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Personal Income and Employment Creation Differences Among Spanish Tourist Destinations: A Dynamic Panel Data Analysis Approach

Abstract

This note explores the differences existing in the level of per capita income and employment creation in residential and hotel-based tourist destinations. The exercise is conducted on a pool of 136 tourist destinations of the Spanish coastline, the Balearic Islands and the Canary Islands. The results point out that in terms of income and employment generation no model clearly outperforms the other.

Keywords: residential destinations, hotel-based destinations, economic performance, employment, Spain

1. Introduction

The most accepted models of tourism competitiveness in tourist destinations have the ultimate goal of constituting an attractive place for tourists while, at same time, maintaining the welfare of the resident population (Ritchie & Crouch, 2003). Achieving these objectives depends on the policies implemented by the agents involved in the management of the destination. Of these policies, perhaps the most relevant is the selection of the tourism development model applied to the destination.

In the case of Spanish destinations, and specifically in those oriented towards the sun and beach product (the country's main product), there are two basic types of destination: those in which there is a clear predominance of registered accommodation - mainly hotels- known as "*hotel specialized destinations*" (referred to in the international literature as tourism resorts, resort destinations or simply seaside resorts) and those characterized by a supply largely made up of apartments and second homes for potential tourist use, many of which are not registered and known as *residential destinations* (Perles-Ribes, Ramón-Rodríguez, Ivars-Baidal, et al., 2020).

An ongoing debate, on both an academic and social level, has emerged with respect to the two types of tourism development model and destination. It appears that their profitability, in terms of economic and environmental impacts is differentiated. The scientific literature shows a preference for the hotel model over the residential model (Hall, 2015; Mazón, 2006; Vera & Ivars, 2003). Also for the Spanish case, Exceltur (2005, 2015), -the association of the country's most important tourism companies- is a great defender of the hotel model and the registered offer. It establishes that this model has a great advantage – a ratio of 11 to 1 in the generation of gross added value, and a ratio of 9 to 1 in terms of employment- compared to the residential one. However, in the social sphere and among residents of many destinations, this preference for the hotel model is not shared. The greater density that the construction of this type of accommodation causes and the

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overcrowding of the destinations constitute the main criticism of this model. Therefore, many residents associate the low-density tourism that occurs in chalets and bungalows, typical of residential destinations with higher quality and a lower impact.

Empirical exercises are therefore necessary to shed light on these aspects. This is the purpose of this note, which seeks to analyze the differences in terms of income generation for residents and employment that exist between the two models of tourism development.

We have analyzed the evolution of the per capita income and employment levels between 2013 and 2018 corresponding to a pool of 136 tourist municipalities, both hotel and residential, located on the Spanish Mediterranean coastline, the Balearic Islands and the Canary Islands. Our choice for a proxy for the per capita income is the household disposable income provided by the Spanish Tax Agency (Agencia Estatal de Administración Tributaria). The recent publication of territorialized data by municipalities from the tax returns of Spanish taxpayers (Impuesto de la Renta de las Personas Físicas IRPF), allows this exercise to be carried out for the first time, using panel data techniques. In this sense, the article represents a step forward with respect to the existing literature.

The note is structured as follows. Section 2 explains the methodology and data and carries out the exploratory data analysis and basic inference. Section 3 performs the econometric analysis. Finally, section 4 presents the findings, limitations and policy implications of the study.

2. Methodology and data

The municipalities analyzed are a subset of the 173 destinations studied by Perles-Ribes et al. (2011) in their analysis of the competitiveness of residential tourism destinations in Spain. Based on cluster analysis techniques, these authors classified a destination as being hotel or residential in accordance with the percentage of its resident population coming from the European Union, the percentage of principal residences and the elderly people living in the destinations. Table 1 shows the variables considered for the analysis.

The time span considered for the analysis is 2013-2018, period for which data are available.

