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THE INCOME ELASTICITY GAP AND ITS IMPLICATIONS FOR ECONOMIC GROWTH AND TOURISM DEVELOPMENT: THE BALEARIC VS THE CANARY ISLANDS

Federico Inchausti-Sintes
Universidad de Las Palmas de Gran Canaria
Facultad de Economía, Empresa y Turismo. D.2.15
35017 Las Palmas de Gran Canaria, Spain.
federico.inchausti@ulpgc.es

Augusto Voltes-Dorta
University of Edinburgh Business School
Management Science and Business Economics Group EH8 9JS Edin
burgh, United Kingdom
avoltes@becarios.ulpgc.es

Pere Suau-Sanchez
Universitat Oberta de Catalunya, School of Business and Economics,
Av. Tibidabo, 39-43, 08035 Barcelona, Spain and

Cranfield University, Centre for Air Transport Management,
Martell House, University Way, Cranfield, MK43 0TR, UK psuau@uoc.edu

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ABSTRACT

The Balearic and the Canary Islands are two well-known tourism-led economies. They both experienced a tourism boom during the same decades, and, hence, they developed a similar productive-mix. Nevertheless, there are strong economic differences between the two regions. While the Balearic Islands enjoy a high GDP per capita, the Canary Islands show a more modest performance. The results of a panel data regression confirm our hypothesis that they differ substantially in terms of income elasticity of tourism. It is two times higher in the Balearic Islands than in the Canaries, which indicates the first is perceived as a more luxurious destination. Furthermore, the results of a dynamic computable general equilibrium model show that the Canaries would converge in GDP per capita with the Balearic Islands if they attracted tourists with a similar profile as the latter.

Keywords: Income elasticity; economic growth; tourism-led economies; dynamic computable general equilibrium.

1. INTRODUCTION

Before the 1960s, the Canary and the Balearic Islands had different economic patterns. The former was an agriculture-led economy with a strong export orientation (Millares, Millares, Quintana & Suárez, 2011). In 1852, the the 'free port law' was approved, which sought to promote the industrialization of the Canary Islands. The law helped to boost both trade and the economy; but the industrialization never happened (Bergasa & González-Viéitez, 1969). On the contrary, the Balearic Islands has historicaly shown better economic performance. By 1800, the archipelago already enjoyed a high literacy rate and a GDP per capita comparable with the richest Spanish regions (Manera, 2006). The industrial sector represented an important share of the regional economy (24%) during the XIX century, even though it was mainly focused on low value-added products with low salaries and technological development (Manera & Parejo, 2012; and Manera, 2006). However, the advent of tourism during the 1960s and '70s led to a strong change in the productive mix of both archipelagos. Since that time, tourism has been, by far, the real motor of economic growth. For instance, by 1975, the service sector represented 68.1% of the Balearic economy (Alcaide, 2003).

Indeed, the rise in tourism activity has produced a redistribution of resources from industry to services (Copeland, 1991). According to Capó, Riera, and Rosselló (2007) and Inchausti-Sintes (2015), this 'de-industrialization' is a consequence of the nature of tourism, which erodes traditional exporting sectors. The first study distinguishes two key periods that explain this trend: first, the tourism boom between 1965 and 1974, when the GDP grew 6.4% and 7.3% for the Balearic and the Canary Islands, respectively, and with capital accumulation explaining more than a half of this growth. The second key period took place between 1995 and 2000, as the trend reversed and employment became the main source of economic growth. The consequent reduction in capital intensity lead to a productivity drop in both archipelagos.

Nowadays, both regions are major sun-and-beach destinations in Europe. According to the Spanish National Statistics Institute (INE), 81 million tourists visited Spain in 2019, 14 million of which (17%) went to the Canary and Balearic Islands. Both archipelagos have shown similar levels of human development in the last decades (Herrero, Soler & Villar, 2012). However, the differences in economic performance still remain (see Figure 1 left). While the Balearics enjoy above-average levels of GDP per capita, the Canary Islands are 18% below the national average in 2017. The unemployment rate also differs (Figure 1 middle). The Balearics have an unemployment rate with strong seasonal variation, yet still around the national average. On the contrary, the Canary Islands are always above the national average. In terms of productivity, between 2008 and 2014, the tourism sector and its associated employment in the Balearic Islands represent 42% and 29% of the GDP, respectively. The same measures for the Canary Islands are 29% and 33% (Exceltur, 2015). Thus, the Balearics obtain a higher tourism outcome with less labor. A possible reason is that, while the Canaries experience a higher expenditure per international visitor, stays in the Balearics are, on average, shorter in duration and this translates into higher average daily expenditure in peak season (Figure 1, right). Further evidence of the strength of the Balearic tourism sector can be found when looking at the level of foreign investment. According to the Spanish Institute for Foreign Trade (ICEX), between 1993 and 2018, companies based in the Balearics accumulate 2.2 billion euro in global investments in the accommodation sector, which is 8.41 times higher than the ones made by Canarian firms. The income generated by such investments also contributes to the economic gap between both tourism-led economies.

[Table 1 about here]

[Figure 1 about here]

We hypothesize that a difference in the income elasticity of inbound tourism must exist in order to explain the broad gap in economic performance between the two regions. This intuition is supported by past studies that have established a positive correlation between income per capita, income elasticity and exports (Bahmani-Oskooee & Kara, 2005; Fieler, 2011; Weldemicael, 2014; or Cherif, Hasanov & Zhu, 2016). In economic terms, a higher income elasticity implies a higher willingness to pay as income grows, which, in turn, increases the possibilities of higher valued-added gains, especially in service-based sectors, like tourism, with a traditional lack of productivity improvements. However, no previous study has carried out a comparative analysis of tourism income elasticities between different regions within the same country and its consequences in term of GDP and employment.

In order to fill this gap, we estimate the income elasticities of inbound tourism in both regions and quantify their economic impact. To that end, we first carry out a panel data regression on a dataset of international tourist arrivals to the Canary and Balearic Islands, disaggregated by country of origin and island of destination, between 2012 and 2016. As expected, we find that income elasticity is significantly higher in the Balearic Islands. Then, a dynamic computable general equilibrium (CGE) model is used to quantify the economic differences generated by the elasticity gap. The results show that the Canaries would converge in GDP per capita with the Balearic Islands if assuming the income elasticity of the latter. This conclusion has direct implications in regards to the development and promotion of the Canary Islands as a tourism destination in the future.

The remainder of this paper is structured as follows: Section 2 reviews the literature on the estimation of income elasticities in tourism studies. Section 3 covers the process of data collection, the panel data regression and CGE methodology. Section 4 presents the results and discusses their main implications. Section 5 concludes with a summary of the main findings.

2.LITERATURE REVIEW

2.1 Income elasticity and economic growth

Sectoral differences in productivity, alongside with an income elasticity gap, have been linked to the transition of economic activity from low value-added sectors (e.g. agriculture) toward high value-added, technological ones (Matsuyama, 1992). This economic progress is mainly triggered by the rise in costs (especially salaries) as a consequence of economic growth. In the long term, the economies embarked in this transition see how the less productive labour-intensive sectors tend to be outsourced in cheaper economies, while focusing on more productive capital-intensive ones which allow firms to sustain higher salaries (Hoffman, 1969; Hausmann, Hwang & Rodrick, 2007 or Ricardo, 1821). This economic transition also affects the quantity and quality of the goods traded internationally. According to Fieler (2011), the production technologies are more diverse in goods with higher income elasticity, which also generate a large dispersion in prices. Thus, richer countries that are prone to produce and consume these goods, also have an incentive to trade with them. On the contrary, developing countries focus more on goods whose technology is similar across countries. As a result, rich countries trade among them with differentiated goods, whereas the trade with developing countries occurs primarily with homogeneous goods. Thus, wealthy countries tend to enjoy an export income elasticity greater, and above one, than those of developing countries (Bahmani-Oskooee & Kara, 2005). The former also show an import income elasticity lower than the export one. In the long term, exports will grow faster than imports, which benefits the trade balance, reduces the potential foreign debt imbalances, and strengthens economic growth (Houthakker & Magee, 1969; Johnson, 1958).

In term of tourism-led economies, both the strong *de-industrialization* and *tertiarization* of their economies limit the development of highly technological sectors, meaning that the economic evolution described above does not occur. Moreover, tourism, as a service-based activity, tends to show lower productivity compared to other industrial activities (Acelus & Arozena, 1999; Fixler & Siegel, 1999; or Nordhaus, 2001). Hence, its capacity to sustain higher salaries is seriously limited. Finally, these economies are usually small islands located far away from their biggest markets, and with a strong dependence on imports. Hence, the objective of achieving a favorable export-import income elasticity ratio, as in most developed economies, is more relevant for tourism-led economies.

