobility solutions for remote areas. Finally, the project will integrate its improved or new mobility approaches in remote areas into regional spatial and mobility development plans. The territory of the MARA project includes a part of the Republic of Karelia (Russia). The focus area includes three rural settlements located on the Zaonezhsky peninsula, which is a part of the Medvezh'egorsk municipal district, located north of the regional capital Petrozavodsk.

Rural mobility in the Baltic Sea region faces several common challenges.

1.2. The Natural Valuable Tourism Destination Mobility Problems in the Literature

Swarbrooke (1995) proposed a typology of tourist attractions and grouped them in three categories, entertainment, heritage and emotions. Areas of natural value fall into the first two categories. Mobility in the context of tourism has repeatedly been the subject of academic research. The main findings of Zamparini and Vergori (2021) show that mobility at home, the use of a friendly mode of transport to reach a destination and the choice of a static holiday in places associated with the sea, sun and sand are the most relevant variables that positively influence environmentally friendly mobility. In addition, improved infrastructure and more appropriate mobility policies and strategies can influence more sustainable transport choices of visitors and residents. (Diskinson and Lumsdon 2011). The authors describe different types of slow tourism, namely walking tourism, cycling tourism, bus and coach tourism, train tourism, water-based travelling. They emphasise that slow tourism is more environmentally friendly. A book on sustainable transport in natural and protected areas, (ed. Orsi 2015) in which numerous authors address similar issues, should be considered a very valuable publication. Of particular note is the chapter that presents the sustainability potential of various transport modes in natural settings. The authors conclude that a sustainable transportation system guarantees the satisfaction of multiple environmental, social and economic requisites across space and over time.

Results on the mobility of residents in the Hajnowka Poviat were presented in 2022 (Szymanska and Koloszko-Chomentowska 2022). This research showed a wide range of opinions on public transport. The high rate of tourists' lack of opinion on this subject is precisely due to problems with public transport accessibility, which forces tourists to rely on private means of transport. Such responses are, on the one hand, a limitation of the survey, but on the other hand, they indirectly show a serious mobility problem.

Page and Connell (2020), in turn, undertake a systematisation of tourism issues in their book, including transporting the tourist (pp. 161–86) and rural tourism (pp. 466–83). Cohen et al. also undertake a discussion of mobility issues in tourism (Cohen et al. 2014).

Shen et al. (2019) proves that a better geographic location with greater accessibility is usually an advantage for rural tourism market expansion, as urban residents are still the main target market for rural tourism. Kirilenko et al. (2019) takes a similar approach. According to Sharav et al. (2019), the development of railways contributes to increasing the level of tourist penetration of destinations. Activities in line with the principles of sustainable tourism are key to its development, favouring naturally valuable tourist destinations (Borkowska-Niszczota et al. 2014). The organisation and functioning of clusters support tourism development, including tourist mobility (Sahakyan et al. 2019). Variables for the evaluation of tourist behaviour (accommodation, means of transport, frequency of visits, travel group) depend on the type of settlement unit and its location in a settlement network (Bartosiewicz and Pielesiak 2019). Descriptive statistics for the analysis of tourist length of stay in rural areas were based on the following three variants proposed by Więckowski et al. (2014): short term, medium term, long term. Innovative solutions for developing sustainable transport and improving tourist accessibility are very important (Szymańska et al. 2021). In Italy, Coppola et al. (2020) proposed the development of an Italian National Tourism Mobility Plan, which identifies one of the key drivers of investment in accessibility. For this purpose, they have developed a planning support system (PSS) with the aim of identifying investments that seek to close the accessibility gap of national tourist sites from the main airports, ports and railway stations (i.e., the 'access gates' to a country), either on the road network or using public transport services.

Based on the analysis of the above-mentioned literature, the research conducted focused on the following research problems: assessing the current state and prospects of infrastructure development in the context of the accessibility of individual tourist attractions and from the perspective of different means of transport.