Table 1
Variables used for the analysis

Element	Variable	Definition	Year of reference	Source
Dependent variables				
Income	*Income*	Average disposable income per household	2013-2018	Spanish central tax authority
Employment	*Employment*	Total number of people affiliated to the social security system	2013-2018	Ministry of Labor, Social Security and National Statistics Office
Explanatory variables				
Demographics	*Dens*	Density of population (population / surface of destination)	2013-2018	INE Municipal Register of Inhabitants
Tourism competitiveness	*Coast*	Km of coastline of the destination	2013	Own elaboration
	Aerop70	Airports within a distance of 70Km around the destination	2013	
	Walk	Number of promenades in destinations	2013	
Classification residential or hotel-based	*Pmain*	Percentage of main dwellings (habitual dwellings) in the destination*	2011	INE Population and housing census
	Residential	Residential (1) or hotel-based (0) destination in Perles-Ribes et al. (2011)	2011	Perles-Ribes et al. (2011)

Notes: * A family home is considered to be principal when it is used all or most of the year as the habitual residence of one person or more.

Our basic models are represented by the dynamic equations (1) and (2):

$$Income=\beta 0+\beta 1 Income(-1)+\beta 2 Coast+\beta 3 Aerop70+\beta 4 Walk+\beta 5 Pmain+\beta 6 Dens+\beta 7 residential$$
Equation (1)

$$Employment=\beta 0+\beta 1 Employment(-1)+\beta 2 Coast+\beta 3 Aerop70+\beta 4 Walk+\beta 5 Pmain+\beta 6 Dens+\beta 7 residential$$
Equation (2)

where the lagged values of the dependent variable attempt to control for all the relevant economic covariates not included in the equations (such as the labor productivity, development level of the destination, average level of education, etc.), but which are unobservable due to the lack of available data at the municipal level or would cause problems (mostly collinearity, such as the population of destinations or dummies variables reflecting the development level of the region where the destination is located) in estimations.

Also, in order to avoid the potential endogeneity due that the fact that some of the variables in the model (competitiveness and the *residential* dummy variable of interest) would be mutually reinforcing, the *residential* dummy variable has been included with one lag in the estimations carried out. Likewise, time dummies variables have been considered in the panel data estimations.

These equations are estimated using GMM-SYS method (Blundell & Bond, 1998) with all the independent variables taken to be strictly exogenous. The xtabond2 command for Stata (Roodman, 2009) has been used.

The results of the 2-step estimator have been reported with robust (Windmeijer, 2005) standard errors. The tests for autocorrelation of orders 1 and 2 have been also provided (second-order autocorrelation violates the maintained statistical assumptions), as well as the Sargan and Hansen over-identification test and the difference-in-Hansen test for exogeneity of instrument subsets. Finally, F-test for the joint significance of the regressors has been also reported.

The data for the analysis are provided by Spain's National Institute of Statistics (INE), (Population and Housing Census), the Spanish State Tax Administration Agency (AEAT) and the Spanish Ministry of Employment and Social Security.

Table 2 shows the descriptive statistics for the outcome variables and population levels of destinations according to the classification given by Perles-Ribes et al. (2011). We can see that 48 destinations of our sample belong to the residential destinations category and 88 belong to the hotel destinations category.

Table 2
Descriptive analysis of variables

	All observations N=136		Hotel based N=88		Residential N=48	
Variable	**Mean**	**Standard deviation**	**Mean**	**Standard deviation**	**Mean**	**Standard deviation**
Income	19,331	3,618	18,980	3,372	19,975	3,957
Employment	9,459	11,057	11,809	12,779	5,151	4,308
Dens	873	1,199	1,009	1,426	623	503

Table 3 shows the results of the t-test of differences of measures implemented with respect to the disposable income and the employment in destinations. We can observe that there is a significant difference both in the level of income and employment between the two types of destination. But the obtained results, in the income case, imply a counterintuitive result with respect to the studies reviewed in the introduction of this article. It seems that residential destinations have a higher income level than the hotel-based ones.

Table 3
NHST means difference between hotel-based and residential tourist destinations

Year	Two sample t-test	p-value	Theoretical 95% CI for means difference	Bootstrapped 95% CI for means difference
Income	-3.61	<0.001	(-1,536, -453)	(-1,536, -455)
Employment	+10.89	<0.001	(+5,458, +7,858)	(+5,491, +7,910)

Source: Authors' own elaboration.
Note: Non-parametric Wilcoxon rank sum tests also reject the null of equality of means in all cases at 95 per cent significance level.

3. Results

As already mentioned, in order to correct the effect that potential cofounders may have, Tables 4 and 5 show the results of the panel data analysis carried out with *Income* and *Employment* as dependent variables.