2.2 Income elasticity in tourism

There is broad consensus in the literature that international tourism is a luxury good (i.e. income elasticity higher than one). This was the main result of most studies between the 60s and 80s (reviewed by Crouch, 1992), and more recent publications (with different geographical scopes, data sources, and methodological approaches) have confirmed this (See e.g. Algieri & Kanellopoulou, 2009; Falk, 2014; Martin & Witt, 1987; Song, Romilly & Liu, 2000; Untong, Ramos, Kaosa-Ard & Rey-Maquieira, 2015; Vogt & Wittayakorn, 1998). Smeral (2003) notes how income elasticity is usually higher than price elasticity but, over the last decades, many authors have noted how global tourism income elasticities show a decreasing trend due to an ongoing saturation process (Gunter & Smeral, 2016; Morley, 1998) and the impact of recent economic recessions (Peng, Song, Crouch & Witt, 2015; Smeral, 2017).

We can mention three main trends on how to interpret income elasticities from the perspective of local authorities in tourism destinations. First, and the most common, is to aid in forecasting visitor flows. Knowing the income elasticity of the origin markets allows local authorities to prepare and react to a foreseeable major drop in inbound flows in the event of an economic recession (Dougan, 2007; Lim, Min & McAleer, 2008; Saayman & Saayman, 2015; Smeral, 2009). The second application relates to destination marketing: the calculation of market-specific income elasticities aids in market segmentation (Álvarez-Díaz, González-Gómez & Otero-Giráldez, 2015; Lin, Liu & Song, 2015; Fredman & Wikström, 2018). It has been well-established that income elasticities change across origin countries (Jensen, 1998; Smeral, 2003; Smeral, 2014) as they are sensitive to income levels and business cycles. Falk & Lin (2018) and Pham, Nghiem & Dwyer (2017) note how the estimation of income elasticities for each point of origin facilitates the identification of underserved and non-saturated markets (those more income-elastic) that can be seen as more attractive. Thirdly, Smeral (2003) employs income elasticities in the context of an investigation about the differences in the productivity gap between tourism and manufacturing sectors. These differences can be partly attributed to the luxury nature of the tourism product. To achieve our research objectives, we adopt the second and third approaches to discuss income elasticities in our case study.

From a methodological perspective, most academic studies on the estimation of price and/or income elasticities of tourism demand employ a country-level approach. This means either looking at inbound markets for a given destination country (e.g. Jensen, 1998; Morley, 1998; Untong et al., 2015) or outbound markets for a given country (or countries) of origin (e.g. Song, Romilly & Liu, 2000; Smeral & Witt, 2002; Lin et al., 2015). A common conclusion is that the differences in income elasticities depend on the nationality of the visitor. Still, there seems to be a gap in the literature when analysing tourism markets below the country level. Certainly, we can find destination-specific studies (e.g. Liu, 2016 or Fredman & Wikström, 2018) but income elasticities at an intermediate, i.e. regional/provincial dimension are not common. The value of disaggregating destination markets is in the possibility of identifying different levels of market positioning for the regional tourism products offered within the same country, as some destinations can be perceived as more luxurious than others based on income elasticities. There is also value on disaggregating origin markets as well below the country level. For example, Bernini & Cracolici (2016) establish significant differences in the income elasticity of international tourism demand between North and South Italy, linked to the income gap between these regions. Similar conclusions have been found by Alegre & Pou (2004), Alegre, Mateo & Pou (2009), and Eugenio-Martin & Campos-Soria (2011). This justifies the value of a disaggregated approach at an origin level as well.

Most studies employ panel data regression methods to estimate demand functions, from which to derive income elasticities. Besides the regular OLS regression approaches, we find examples of more sophisticated techniques such as Autoregressive-Distributed-Lag models (ARDL) (see e.g. Álvarez-Díaz et al., 2015; Lin et al., 2015), Error Correction Models (ECM) (e.g. Smeral, 2009; Algieri & Kanellopoulou, 2009), Discrete Choice Logit (e.g. Alegre & Pou, 2004) or a Probit regression (Eugenio-Martin & Campos-Soria, 2011).

Regarding the dependent variable, most studies employ total international arrivals/departures, number overnight stays, or visitor expenditure (i.e. tourism exports or imports). Income is typically defined by measures like the Gross Domestic Product (GDP) per capita of the origin country, with a Purchasing Power Parity (PPP) correction in case of an international sample (Song, Romilly & Liu, 2000; Falk & Lin, 2018). In regard to price, the use of Consumer Price Indexes (CPI) for the destination is a staple in the literature as a proxy for the visitor's cost of living. Martin & Witt (1987) defended that local CPIs should be converted to the visitor's own currency by means of an exchange rate adjustment. Álvarez-Díaz et al. (2015) also recommends the use of sector-specific price indexes (e.g. accommodation or catering services) as a more precise proxy variable. Also common is to combine origin and destination CPIs to obtain a measure of relative prices, from which a negative coefficient sign is still expected if the substitution effect prompted by a more expensive destination dominates the income effect associated to lower CPI at the origin (Crouch, 1992). There is less consensus about whether to introduce substitute prices in the specification. Papers like Dougan

(2007), Algieri & Kanellopoulou (2009), Smeral (2014), Lin et al. (2015), or Pham et al. (2017) only employ origin and destination prices, with the latter arguing that introducing a synthetic (and possibly inconsistent) price index for a bundle of potential competitive destination countries will diminish the accuracy of the inferential analysis. A final aspect to consider is the potential endogenous relationship between the dependent variables and the price indicator since it cannot be assumed that tourism supply will be perfectly inelastic to price, particularly in tourism-dependent economies (Crouch, 1992). Thus, the use of instrumental variables is commonly seen as well, with lagged prices being a common solution that aim to capture a "price inertia" effect (Dougan, 2007). Other common variables include demand shocks (e.g.major sport events), visa restrictions, average air fares (to control for the visitor's transportation costs), and other air connectivity indicators, such as non-stop flight frequencies between the points of origin and destination.

Based on the above, our investigation can clearly contribute to the literature on the estimation of income elasticities on tourism. While we employ established theories and methods, we offer a level of disaggregation in the analysis at both origin and destination markets that is more detailed than past contributions.

3. DATA AND METHODOLOGY

3.1. Datasets

The key source of data for this research is the "Tourist Movement on Borders" (FRONTUR) survey published by the Spanish National Statistics Institute (INE) and the regional statistical offices from the Balearic and Canary Islands. This survey provides a breakdown of monthly tourism arrivals to the major islands according to a selection of visitor nationalities. The dataset was compiled between January 2012 and December 2016 in order to match the availability of income data. Table 2 provides an overview of visitor arrivals in 2016. The Balearic survey provides disaggregated figures for the following inbound markets: France, Germany, Italy, the Nordic Countries, and the United Kingdom. The survey for the Canary Islands includes all those countries and also reports the number of visitors from Belgium, Ireland, and the Netherlands. In both regions, the major nationalities reported in the FRONTUR survey amount for more than 90% of the total international visitors. Looking at the destination islands, the Balearic survey combines the visitors to Ibiza and Formentera, due to the proximity between the two islands and the latter lacking an international point of entry (e.g. airport). Similarly, only the five Canary Islands with an international airport are reported (Tenerife, Gran Canaria, Fuerteventura, Lanzarote, and La Palma). Overall, Germany and the United Kingdom are the major inbound markets in both regions, with a stronger share of Nordic visitors in the Canaries.

[Table 2 about here]

Despite the similarities stated above, these tourist regions differ strongly when looking at how international visitors are distributed across the year (see Figure 2). The Balearic Islands show an extreme degree of summer seasonality, typical of coastal regions in the Mediterranean (Rosselló & Sansó, 2017), while the Canaries, which enjoy a sub-tropical climate, are clearly a year-round tourism destination with a slightly higher level of activity during the winter season. This will have implications at the time of capturing seasonality in our regression model.