Hypothesis 1 (H1). *States that the most popular form of travel in natural value remote areas is road transport.*

1.3. Characteristics of the Research Areas

The research was carried out in parallel in two areas from the countries of the Baltic Sea basin. Both research areas share the following characteristics:

- Remoteness from economic centres;
- Peripherality;
- Mobility and accessibility problems;
- Tourist attractiveness, consisting of valuable natural assets.

The area of interest within the MARA project in the Republic of Karelia (RUSSIA) is the Zaonezhye area, which includes the large Zaonezhsky peninsula and the adjacent archipelago of the Kizhi skerries (about 500 islands), with an area of 560 km^2. Its northern boundary runs through a natural watershed to the north of the Zaonezhsky peninsula. It is a unique historical and cultural complex with a historically formed settlement system, which administratively belongs to the Medvezh'egorsk municipal district of the Republic of Karelia. A large number of shallow rivers and deep-water lakes characterise the relief of Zaonezhye. Frequently, there are alternating elongated bays, lakes and long narrow rocky ridges, with a strict orientation from north-west to south-east. The historical transport routes for the Zaonezhye area include inland waterways (Lake Onega). Residents of Zaonezhye have created a particular type of boat named the "kizhanka", which is popular on Lake Onega even to this day. The road network is poorly developed due to the complex relief and water obstacles.

There are three rural settlements on the territory of the Zaonezhsky peninsula (Velikaya Guba, Tolvuya and Shun'ga). Each of them consists of several small villages (about 90 in total); some of them are inhabited only during the summer season. The total population of the peninsula is around 3500. The population has been declining for more than 10 years. Another trend is the ageing of the population; young people are leaving mainly for the district centre Medvezh'egorsk and the regional capital Petrozavodsk.

The territory of Zaonezhye is famous for its magnificent nature, historical and architectonic monuments, the pearl of which, the Kizhi Island, is a UNESCO monument. In 1966, the State Historical, Architectural and Ethnographic Museum-Reserve "Kizhi" was established. In 1990, Kizhi was inscribed on the UNESCO World Heritage List.

The Kizhi State Nature Reserve under the jurisdiction of the federation includes the protection zone of the Kizhi Museum-Reserve. The protected area of the Kizhi Museum-Reserve is located on an area of 50,000 hectares and has been established to protect rare species of flora and fauna and waterfowl breeding sites. The Museum-Reserve is also located in close proximity to the planned Kizhi Skerries National Park (the second option is the Zaonezhsky Nature Park) with an area of 115,000 hectares, whose main objective is to preserve the natural and cultural values of the northern part of Zaonezhye.

Despite the high attractiveness of the region, accessibility and communication are very difficult and include the following options:

- Water transport between Petrozavodsk and Zaonezhie;
- A bus service runs between Velikaya Guba and Medvezhyegorsk only once a day;
- The journey takes about five hours one way.

It must, therefore, be recognised that the region lies a long way from an economic centre, such as Petrozavodsk, and access to it is extremely difficult.

The region that represents Poland was the Hajnowka Poviat, which covers one of the most valuable natural areas in Europe, the Białowieża Forest with the Białowieża Forest Reserve. The Hajnowka region is characterised by a low percentage of county and municipal road density. The length of hardened surfaces is 39.5 km per 1 km^2. This is considerably less than the corresponding indicators for the Podlaskie Voivodeship (65.1 km per 1 km^2) and entirety of Poland (94.1 km per 1 km^2). The low road density in the Hajnowka region is mainly due to the large area of forest complexes (50.6%) and the low population density, which is 27 persons per 1 km^2 compared to 124 persons per 1 km^2 in Poland (US 2019; CSO (Central Statistical Office of Poland) 2019). Under these conditions, the organisation of public transport is quite a challenge, especially as the county is home to around 150,000 inhabitants in 244 localities.

Comparing the studied regions, it is possible to point out the following characteristics of both areas:

(a) Remoteness from economic centres;
(b) Peripherality;
(c) Mobility (accessibility) problems;
(d) Attractiveness for tourists in terms of valuable natural assets.