Table 4 reflects the estimations carried out for the *Income* variable. The joint significance of the regressors test is F (11,135) = 4,026.75 with p-value <0.001. The Arellano-Bond autocorrelation of two order test does not reject the null-hypothesis for the standards levels. The Hansen test for over-identification restrictions does not reject the null hypothesis at standards levels.

Finally, with regard to the estimated coefficients and their significance, as the table shows, apart from the lagged variable of the *Income* and time dummies variables, no other variable reach statistical significance. Therefore, the result points out that no clear difference would be observed between the two typologies of tourist destinations in terms of their potential for income generation.

Table 4
Panel data analysis, dependent variable income
Dynamic panel-data estimations, two-step system-GMM

	Coef.	Corrected std. err	t	P>|t|	[95% Con. interval]	
Income(-1)	0.9286	0.1452	6.4000	0.0000	0.6415	1.2157
Coast	71.2959	117.2160	0.6100	0.5440	-160.5213	303.1132
Aerop70	806.1298	1,828.5010	0.4400	0.6600	-2,810.0820	4,422.3410
Walk	-237.5880	1,051.3270	-0.2300	0.8220	-2,316.7880	1,841.6120
Pmain	58.2107	76.2125	0.7600	0.4460	-92.5142	208.9357
Dens	0.3865	0.4301	0.9000	0.3700	-0.4641	1.2372
residential(-1)	3,212.0360	3,544.9470	0.9100	0.3670	-3,798.7790	10,222.8500
dYear3	808.7068	53.3434	15.1600	0.0000	703.2100	914.2037
dYear4	584.9086	99.9631	5.8500	0.0000	387.2124	782.6049
dYear5	552.9773	181.8637	3.0400	0.0030	193.3069	912.6476
dYear6	873.4645	211.7832	4.1200	0.0000	454.6225	1,292.3060
_cons	-4,154.2850	5,178.5530	-0.8000	0.4240	-14,395.8700	6,087.2990

Notes: Number of instruments: 48 Number of observations: 680 Number of groups:135
Arellano-Bond test for AR(1) in first differences: z = -2.17 Pr > z = 0.030
Arellano-Bond test for AR(2) in first differences: z = 1.54 Pr > z = 0.123
Sargan test of overid. restrictions: chi2(36) = 85.67 Prob > chi2 = 0.000
Hansen test of overid. restrictions: chi2(36) = 45.01 Prob > chi2 = 0.144
Difference-in-Hansen tests of exogeneity of instrument subsets:
gmm(Coast, lag(2 99))
Hansen test excluding group: chi2(32) = 36.53 Prob > chi2 = 0.266
Difference (null H = exogenous): chi2(4) = 8.48 Prob > chi2 = 0.076
gmm(Aerop70, lag(2 99))
Hansen test excluding group: chi2(32) = 44.08 Prob > chi2 = 0.076
Difference (null H = exogenous): chi2(4) = 0.93 Prob > chi2 = 0.920
gmm(Walk, lag(2 99))
Hansen test excluding group: chi2(31) = 40.15 Prob > chi2 = 0.126
Difference (null H = exogenous): chi2(5) = 4.85 Prob > chi2 = 0.434

Notes: Continued
gmm(Pmain, lag(2 99))
Hansen test excluding group: chi2(31) = 44.02 Prob > chi2 = 0.061
Difference (null H = exogenous): chi2(5) = 0.99 Prob > chi2 = 0.964
gmm(L.residential, lag(2 99))
Hansen test excluding group: chi2(32) = 42.22 Prob > chi2 = 0.107
Difference (null H = exogenous): chi2(4) = 2.79 Prob > chi2 = 0.594

On the other hand, Table 5 reflects the estimations carried out for the *Employment* variable. The joint significance of the regressors test is F(11,135) = 45,951.03 with p-value <0.001.

Table 5
Panel data analysis, dependent variable employment
Dynamic panel-data estimations, two-step system-GMM