[Figure 2 about here]

In order to deliver a more precise analysis on income elasticities for different inbound markets, we disaggregate the FRONTUR monthly visitor statistics according to airport of origin using data on monthly airline bookings (i.e. Market Information Data Tapes - MIDT) provided by OAG Traffic Analyser. This source provides information on travel itineraries and country-of-sale for airline bookings purchased in the selected countries (to remove airline tickets purchased by island residents) and terminating in the international airports from the Balearic and Canary Islands. The proportion of visitors allocated to each origin-destination airport pair is equal to the proportion of airline tickets within the total airline traffic at country-island level. This allows us to separate the visitor traffic assigned to "Nordic Countries" (see Table 2) to Sweden, Norway, Finland, and Denmark. Figure 3 shows the outcome of this disaggregation step for 2016. The airline MIDT dataset reveals that visitors from mainland Europe originate from many different points (217 different origins in total). The vast majority of these airports do not have a direct (i.e. non-stop) flight connection to the islands and, hence, they depend primarily on their national hubs to reach the tourism destinations with at least one flight connection. These origin markets would remain "hidden" if only employing flight schedules to/from the island airports in this step.

[Figure 3 about here]

Each origin market is assigned a regional measure of GDP per capita in purchasing power standards at a NUTS 2 level (based on the location of the respective airport). This information is available with annual frequency in Eurostat until 2016 (at the date of access). We also gathered NUTS 3 income data for the destination islands to use it as an instrumental variable.

3.2 Panel data regression

An unbalanced panel dataset of 31,844 observations was obtained. This includes a cross-section of 913 origin-destination airport pairs (217 origin airports from 11 countries travelling to 8 destination islands) over 12·5=60 time periods (January 2012 to December 2016). In order to facilitate the interpretation of the estimation results in terms of demand elasticities, a double-log specification was employed. Our basic model is shown in Equation 1:

(1) $ln\left(visitors_{i,t}\right) = \beta_0 + \beta_1 l\,n\left(cpidestadj_{i,t}\right) + \beta_2 l\,n\left(nonstop_{i,t}\right) + \sum_i \beta_i \ln\left(gdppc_{i,t}\right) \cdot region_i + \sum_j \beta_j island_j + \sum_k \beta_k country_k + \sum_{mi} \beta_{ti} month_m \cdot region_i + \sum_y \beta_y year_y + u_{i,t}$

(2) $u_{i,t} = v_i + \varepsilon_{i,t}$

where *i=(1,…,913)* denotes an origin-destination airport pair and *t=(1,…,60)* refers to the time period. β refers to the vector of coefficients to be estimated and u_i denotes the error term which, in panel data, is disentangled into an unobservable individual specific effect (v_i) and the rest of the disturbance ($\varepsilon_{i,t}$) (see equation 2). The Breusch-Pagan multiplier test (Breusch & Pagan, 1980) supports the panel-data approach (likelihood ratio=2.2E+05) over a pooled one with 1% significance. The results of a Hausman test to check the correlation of v_i with the explanatory variables (Hausman, 1978) allow us to employ a random-effects (*RE)* regression. A White test (55.55) does not reject the presence of heteroskedasticity at 1% significance, which implies that the model must be estimated with robust standard errors.

The dependent variable ($visitors_{it}$) is defined as the number of visitors in the *i-th* origin-destination airport market in month *t*. As independent variables, our price indicator *cpidestadj* measures the "accommodation and restaurants" consumer price index (CPI) of the destination island. The INE provides three CPI values: one for all the Balearics, another for Tenerife and La Palma, and a third one for Gran Canaria, Lanzarote, and Fuerteventura. This CPI is adjusted by the relative change in exchange rates for those origin countries that do not have euros as currency[i]. The effect of events like the Brexit vote (June 2016) on the value of the British Pound makes this adjustment necessary as one of the top visitor markets experienced a sudden drop in purchasing power with respect to the Euro. A second adjustment is made for prices at origin via the purchasing power parity exchange rate at a

NUTS 2 level sourced from Eurostat (to capture regional differences at origin). Thus, an increase in *cpidestadj* refers to an increase in the relative tourism prices at the destination with respect to the prices in the origin region and measured in the visitors' own currency. Since this variable is deemed to have a strongly endogenous relationship with the visitor numbers, we use the GDP per capita in the destination island (*gdppcdest*) and the 12-month lagged price as instruments.

Given the insular nature of the destination regions, we also account for the level of air connectivity. The number of monthly non-stop airline frequencies between each of the sample countries and each of the islands (*nonstop*) is the chosen metric. The data comes from the OAG Traffic Analyser. The potentially endogenous relationship between air connectivity and international visitors is addressed by employing the 12-month lag of the total direct and indirect airline connections at a country-island level, as suggested by Koo, Lim, & Dobruszkes (2017) in order to capture how airline networks naturally developed over time (*conx*).

A Sargan-Hansen test confirms the existence of endogeneity with *cpidestadj* and *nonstop* at 1% significance, thus supporting the use of a two-stage least squares method (2SLS) with the aforementioned instruments.

Income is proxied by the GDP per capita of the NUTS 2 region that contains the origin airport (*gdppc*). We add an interaction with regional dummies to test the hypothesis that the tourism products delivered by the Balearic and Canary Islands have different income elasticities.

The specification is completed with a set of dummy variables for the island and origin countries, which, among other things, can control for different levels of destination loyalty, possibly motivated by the existence of large communities of expatriates already settled in the islands. We also control for the seasonal component of visitor traffic with monthly dummies separated by region, as clearly needed from the analysis of Figure 2. The existence of an overall time trend is captured with the year dummies.

Table 3 provides basic descriptive statistics of the chosen variables. Table 4 shows the pairwise linear correlation matrix, which allows us to rule out any problems with multicollinearity in the specification. The largest correlation (59.2%) is present between non-stop and indirect air connectivity at a country level, which highly desirable for an instrumental variable.

[Table 3 about here]

[Table 4 about here]

The income elasticities estimated in the regression stage are brought forward to the CGE model.

3.3 Dynamic CGE model

The use of CGE models in tourism research is well established, with past contributions focusing on the effects of tourism on social welfare (e.g. Blake et al., 2006), reducing poverty and inequality (e.g. Njoya & Seetaram, 2018), or real exchange rates (e.g. Copeland, 1991), with authors commonly noting its impact on other sectors (e.g. Inchausti-Sintes, 2015). In our case study, we develop a dynamic CGE model based on the Input-Output Tables (IOTs) of the Canary and Balearic Islands, sourced from the respective regional statistical offices (ISTAC and IBESTAT). While the last available tables correspond to 2005 and 2004, respectively, the evolution of sectoral shares in both regions has not changed dramatically in the last decade. The models were programmed in the software GAMS using the mathematical programming system for general equilibrium (MPSGE) (Rutherford, 1999).

The regional economies are split into nineteen sectors, with the base model having one government and one representative household as the main actors. We also assume perfect factor mobility in small economies, as well as competitive markets and flexible prices. Demand elasticities are sourced from Hertel (1998).

The central equation in the respective regional CGE models can be written as follows:

$$(3) \qquad A_{i,t} = \gamma \left(\chi_i D_{i,t}^{\,1-\frac{1}{\sigma_{dm}}} + (1-\chi_i) M_{i,t}^{\,1-\frac{1}{\sigma_{dm}}} \right)^{\frac{1}{\sigma_{dm}-1}} ,$$

where *M* refers to imports and *D* are domestic goods, both of which can be aggregated in *i* composite goods (usually referred to as Armington goods) at time period *t* ($A_{i,t}$). This aggregation follows a constant elasticity of substitution (CES) function (Equation 3), where γ, χ_i and σ_{dm} refer to the scale parameter, the value share of *D,* and the elasticity of substitution between *D* and *M*, respectively (Armington, 1969).

Composite goods can be demanded as intermediate goods, and, as such, they enter into a nested production function (Eqs. 4 and 5) that considers the requirements of capital ($K_{a,t}$) and labour ($L_{a,t}$) of each economic sector (a_t). In the first nest, *K* and *L* are transformed with a CES function to produce a composite good (va_a), with η, ϕ and ρ denoting the scale parameter, the value share of K, and the sector-specific elasticity of substitution, respectively. In the second nest, the sectoral production ($actv_{a,t}$) is determined by combining va_a with the intermediate demand ($id_{i,a,t}$) according to a Leontief function with fixed coefficients *α* and *β*.

$$(4) \qquad actv_{a,t} = min \left\{ \min \frac{id_{i,a,t}}{\beta_{i,a,t}}, \frac{va_{a,t}}{\alpha_a} \right\}$$

(5) $va_{a,t} = \eta_a \left(\phi_a K_{a,t}{}^{\rho} + (1-\phi_a) L_{a,t}{}^{\rho}\right)^{\frac{1}{\rho}}$ being $\rho = \frac{\sigma_{va}-1}{\sigma_{va}}$

The sectoral production is then aggregated by goods: $Y_{i,t} = \sum_a \psi_{i,a} actv_{a,t}$, where $\psi_{i,a}$ is the value share of the i-th good in sector a, followed by another CES transformation to disaggregate $Y_{i,t}$ into domestic ($D_{i,t}$) and export goods ($X_{i,t}$) as follows:

(6) $Y_{i,t} = \varepsilon_i \left(\delta_i D_{i,t}{}^{(1+T)} + (1-\delta_i) X_{i,t}{}^{(1+T)}\right)^{\frac{1}{T}}$,

where ε_i , δ_i and T denote the scale parameter, the value share of D and the elasticity of transformation between D and X, respectively.