Both regions are remote areas and have a wealth of naturally valuable tourist attractions. Due to the location of both regions, improving mobility is a major challenge.

1.4. Research Gap and Expected Contribution to Business Practice

The indicated research gap shows the scarcity (lack) of research on tourist mobility in terms of innovation opportunities. Meanwhile, in the study areas, these are of a pioneering nature. Another novelty is the opportunity to compare such different research areas (Poland and Russia), although with similar natural valuable values. The scientific contribution of the study is the development of a research tool to study the mobility of tourists in different regions with similar tourism values. The expected contribution to business practice is a recommendation for the inclusion of the obtained results in the development strategies of the studied regions.

2. Methods and Materials

Due to the diverse social and political situation in both countries, both the research and the research procedures were adapted to the existing conditions and limitations. In addition, during the course of the project, the coronavirus pandemic began, which hampered the research process. However, despite the difficulties in both cases, every effort was made to achieve the set objectives.

The following formula was used in calculating the minimum sample size for an infinite population, following guidance from the Statistical Office (https://www.statystyka.az.pl/dobor/kalkulator-wielkosci-proby.php, accessed on 18 November 2020):

$$Nmin = z^2 P(1 - P)/e^2$$

The symbols used in the formula are as follows:

P is the estimated fraction size—infinite fraction size;

z is the value resulting from the assumed significance level (α), calculated using the cumulative distribution function of a normal distribution;

e is the maximum estimation error.

In the conducted empirical studies, the following assumptions were made for the infinite population; when the researcher is not able to estimate the size of the fraction P, its value should be set at 50% by default. Accordingly, the following assumptions were made:

- Estimated fraction size P = 50%;
- Significance level z = 5% (0.05);
- Acceptable error e = 0.5 (5%).

The sample size calculation allows the minimum sample size to be determined and the resulting figure should be a natural number, which under the given assumptions is 384 units (respondents). The study used simple random sampling. The sample size for an infinite population (here: tourists) is calculated for quantitative research and has wide applicability in statistical research. In the survey part, the empirical analysis of the results and their prioritisation was based on the respondents' indications. The indicator that differentiated the level of impact of individual factors was the number of respondents' indications for a given factor and its level. In this way, structure indicators were calculated. Here, the structure indicator means the number of statistical units characterised by the n-th variant of a given characteristic, in relation to the number of all statistical units surveyed, and indicates the share of statistical units that possess the n-th variant of the characteristic in the entire surveyed population; it is usually presented as a percentage share. In the assessment of mobility needs and proposed innovative solutions, structure indicators presented in the form of a percentage share were used, on the basis of which the factors were prioritised, starting from a value of 1, indicating the lowest position in the hierarchy, to a value of 5, indicating the highest position in the hierarchy.

The research on the mobility needs of tourists in the Hajnowka Poviat was conducted using a survey method. The survey in Poland was conducted between 2019 and 2021. Two research methods were used, F2F (face-to-face) and CAWI. Respondents and interviewers were able to download the survey questionnaire to their mobile devices (smartphone, tablet) by scanning the QR code. They had access to a paper version of the questionnaire to provide their answers in the questionnaire or to the interviewer who would record them electronically. The survey conducted in Russia was translated and partly adapted from a questionnaire developed by the Bialystok University of Technology in Poland (in Hajnowka Poviat). The respondent group consisted of tourists visiting both regions for tourism purposes. The distribution of a representative sample of Polish tourists is N = 421, while there were 390 respondents in Russia. The questionnaire contained semi-open questions, with a developed set of multiple- or single-choice answers and evaluation questions. The evaluation question used a five-point Likert scale (Poland). The survey questionnaire consisted of the following three parts: preamble, questions concerning the research problem, and respondent specifications. Some questions and answer options concerning means of transport that do not occur in Karelia, i.e., questions on boats, planes and railways, were removed.

The collection and processing of information on the accessibility study in Zaonezhye as part of the MARA project was organised in two stages. The first stage of the work was carried out in summer 2019, together with the Kizhi Museum-Reserve and the "Kizhi Ozherel'e" (necklace) and "Karelia Excursion Bureau" travel companies, as part of a study to determine the motivations of tourists from different regions of Russia and foreign countries to visit Kizhi Island. The second phase was organised in the summer of 2020, when the research expedition aimed to survey local residents and tourists to determine motivations for visiting the sites and the accessibility of the area, and to compile the resulting data. In 2020, the interviewers were interested in the purpose of the trip, the availability of transport services, and the services needed in the remote areas of Zaonezhye. The survey was conducted in the village of Oyatevshchina, Velikaya Guba and on the islands of the Kizhi skerries. This is the first time such work has been carried out in the territory of Zaonezhye in the last few decades, The field phase of the study was organised between June and September by the Centre of Social Tourism Development, at the request of the Tourist Information Centre of the Republic of Karelia. The NGO "Zaonezhskaya Izba" and the Sailing Federation of Karelia were involved in the collection of information. Tool development, data processing and analysis (data entry, data processing and analysis, report preparation) were carried out by sociologist A.G. Chukhareva (Sociological Laboratory of PetrSU). The obtained quantitative data was processed and analysed in SPSS between October and November 2020.

The description of respondents was carried out in a slightly different way due to the rules of the survey directly (Poland) and through contacts of state institutions (Russia). The survey showed that the main purpose of visiting Zaonezhye for the majority of respondents (74.7%) was tourism, while one in ten respondents (8.8%) were a local resident. Of the tourists surveyed in Poland, 46.1% were men and 53.9% were women. Other variables were not examined, so there is no need to provide detailed characteristics of the respondents in Poland.

Due to the coronavirus pandemic and the temporary ban on visiting Kizhi Island in June, the majority of respondents were locals and dacha residents from the villages of Oyatevshchina, Ersenevo, Boyarshchina, Sychi, Yamka, Sennaya Guba, Potanevshchina, Zharnikovo, Korba and Volkostrov. However, already in July and early September, the questions were already answered by tourists from different parts of Russia from Apatity to Bryansk and Belgorod, from Kaliningrad to Perm and Orenburg. In total, the respondents came from 84 cities and regions (except Karelia). The largest influx of tourists was recorded from Moscow (20.7%), Petrozavodsk (19.3%) and St. Petersburg (13.6%). Only two foreign visitors were recorded, from Kiev (Ukraine) and Brest (Belarus).

In general, it should be considered that both groups of respondents constituted a representative sample of the population of tourists who visited both destinations in the analysed period.

3. Results of the Survey: Tourist Mobility Problems in the Hajnowka Poviat and the Zaonezhye Region

An examination of the respondents' answers showed that the general results regarding mobility problems in the two surveyed nature conservation areas are similar, but due to different political and legal conditions and climatic conditions, the specific expectations of tourists differ.

The majority of respondents (92.3%) use road transport when travelling to Zaonezhye, and 9.4% use water transport. They visit the territory for a varying number of days, depending on the purpose of their trip. Other modes of transport, such as bicycle (1.6%), train (1.5%) and aeroplane (1%), had a minor share.

The mobility needs of tourists were measured using the structure indicator (%) regarding Zaonezhye and Kizhi Island and can be summarised as follows:

- There are no alternative transport or excursion routes to the water transport to Kizhi Island and Kizhi skerries;
- Tourism infrastructure along the route R-17 Medvezh'egorsk–Velikaya Guba is not developed.

A survey among tourists regarding the assessment of the condition of infrastructure in Hajnowka County indicates that in categories as access to public transport (57%), frequency of public transport (64%), cost of public transport tickets (71%), availability of information on transport (64%), facilities for the disabled in public transport (77%), the vast majority of respondents do not have a precise opinion, neither positive nor negative, which is due to the fact that most of them do not use local transport. When it comes to assessing the technical state of the transport infrastructure, the majority of respondents (57%) rate the technical state of the transport infrastructure as rather positive and very positive; similarly, respondents rate the safety of their journeys as rather positive and very positive (Figure 1).