K and L are demanded by the economic sectors such that $\overline{L_t} = \sum_a L_{a,t}$ and $K_t = \sum_a K_{a,t}$, where the sectoral demand of both factors (K_a and L_a) is defined as follows:

(7) $K_{a,t} = \eta_a{}^{\sigma_{va}-1} \left(\frac{(1-\phi_a) P_{a,t}}{r_t}\right)^{\sigma_{va}} actv_{a,t}$

(8) $L_{a,t} = \eta_a{}^{\sigma_{va}-1} \left(\frac{\phi_a P_{a,t}}{w_t}\right)^{\sigma_{va}} actv_{a,t}$

Composite goods can also be consumed by households, the government or invested according to their preferences. In the case of households, the amounts of capital ($\overline{K}_{H,t}$) and labour ($\overline{L}_t$) available, as well as the current account deficit ($\overline{CC}_t$) are added up to obtain the overall constraint (H_t) for consumption and investment decisions ($H_t = r_t K_{H,t} + w_t \overline{L}_t + e_t \overline{CC}$). Governments are constrained (G_t) by the total capital endowment, including both households' and government's ($K_t = K_{H,t} +$

$K_{G,t}$) as well as taxes ($G_t = r_t\overline{K_t} + taxes_t$), where w_t, r_t and e_t are the salaries, price of capital and real exchange rate, respectively.

Consumption and investment demands are defined as follows:

(9) $$C_{i,t}^{H} = {\upsilon_i}^{\sigma_h - 1}\left(\frac{\lambda_i P_{i,t}}{P_{cpi,t}}\right)^{\sigma_h} H_t$$

(10) $$C_{i,t}^{G} = {\tau_i}^{\sigma_g - 1}\left(\frac{\kappa_i P_{i,t}}{P_{g,t}}\right)^{\sigma_g} G_t$$

(11) $$Inv_t^{H} = \iota^{\sigma_h - 1}\left(\frac{\varsigma Pinv_{,t}}{P_{cpi,t}}\right)^{\sigma_h} H_t$$

(12) $$Inv_t^{G} = \omega^{\sigma_g - 1}\left(\frac{\zeta Pinv_{,t}}{P_{g,t}}\right)^{\sigma_g} G_t$$

where $C_{i,t}^{H}$, $C_{i,t}^{G}$, Inv_t^{H} and Inv_t^{G} refer to the goods demanded by the representative household, the government, and the total investment accrued by the representative household and the government, respectively. These CES demands have υ_i, τ_i, ι and ω as scale parameters; λ_i κ_i, ς and ζ denote the respective value shares; $P_{i,t}$, $P_{cpi,t}$, $Pinv_t$ and $P_{G,t}$ denote the prices of the relevant goods, the consumer price index, the price of investment and the price of government, repectively. σ_h and σ_g refer to the elasticities of substitution for households and the government, respectively. Both the government and the representative household are assumed to present a backward-looking behaviour when maximizing utility. Finally, the following identities also hold to meet the income balance constraints: $H_t = Inv_t^{H} + C_t^{H}$; being $C_t^{H} = \sum_i C_{i,t}^{H}$ and $G_t = Inv_t^{G} + C_t^{G}$; being $C_t^{G} = \sum_i C_{i,t}^{G}$.

In line with the objectives of this paper, we introduce "tourists" as a third actor in this economy, whose total demand for composite goods ($C_{i,t}^{tour}$) can be defined as follows:

(13) $$C_{i,t}^{tour} = \varpi_i^{\sigma_{tour}-1}\left(\frac{\theta_i P_{i,t}}{e_t}\right)^{\sigma_{tour}} tourism_t$$

They are constrained by their expenditure level ($tourism_t$). ϖ_i denotes the scale parameter; θ_i refers to the value shares of each good, e represents the real exchange rate and σ_{tour} is the elasticity of substitution.

The tourism income elasticity estimated in the regression stage is introduced in the CGE model by adding an extra level of consumption of the relevant goods in the tourism consumption bundle and simultaneously including this extra consumption as a positive endowment in the tourism income balance constraint (Stone-Geary consumption demand).

Model closure is ensured with several additional assumptions (Hosoe, Gazawa & Hashimoto, 2010), such as investment being driven by savings, zero government deficit, fixed global prices and foreign savings. We also account for unemployment by means of a minimum wage constraint: $w_t = P_{cpi,t}$, which implies that unemployed individuals will only work if salaries (w_t) compensate the opportunity cost represented by the consumer price index ($P_{cpi,t}$). Both models were calibrated assuming an unemployment rate of 29% and 11.67%, for the Canary and Balearic Islands, respectively (according to ISTAC and IBESTAT figures).

The dynamic nature of our model also requires us to define annual rates of economic growth (g), depreciation of capital (δ), and an interest rate (ir). Economic growth is assumed at 1.6% according to IMF (2019) and the annual depreciation rate is 5% (Escribá-Pérez, Murgui-García & Ruiz-Tamarit, 2017). Therefore, the initial stock of capital ($K0$) and the interest rate are determined as follows: $K0 = Inv/(g+\delta)$ and $ir = (VK/K0)-\delta$. Where Inv denotes total investment and VK refers to the total gross operating surplus.

The government and the household's capital endowment change over time as follows:

$$(15)\ K_{H,t} = (1-\delta)K_{H,t-1} + VK_{H,t} + inv_{t-1}\overline{inv}_{H,t}(ir+\delta)$$

$$(16)\ K_{G,t} = (1-\delta)K_{G,t-1} + VK_{G,t} + inv_{t-1}\overline{inv}_{G,t=0}(ir+\delta),$$

where $VK_{H,t}$ and $VK_{G,t}$ denote the gross operating surpluses accrued by the household and the government, respectively. And, $\overline{inv}_{H,t=0}$ and $\overline{inv}_{G,t=0}$, denote the initial endowment of investment for the household and the government, respectively.

Finally, we assume an annual increase of 2% in arrivals (this is the shock to be modelled), which is the forecast established by the World Tourism Organization for Southern Europe in the following 30 years (2010-2030) (UNWTO, 2011). Therefore, we use a time horizon of 21 years in the dynamic model (2019-2030).

4. RESULTS AND DISCUSSION

4.1 Panel-data regression

Table 5 shows the estimation results for the 2SLS regression. The coefficients of *loggdppc.Balearic* and *loggdppc.Canaries* clearly support our working hypothesis: the Balearic Islands show a tourism income elasticity of 2.33 which is two times higher than the respective elasticity in the Canary Islands (1.16). This indicates the first is perceived as a more luxurious destination. According to Peng et al (2015), the average tourism income elasticity in Europe is 2.4. The Balearic income elasticity is around the same magnitude than the one estimated for winter tourism in Switzerland (Falk, 2014) or Japanese tourists in New Zealand (Lim et al, 2008). On the other hand, the income elasticity in the Canary Islands is closer in value to the Chinese tourist demand to Thailand (Untong et al, 2015). Still, both values are more optimistic than the global elasticities reported by Gunter and Smeral (2016) for the period 2004-2013, with a tourism income elasticity well below one (0.2) for Southern Europe.

We find inbound tourism demand to be price-inelastic: a 1% increase in relative prices decreases demand by 0.6%. This result is opposite to Crouch (1995), Garín-Muñoz (2006) and Garín-Muñoz & Montero-Martín (2007), who all argue that sun-and-beach destinations tend to be price-elastic. According to Peng et al. (2015), the price is also elastic for tourism in Europe (-1.20). On the other hand, Gunter and Smeral (2016) obtained an inelastic price sensitivity, with some few exceptions, for the period 1977-2013. For instance, price elasticity is -0.61 at world level, whereas is -0.50 for Southern Europe.