The assessment regarding problems with the introduction of changes in the functioning of bus and rail transport and road infrastructure, including bike paths in the Hajnowka Poviat, shows that the vast majority of tourists do not have an opinion on the need for changes in the functioning of local bus and rail transport.

The median, mode, arithmetic mean and standard deviation were calculated for the data presented in the figure. The results are presented in Table 1.

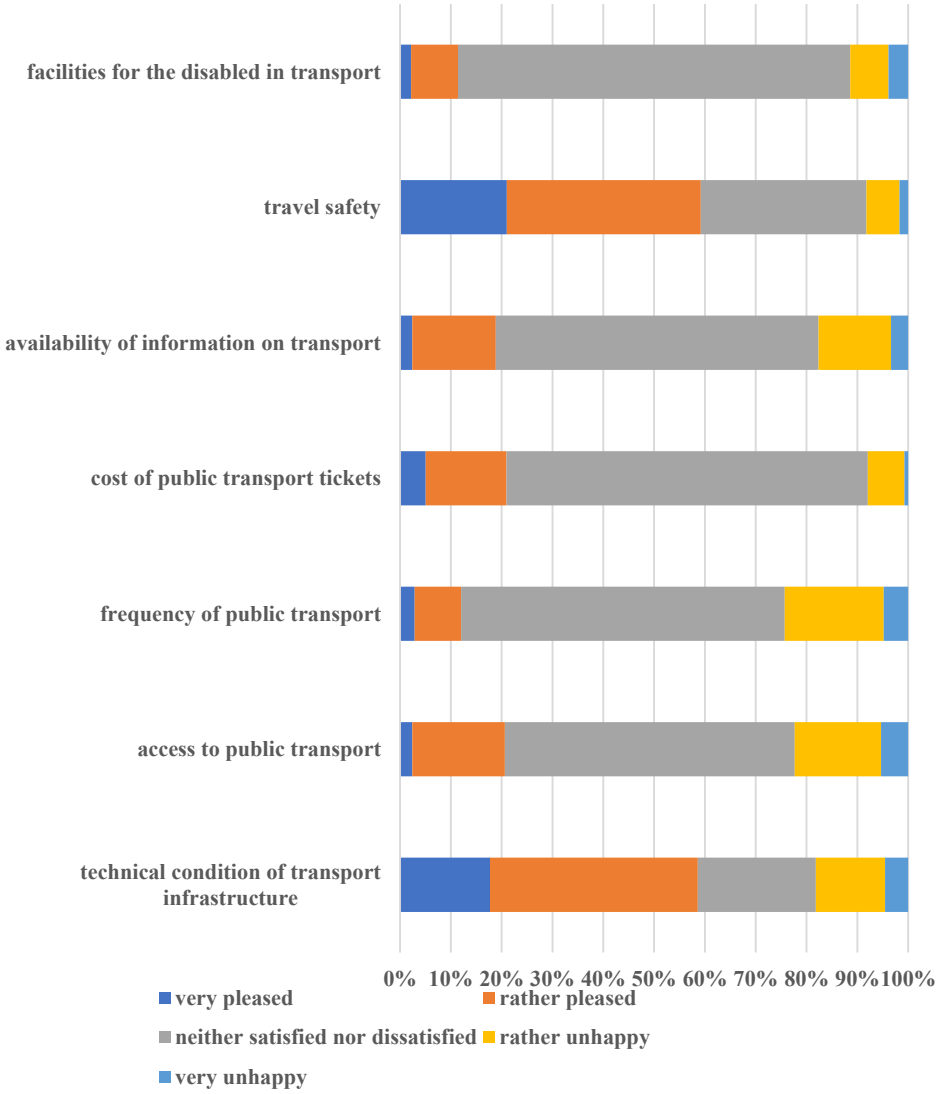

Figure 1. The degree of mobility problems of tourists in Hajnowka Poviat with the concentration of transport services. Source: own study based on empirical research.

Table 1. Evaluation of the condition and problems of infrastructure of Hajnowka Poviat in the opinion of the tourists (median, mode, arithmetic mean, standard deviation).

Variable	Tourists			
	Median Value	Mode	Mean	Standard Deviation
Technical condition of transport infrastructure	4	4	3.54	1.07
Access to public transport	3	3	2.95	0.81
Frequency of public transport services	3	3	2.86	0.76
Cost of public transport tickets	3	3	3.17	0.66
Availability of information on transport	3	3	3.00	0.73
Travel safety	4	4	3.70	0.93
Facilities for the disabled in public transport	3	3	2.98	0.64

Source: own study based on empirical research.

In terms of the technical condition of infrastructure, Polish respondents highlighted a need to improve the technical condition of roads, including an increase in the number of parking spaces. Tourists highlighted a need for more bike paths, including more parking spaces for bicycles.

The surveys conducted in Russia show that more than half of the respondents (65%) are willing to come to the territory of Zaonezhye to an equipped paid car park with all amenities (catering facility, rubbish collection, toilet, etc.). The highest rating for accessibility in Zaonezhye was given to cashless payment services in shops, petrol stations, etc. (the average score for this service was 7.86). The lowest rating was given to catering services (average rating of 5.24). The overwhelming majority of respondents (88%) met their expectations after visiting the Zaonezhye territory. In addition, the local population is actively involved in the development of tourism infrastructure. During the monitoring period of the MARA project, four new guesthouses (reconstruction of pre-existing historical houses from the 19th–20th century) were opened in the Kizhi skerries area. The local people are looking for options to keep guests in the territory by providing a variety of services. The population is particularly active in the Velikaya Guba area; the year-round transport accessibility of the mainland allows for a diverse range of offers and services. However, there is a problem with finding employees in the hospitality field; as a rule, local residents have no vocational training and young people are not interested in permanent employment in rural areas. The survey shows that more than half of the respondents (65.1%) are willing to come to the territory of Zaonezhye to an equipped paid car park with all amenities (catering facility, rubbish collection, toilet, etc.), while 22% said no.

The results show that the main problem related to tourist mobility diagnosed in both regions concerns road infrastructure. However, the detailed data show some differences mainly due to climatic and economic-political conditions.

4. Conclusions

When it comes to the main objective of the research, which was to identify the mobility problems of a tourist destination in remote areas of natural value, it should be considered that this objective has been achieved. Furthermore, the assumption (Hypothesis 1) that road transport is the most popular form of travel in remote areas with natural assets was verified positively, as more than 90% of respondents used this form of transport.

Nevertheless, there is a significant discrepancy in the scope of research conducted and the research material obtained. Namely, the research conducted in the Russian region was significantly limited, due to the political and social conditions and the resulting research needs. The coronavirus pandemic has been a significant obstacle to more extensive research in each region. Despite these obstacles, the results obtained should be considered representative for remote natural value tourism destinations characterised by accidentally valuable assets.

The problems encountered by both groups of tourists in terms of mobility service provision and transport infrastructure represent a gap. Analysis of the results of the survey of tourists travelling in the Hajnowka and Zaonezhye areas in terms of problems related to transport provision and infrastructure indicates the following problems in terms of road infrastructure:

- The car is the absolute dominant means of transportation in both regions, making it necessary to adapt infrastructure to the needs of users;
- The need to improve the technical condition of roads;
- The increase in the number of parking spaces for cars;
- The increase in the number of bike paths in the Hajnowka Poviat;
- The main problems in Zaonezhye are related to roadside services for tourists (the need for free equipped parking areas, campsites, toilets, shops and cafes along the road and availability of waste disposal services).