[Table 5 about here]

[Table 5 (continue) about here]

We can also disaggregate the income elasticities according to geographical market. The estimates are shown in Table 6, and, as expected, all the Canary Islands show an income elasticity lower than the Balearic Islands in all cases. The regional-level differences in income elasticity remain statistically significant at 5% level. There are also differences in the central estimates of income elasticity across the major origin countries within each region. Thus, our results point to a similar conclusion than that of Jensen, (1998), Smeral (2003) or Smeral (2014) about the existence of different segments for inbound tourism demand according to nationality and, hence, to the different preferences and income levels of these visitors.

[Table 6 about here]

In accordance with the established interpretation of income elasticities in relation to product positioning and market segmentation, it is possible to investigate whether the differences between the Canary and Balearic Islands can be traced to their current market mixes. The slope graphs provided in Figures 4 to 6 show the differences in the relative ranking of origin markets according to income elasticity and share of visitors. Countries with a higher ranking in terms of income elasticity will perceive the destination as more luxurious and hence, they can be considered as very attractive, non-saturated, high-yield markets. This ranking can be compared to the actual country market shares in each island to evaluate whether the islands are currently serving their most attractive inbound markets. Results show that the minor Balearic Islands of Menorca, Ibiza, and Formentera have the most distinctive visitor profiles, because their top market (Germany) is also among their most income-elastic. This suggests a better market positioning as a luxury destination, which is seen very clearly in the respective branding strategies developed by the local tourism boards (e.g. www.ibizaluxurydestination.com) that reinforce aspects such as exclusivity that are highly appealing to these visitors. The other islands, including Mallorca and all the Canaries show a different, more traditional profile, with income elasticities and market shares showing an inverse rank correlation, which signals a specialization on massive tourism markets with a higher degree of saturation. Thus, a second conclusion is that the Balearics achieve better tourism outcomes because they have been able to offer visitors a more diversified choice of destinations, with minor islands focusing on a luxury experience while the main island retains its high-end massive appeal. In spite of that, most islands have room for improvement by growing their most income-elastic market segments. Indeed, the German and UK visitors to the Canary Islands show evident signs of being a mature market, while the Netherlands, Belgium, and the Nordic Countries appear to be the best targets for further development.

[Figure 4 about here]

[Figure 5 about here]

[Figure 6 about here]

4.2 CGE model

The economic consequences of the elasticity gap are quantified with a dynamic CGE model, in which we simulate the Canaries experiencing the same tourism income elasticity than the Balearics between 2019 and 2030. Two scenarios are presented: in Scenario A, the income elasticity affects key tourism-related goods ("accommodation", "catering services", "real estate", "rent a car", "travel agencies" and "entertainment"). In Scenario B, the income elasticity affects all goods. Both scenarios are shocked by a 2% annual increase in tourism arrivals. For comparability, we simulated the same scenarios but for the opposite case: the Balearics having the same elasticity than the Canaries (Scenarios A* and B*).

According to Table 7, the Canaries would grow between 20% and 40% over the period in Scenarios A and B, respectively. In total, there would be 82,596 new jobs (3,933 new annual jobs) which would imply a reduction in the unemployment rate from 20% to 12.75% by 2030 in Scenario A. This value is similar to the current unemployment rate in the Balearic Islands (11.67%). The estimate of new jobs created is slightly worse in Scenario B, which can be explained by the higher prices (due to higher GDP) that reduces the willingness to work. With their own income elasticity, the Baleric Islands are predicted to grow between 22% and 29%, without a significant reduction in unemployment[ii].

[Table 7 about here]

These results can be better contextualized when translating the multiplicative GDP effects into real values. Table 8 shows the ranking of the Spanish Autonomous Communities by GDP per capita in 2018. The Balearic Islands enjoy a GDP per capita slightly above the national average. On the contrary, the Canary Islands are located in the lower half with a GDP per capita that is 1.22 and 1.27 times lower than the national average and the Balearic Islands, respectively. However, the differences in GDP per capita between both archipelagos would reduce from the actual 27% to 4% in Scenario A, and to -9% in Scenario B as the Canaries would converge in GDP per capita with the wealthiest Spanish regions. In the opposite situation (Scenarios A* and B*), the Balearics would fall to the lower half, closer to the Canaries' current satiation. Thus, it is clear that, *ceteris paribus*, the tourism income elasticity plays a key role in the economic performance of both insular regions. This illustrates the benefits of transitioning towards a higher-end "luxury" destination to tap the more income-elastic traveller segments.

[Table 8 about here]

4.3 Policy implications

Policymakers and the overall tourism sector in the Canaries should wonder about whether there is a lack of market identification and/or service quality that prevent high-income tourists from travelling to their destinations. At first sight, increasing the ability of tourism destinations to achieve better outcomes clashes with the lower potential for productivity gains traditionally associated to service activities. However, improvements can still be achieved by means of enhancing quality, which should be a strategic cornerstone in tourism-led economies. First, local authorities can promote the investment in better tourism infrastructure as well as in the preservation of the islands' natural resources. In relation to this, during the last decades, both regional governments have been approving tourism moratoria laws to restrict the development of tourism accommodation supply while granting exceptions to hotels upgrading their facilities (Hernández-Martín, Álvarez-Albelo & Padrón-Fumero, 2015).

Secondly, a detailed market analysis and segmentation based on income elasticities seems a suitable way to identify attractive market segments and guide strategic decisions about where to invest in destination marketing campaigns and what to advertise. In line with the more diversified choice presented by the Balearics, these can include promotional actions at the main origin airports of the target countries that attempt to re-brand some of the minor islands (such as Lanzarote or La Palma) as places suitable for luxury visitors, while the major islands (Gran Canaria and Tenerife) can continue their transition towards the high-end massive tourism market. Focusing the development of the luxury market in the minor islands has the advantage of reduced investments and better chances of developing a differentiated brand image with respect to the massive tourism offer in the major islands.

5. SUMMARY

Despite the many similarities between the Balearic and the Canary Islands, a strong economic gap exists between the two regions. We hypothesize that this gap is linked to a different market positioning, and thus income elasticities, of the respective tourism products. In order to prove this intuition, we carried out a panel data regression on international tourism arrivals to the Balearic and Canary Islands between 2012 and 2016 and we estimate the economic consequences of the elasticity gap with a CGE model.

The results of a panel data regression confirm our hypothesis that income elasticities differ significantly between both regions. It is two times higher in the Balearic Islands than in the Canary Islands, which indicates the first is perceived as a more luxurious destination. Overall, the Balearics offer a more diversified choice of destinations, with minor islands focusing on a luxury experience while the main island retains its high-end massive appeal. The conclusions of the GCE modelling indicate that, if the Canaries experienced the tourism income elasticity of the Balearics, the region will increase its GDP per capita in 22%, thus eliminating the income gap between the insular regions. These results emphasize the importance of focusing on higher value-added tourist activities. In tourist terms, this means investing in quality and service innovation by e.g. upgrading tourism infrastructure while preserving the islands' natural attributes. Such improvements can be more effective if they are targeted to the markets with a higher perception of the tourism product on offer, which can be identified by means of a detailed market segmentation. In the Canaries, marketing efforts could consider re-branding some of the minor islands as luxury destinations, while the major islands continue their transition towards high-end massive markets.

Our conclusions, however, should be interpreted with caution, as there are some limitations to our empirical estimates. First, the sample period (2012-2016) is relatively short and inevitably impacted by extraordinary events like the global recession, which can compromise the generalizability of our policy implications to other periods. Unfortunately, the time-series dimension of the dataset is defined by the availability of MIDT data that is necessary to disaggregate passenger arrivals according to origin markets. Still, expanding the sample period further back would not have mitigated the problem since the recession started in 2008, and the beginning of the Arab Spring in the early 2010s can also be expected to affect the number of passenger arrivals to both regions. A more recent time series would have allowed us to better capture the impact of the Brexit vote on UK inbound demand, which is one of the islands' key markets. Secondly, it is not possible to obtain monthly income data for the travellers, which does not allow us to fully disaggregate the income elasticity between peak and off-peak periods in the Balearics. This would have been of interest as travellers' profiles can be different across the year. Third, there is also a shortcoming in the lack of socioeconomic indicators in the analysis (e.g. age, group size), that could also serve to illustrate the differences between the tourism markets served by both regions. All these limitations can be overcome as data becomes available. Further research can also investigate how and whether the emergence of low-cost carriers in the Spanish island airports has affected the income elasticities of inbound tourism over time, by making travel more affordable and perhaps increasing the proportion of lower-income visitors. In view of the results of this paper, confirming that hypothesis would have implications on the dilemma faced by local authorities between investing in service quality to attract more high-end visitors and granting subsidies to low-cost operators to boost inbound traffic. Other interesting areas to cover relate to how the Balearics seem to benefit from extreme seasonality, despite the challenges traditionally associated to that characteristic of inbound traffic in the areas of planning and management of tourism resources.