The apparent differences between the needs of tourists from both regions in terms of detailed infrastructure elements are due to the level of existing infrastructure. Given the

demand for the Zaonezhye area by tourists (as evidenced by the summer of 2020), the many social problems of local residents, the poor development of infrastructure (poor quality of roads, lack of gas stations, power cuts, lack of catering facilities, problems with berths, etc.), it is necessary to consider the development of a separate programme for the development of Zaonezhye.

The research showed that it is possible to formulate some recommendations that are common to both regions, which are as follows:

- Development of information resources that can provide tourists with adequate and timely information concerning transport possibilities and means;
- Development of pedestrian and bike paths and infrastructure.

In addition, respondents visiting the Hajnowka Poviat indicated the need to improve travel conditions for people with disabilities, which should be considered as one of the priorities in upcoming road and transport investments. The current range of transport services in the Hajnowka Poviat indicates that the main problem lies in the frequency of public transport. To a lesser extent, the problem lies in the state of the transport infrastructure, the accessibility of public transport and the availability of information on public transport. The cost of public transport tickets and the safety of travel are rated strongly positive. Promoting a model of private car use by people travelling together is one of the best options.

When formulating practical recommendations for entrepreneurs and state and local authorities, the geopolitical specificities of both regions must be taken into account. The Russian region requires the development of purely tourist infrastructure, mainly accommodation and service services. Based on the analysis, the following recommendations can be considered to improve the mobility and accessibility situation in Zaonezhye:

- The local population should be actively involved in the development of services in passenger and freight transport, excursion services and hospitality;
- The Kizhi Museum should realise plans to create a visit centre at Oyatevshchina and a small multifunctional tourist complex outside of it;
- Car drivers wishing to visit the island should be able to leave their cars there, have lunch and, if they wish, spend the night. It should have a capacity for up to 120 guests and should include parking areas, a café, facilities and an area for camping;
- Road infrastructure development, including road construction, parking places, petrol stations, etc.;
- Reconstruction/construction of the berths;
- Change in helicopter ticket sales' system, with a possibility to buy tickets online.

The added value of the research is the research itself and the research procedure with regard to remote regions with valuable natural assets, as these destinations, due to their uniqueness, should increase the number of incoming tourists by improving accessibility to attractions, but without increasing the negative impact of tourism on these assets. The results obtained, therefore, have both theoretical and practical value. The results of the study coincide with the opinions of other researchers, for example Zamparini and Vergori (2021) and Coppola et al. (2020) regarding transport policies for tourist mobility, which should be synchronised as much as possible and should follow the principles of sustainable tourism, especially one that is environmentally friendly.

The indicated problems in the field of mobility constitute a significant limitation of tourist traffic in both destinations; therefore, the search for new solutions should be preceded by more detailed scientific research aimed at searching for new and also innovative solutions. This recommendation applies mainly to the Russian region, where the presented research was conducted for the first time.

5. Limitations

There are some limitations to this study. Firstly, this study investigated problems related to tourist travel behaviour from an environmental and organisational perspective.

However, due to space limitations, this study only considered some of the problems. Future research would need to consider the deeper problems and identify the two groups of respondents based on income level, place of residence and other. The selection of respondents, at the beginning of the study, was random (every tenth person in face-to-face surveys). Unfortunately, this certainty does not exist in the case of Internet-based surveys, especially those conducted in Russia. Changes in research technique were forced by the pandemic. In the case of Poland, there were relatively few cases, as it was only a matter of completing the study, which started in 2019. In contrast, the other partners, including Russia, struggled by starting their research a little later, which was influenced, among other things, by the tourist season, which in Poland occurs in summer and in Russia in winter. Due to this situation, the research continued online, which may have distorted the results, including the profile of a tourist in Russia. It is currently difficult to trace the profile of respondents, as it would be necessary to complete the data on respondents in Russia and then provide a comparison in a table. At present, the war triggered by Russia in Ukraine and the embargo imposed by many democratic countries on the Russian aggressor are hindering this. Secondly, other potential variables could be included in future studies, for example, tourism and transport company competition and regional cooperation.

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