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Table 1. Sectoral share in the Balearic Islands, the Canary Islands and the national average, 2015 (%)

	Agriculture and fishing	*Industry*	*Construction*	*Services*	*Public services*
Balearic Islands	0.51%	7.41%	6.06%	65.34%	20.67%
Canary Islands	1.36%	8.04%	5.04%	60.25%	25.32%
Spain	2.78%	18.01%	5.61%	50.73%	22.88%

Source: INE, Inchausti-Sintes (2019).

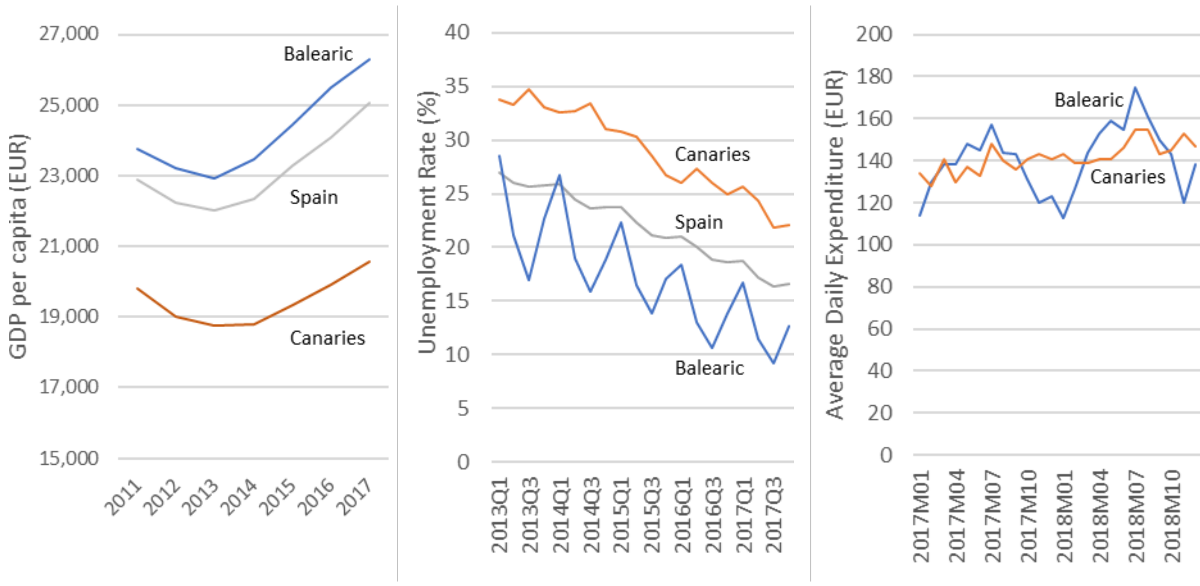

Figure 1. Comparison of economic indicators between the Balearics, the Canary Islands and Spain

Source: INE

Table 2. Annual visitors (thousands) to the Balearic and Canary Islands from major inbound markets in 2016.

Region/Island	*Belgium*	*France*	*Germany*	*Ireland*	*Italy*	*Netherlands*	*Nordic*	*UK*	*Total*
Ibiza_Formentera	-	125	862	-	144	-	79	468	1,678
Mallorca	-	437	3,294	-	457	-	570	1,815	6,575
Menorca	-	54	330	-	70	-	61	275	789
Balearic Islands	-	616	4,487	-	671	-	710	2,558	9,042
Fuerteventura	18	134	925	37	122	65	95	465	1,860
Gran Canaria	86	100	955	72	93	240	921	636	3,103
La Palma	8	-	139	-	-	25	6	23	200
Lanzarote	42	158	436	243	56	97	108	925	2,064
Tenerife	162	185	833	130	208	190	437	1,782	3,927
Canary Islands	316	577	3,288	482	478	617	1,566	3,830	11,155
Grand Total	316	1,193	7,775	482	1,149	617	2,276	6,388	20,196

Source: INE.es

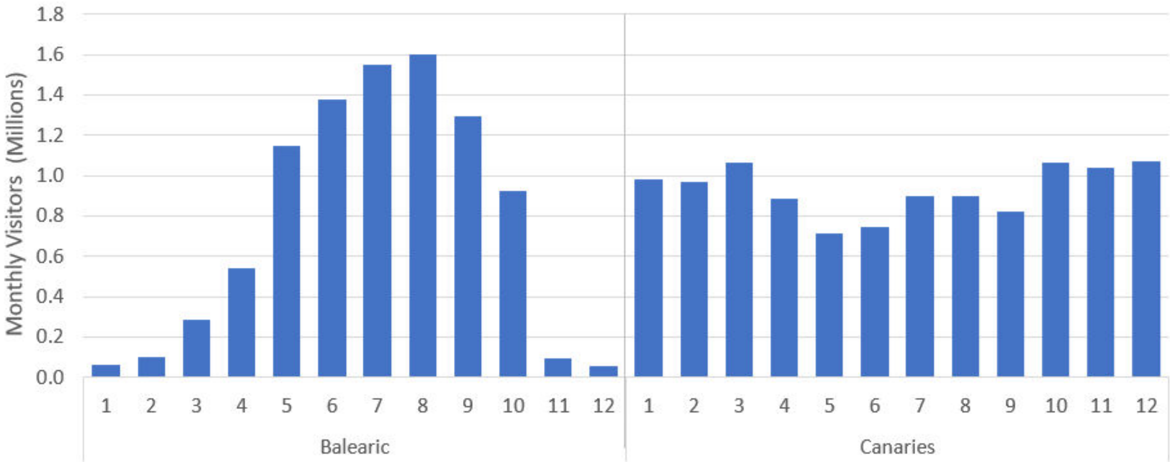

Figure 2. Monthly European visitors to the Balearic Islands (left) and the Canary Islands (right) in 2016

Source: INE.es

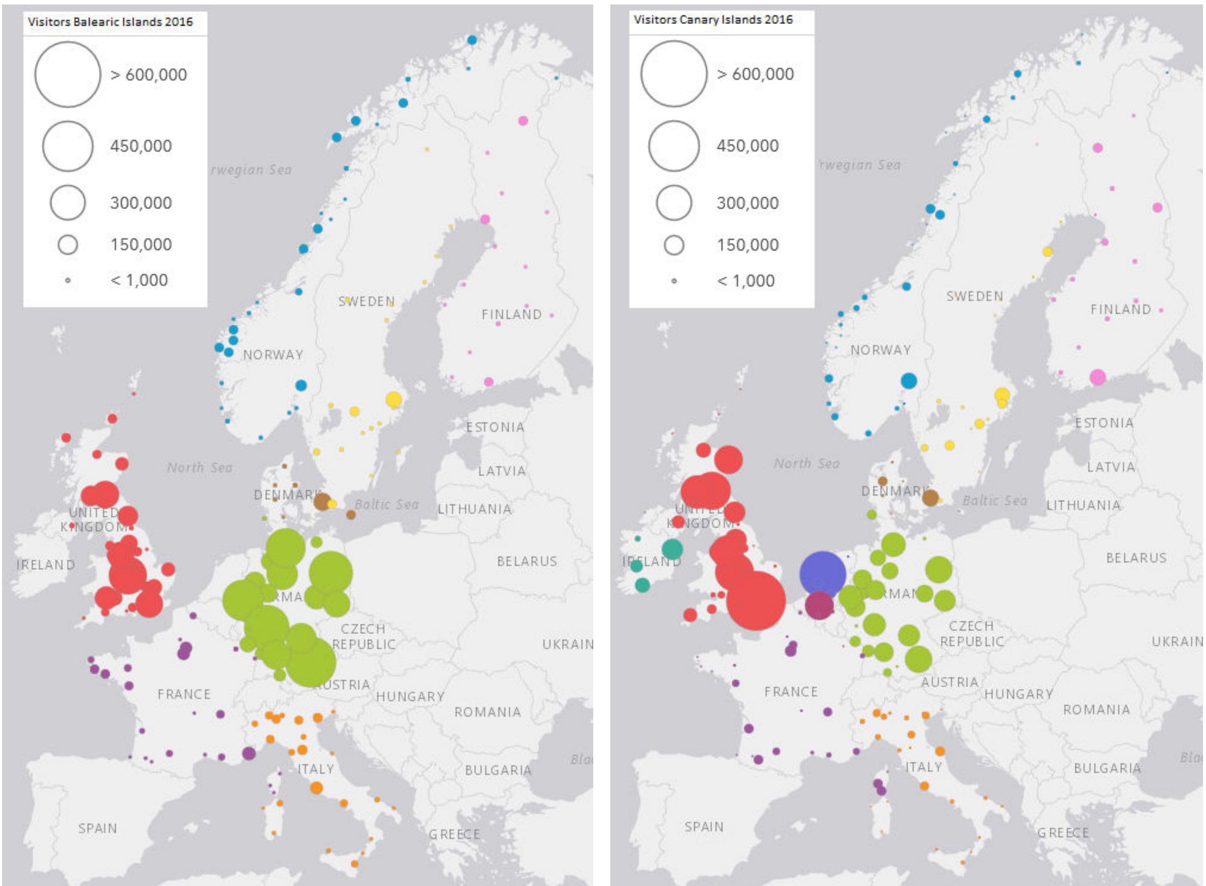

Figure 3. Spatial distribution of inbound European tourism markets to the Balearic Islands (left) and the Canary Islands (right) according to airline bookings data from 2016.

Sources: INE.es, OAG

Table 3. Descriptive statistics for the explanatory variables

Variable	*Obs.*	*Mean*	*Std. Dev.*	*Min*	*Max*
logvisitors	31,844	7.025	1.494	0.000	11.018
loggdppc	31,844	10.344	0.262	9.693	11.057
loggdppcdest	31,844	10.010	0.118	9.793	10.261
logcpidestadj	31,844	4.580	0.084	4.294	4.936
lognonstop	31,844	4.586	1.626	0.000	8.248
logconx	31,844	9.255	0.866	5.765	10.799
region	31,844	-	-	1.000	2.000
island	31,844	-	-	1.000	8.000
country	31,844	-	-	1.000	11.000

Sources: INE.es, Eurostat, OAG, Own Elaboration

Table 4. Pairwise linear correlation between the explanatory variables

	loggdppc	*loggdppcdest*	*logcpidestadj*	*lognonstop*	*logconx*
loggdppc	1.0000				
loggdppcdest	-0.0206	1.0000			
logcpidestadj	0.2139	0.0400	1.0000		
lognonstop	-0.0936	0.2356	-0.2396	1.0000	
logconx	-0.0606	0.3425	-0.0270	0.5916	1.0000

Source: Own Elaboration

Table 5. 2SLS estimation output

	coeff.	*s.d.*	*z*	*Prob.*	*2.50%*	*97.50%*
lognonstop	0.8119	0.0626	12.9800	0.0000	0.6893	0.9346
logcpidestadj	-0.6016	0.2322	-2.5900	0.0100	-1.0568	-0.1464
loggdppc.Balearic	2.3315	0.2914	8.0000	0.0000	1.7604	2.9025
loggdppc.Canaries	1.1698	0.1686	6.9400	0.0000	0.8394	1.5002
country_France	-0.9645	0.2606	-3.7000	0.0000	-1.4753	-0.4536
country_Germany	-1.3383	0.2986	-4.4800	0.0000	-1.9235	-0.7531
country_Ireland	-0.6136	0.3126	-1.9600	0.0500	-1.2262	-0.0009
country_Italy	-1.4442	0.2581	-5.5900	0.0000	-1.9501	-0.9382
country_Netherlands	0.5528	0.3673	1.5100	0.1320	-0.1670	1.2726
country_Nordic	-0.7213	0.2627	-2.7500	0.0060	-1.2362	-0.2064
country_UK	-1.3860	0.3019	-4.5900	0.0000	-1.9777	-0.7943
island_Gran Canaria	-0.8031	0.1249	-6.4300	0.0000	-1.0479	-0.5583
island_Ibiza_Formentera	-13.0402	3.0814	-4.2300	0.0000	-19.0797	-7.0008
island_La Palma	-0.1285	0.2161	-0.5900	0.5520	-0.5520	0.2949
island_Lanzarote	-0.0868	0.1182	-0.7300	0.4630	-0.3185	0.1449
island_Mallorca	-13.3669	3.0983	-4.3100	0.0000	-19.4394	-7.2945
island_Menorca	-12.1733	3.0712	-3.9600	0.0000	-18.1928	-6.1538
island_Tenerife	-0.2324	0.1223	-1.9000	0.0570	-0.4720	0.0073
year_2013	-0.0072	0.0174	-0.4100	0.6800	-0.0413	0.0269
year_2014	-0.1120	0.0229	-4.9000	0.0000	-0.1568	-0.0671
year_2015	-0.2219	0.0337	-6.5800	0.0000	-0.2879	-0.1558
year_2016	-0.2792	0.0426	-6.5600	0.0000	-0.3626	-0.1958

Table 5 (continue). 2SLS estimation output

	coeff.	*s.d.*	*z*	*Prob.*	*2.50%*	*97.50%*
Balearic.Feb	0.1644	0.0475	3.4600	0.0010	0.0712	0.2575
Balearic.Mar	0.4825	0.0649	7.4300	0.0000	0.3552	0.6097
Balearic.Apr	0.2310	0.1438	1.6100	0.1080	-0.0509	0.5129
Balearic.May	0.3962	0.1822	2.1800	0.0300	0.0392	0.7532
Balearic.Jun	0.5654	0.1892	2.9900	0.0030	0.1946	0.9362
Balearic.Jul	0.4955	0.2127	2.3300	0.0200	0.0785	0.9124
Balearic.Aug	0.5455	0.2136	2.5500	0.0110	0.1268	0.9642
Balearic.Sep	0.4466	0.1894	2.3600	0.0180	0.0754	0.8178
Balearic.Oct	0.1376	0.1662	0.8300	0.4080	-0.1881	0.4633
Balearic.Nov	-0.2373	0.0712	-3.3300	0.0010	-0.3768	-0.0978
Balearic.Dec	-0.3610	0.0508	-7.1100	0.0000	-0.4605	-0.2614
Canaries.Jan	0.0127	0.0168	0.7600	0.4490	-0.0202	0.0456
Canaries.Feb	0.0834	0.0205	4.0800	0.0000	0.0433	0.1235
Canaries.Mar	0.0831	0.0158	5.2700	0.0000	0.0522	0.1140
Canaries.Apr	-0.0081	0.0304	-0.2700	0.7890	-0.0677	0.0514
Canaries.May	-0.1717	0.0352	-4.8800	0.0000	-0.2407	-0.1027
Canaries.Jun	-0.1711	0.0345	-4.9500	0.0000	-0.2388	-0.1034
Canaries.Jul	-0.0415	0.0327	-1.2700	0.2040	-0.1056	0.0225
Canaries.Aug	-0.0136	0.0324	-0.4200	0.6740	-0.0772	0.0499
Canaries.Sep	-0.0516	0.0358	-1.4400	0.1490	-0.1217	0.0185
Canaries.Oct	0.0571	0.0250	2.2900	0.0220	0.0082	0.1060
Canaries.Nov	-0.0165	0.0146	-1.1300	0.2600	-0.0451	0.0122
Constant	-4.5173	1.9866	-2.2700	0.0230	-8.4110	-0.6236
Number of obs	31,844		Obs per group:		min	1
Number of groups	913				avg	34.9
R-square:	within	0.5209	between	0.4140	overall	0.4789
variances:	sigma_e	0.9326	sigma_u	0.6575	rho	0.6680

Table 6. Estimated income elasticities at island-market level

Island \ Market	*Belgium*	*France*	*Germany*	*Ireland*	*Italy*	*Netherlands*	*Nordic*	*UK*
Fuerteventura	1.314	1.255	1.133	1.205	1.150	1.441	1.320	1.135
Gran Canaria	1.282	1.164	1.100	1.164	1.119	1.290	1.145	1.044
La Palma	1.270		1.152			1.347	1.281	1.262
Lanzarote	1.267	1.272	1.118	1.225	1.147	1.307	1.293	1.125
Tenerife	1.324	1.223	1.092	1.236	1.151	1.332	1.229	1.107
Mallorca		2.226	2.173		2.321		2.219	2.217
Ibiza_Formentera		2.209	2.307		2.117		2.429	2.242
Menorca		2.356	2.374		2.292		2.515	2.279

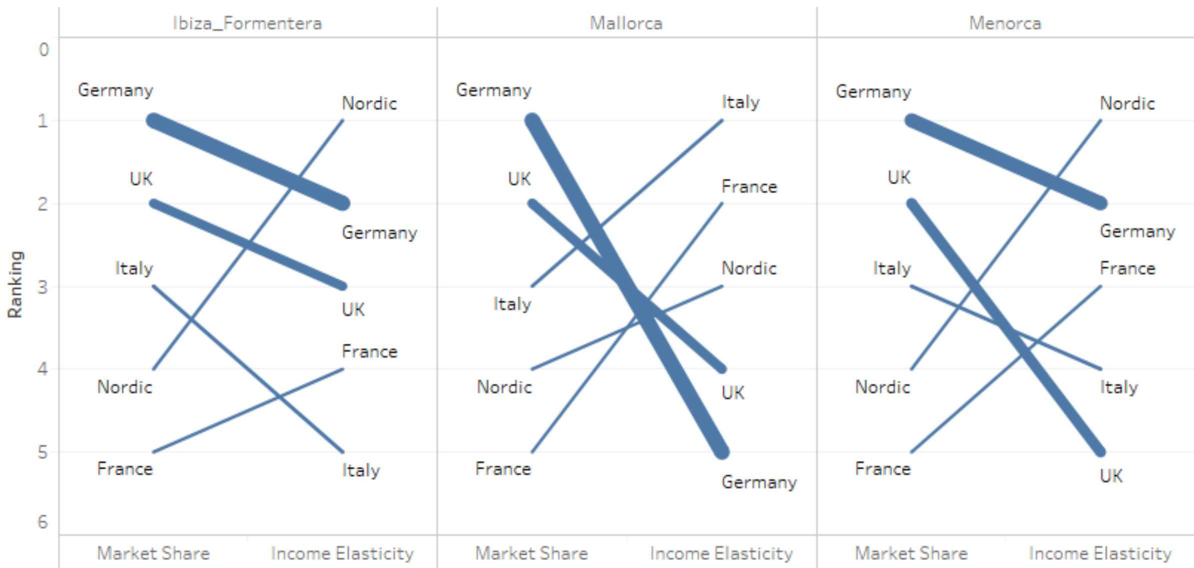

Figure 4. Market Share vs. Income Elasticity Rankings: Balearic Islands

Source: Own Elaboration

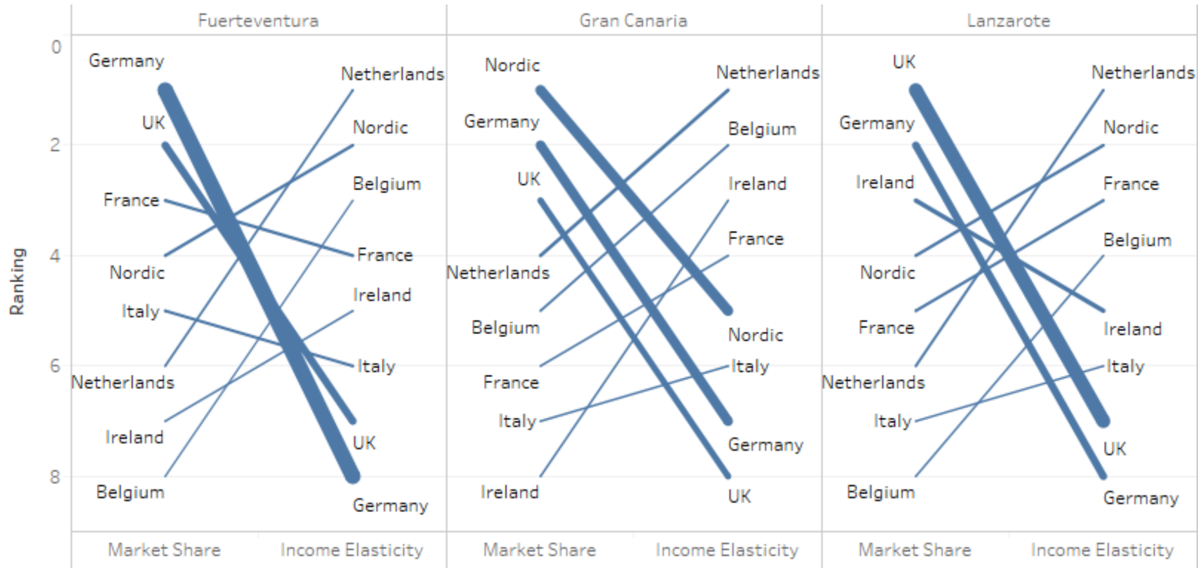

Figure 5. Market Share vs. Income Elasticity Rankings: Eastern Canary Islands

Source: Own Elaboration

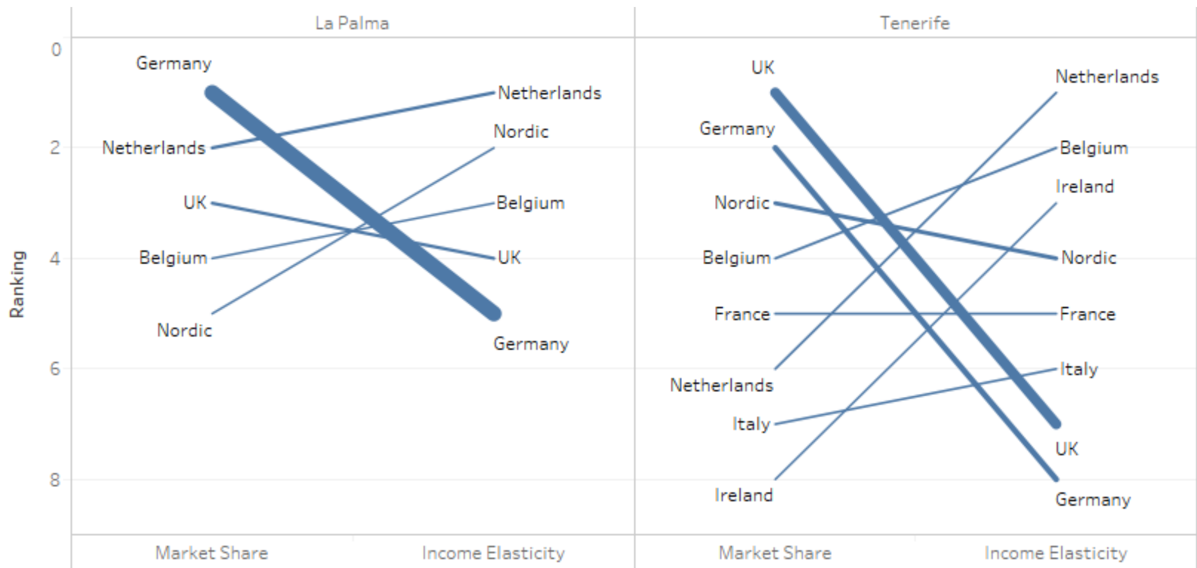

Figure 6. Market Share vs. Income Elasticity Rankings: Western Canary Islands

Source: Own Elaboration

Table 7. Annual change in GDP, Unemployment and inflation in the Canary Islands (2019-2030).

	Scenario A		*Scenario B*	
	Canaries	***Balearics***	***Canaries***	***Balearics***
GDP multiplier (*$GDP^{2.33}$/ $GDP^{1.66}$*)	1.22	1.22	1.40	1.29
Unemployment (%)	1.70%	-	1.58%	-
New Jobs	3,933	-	3,625	-

Table 8. Ranking of the Spanish autonomous communities by GPD per capita (euros), 2018.

Autonomous Community	*GDP per capita*
Community of Madrid	34,916
Basque Country	34,079
Navarre	31,809
Catalonia	30,769
Canary Islands (Scenario B)	**29,443**
Aragon	28,640
La Rioja	26,833
Balearic Islands	**26,764**
National average	25,854
Canary Islands (Scenario A)	**25,657**
Castile y Leon	24,397
Cantabria	23,817
Galicia	23,294
Asturias	23,087
Valencian community	22,659
Balearic Islands (Scenario A*)	**21,937**
Region of Murcia	21,134
Canary Islands	**21,031**
Balearic Islands (Scenario B*)	**20,747**
Castile-La Mancha	20,645
Ceuta	20,032
Andalusia	19,132
Melilla	18,482
Extremadura	18,174

Source: INE.es, Own elaboration

[i] Historical exchange rates are sourced from http://xe.com.
[ii] According to our model, the Balearics require an annual increase in arrivals of 4% to reduce unemployment.

2020-01-30

The income elasticity gap and its implications for economic growth and tourism development: the Balearic vs the Canary Islands

Inchausti-Sintes, Federico

Taylor & Francis

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