	Coef.	Corrected std. err	t	P>|t|	[95% Con. interval]	
Employment(-1)	1.0485	0.0229	45.8700	0.0000	1.0033	1.0937
Coast	9.0473	14.8227	0.6100	0.5430	-20.2675	38.3620
Aerop70	-189.9755	460.4915	-0.4100	0.6810	-1,100.6860	720.7350
Walk	-90.3335	363.8899	-0.2500	0.8040	-809.9959	629.3288
Pmain	-6.0964	15.1186	-0.4000	0.6870	-35.9964	23.8037
Dens	0.0506	0.0737	0.6900	0.4930	-0.0951	0.1963
residential(-1)	-9.2005	674.9331	-0.0100	0.9890	-1,344.0110	1,325.6090
dYear3	-41.2763	27.4814	-1.5000	0.1350	-95.6262	13.0735
dYear4	17.3429	22.6988	0.7600	0.4460	-27.5483	62.2341
dYear5	-52.5936	30.0231	-1.7500	0.0820	-111.9699	6.7828
dYear6	-61.0746	36.9535	-1.6500	0.1010	-134.1573	12.0081
_cons	407.8700	1,533.3470	0.2700	0.7910	-2,624.6190	3,440.3590

Notes: Number of instruments 48 Number of observations: 680 Number of groups 135
Arellano-Bond test for AR(1) in first differences: z = -3.64 Pr > z = 0.000
Arellano-Bond test for AR(2) in first differences: z = -0.05 Pr > z = 0.958
Sargan test of overid. restrictions: chi2(36) = 78.73 Prob > chi2 = 0.000
Hansen test of overid. restrictions: chi2(36) = 40.59 Prob > chi2 = 0.275
Difference-in-Hansen tests of exogeneity of instrument subsets:
gmm(Coast, lag(2 99))
Hansen test excluding group: chi2(32) = 37.87 Prob > chi2 = 0.219
Difference (null H = exogenous): chi2(4) = 2.72 Prob > chi2 = 0.606
gmm(Aerop70, lag(2 99))
Hansen test excluding group: chi2(32) = 40.55 Prob > chi2 = 0.143
Difference (null H = exogenous): chi2(4) = 0.04 Prob > chi2 = 1.000
gmm(Walk, lag(2 99))
Hansen test excluding group: chi2(31) = 40.50 Prob > chi2 = 0.118
Difference (null H = exogenous): chi2(5) = 0.09 Prob > chi2 = 1.000
gmm(Pmain, lag(2 99))
Hansen test excluding group: chi2(31) = 35.05 Prob > chi2 = 0.282
Difference (null H = exogenous): chi2(5) = 5.54 Prob > chi2 = 0.354
gmm(L.residential, lag(2 99))
Hansen test excluding group: chi2(32) = 37.74 Prob > chi2 = 0.223
Difference (null H = exogenous): chi2(4) = 2.85 Prob > chi2 = 0.583

This model has better econometric properties than the *income* one. The Arellano-Bond autocorrelation test clearly rejects the existence of second-order autocorrelation and the p-value of the Hansen tests (0.27) is higher than in the income case pointing that the instruments would be acceptable.

The most relevant result is that, as in the previous case apart from the lagged variable of the *Employment* and some of the time dummies variables, no other variable reach statistical significance. Therefore, the result points out that no clear difference would be observed between the two typologies of tourist destinations in terms of their potential for employment generation.

4. Discussion

The tourism literature establishes differences in the performance of tourist destinations according to the type of tourism development model (*hotel-based or residential*) chosen by the destination managers. This article addresses the issue by analyzing, for a pool of Spanish destinations, the differences between the two types of destinations in terms of income generation and employment for their residents. This is the first time that this exercise can be directly carried out at least for the Spanish case, using panel data techniques, thanks to the availability of data provided by the Spanish Tax Agency.

The results obtained are not entirely conclusive. The analysis based on exploratory techniques (naïve t-test) points to a greater generation of income by *residential* destinations, and to a greater generation of employment by *hotel-based* destinations. However, after controlling for other factors and potential destination heterogeneity through the use of panel data techniques, the results obtained do not point to any statistically significant difference among destinations.

The absence of clear results for the income analysis carried out coincide with the previous results of Perles-Ribes, Ramón-Rodríguez, Moreno-Izquierdo, et al. (2020) which, for the case of the region of Valencia (Spain), indicate the neutrality of the composition of the accommodation supply on income and employment levels of destinations. Using cross-section data and Ordinary Least Square (OLS) methods, these authors find that no statistically significant coefficients appear among the variables reflecting the composition of the supply accommodation of destinations (hotels, apartments, etc.) in the explanation of their income levels. Likewise, this lack of conclusive results would coincide with the previous result of Perles-Ribes, Ramón-Rodríguez, Ivars-Baidal, et al. (2020) who conclude that no significant differences exist between the economic performance of *residential* and *hotel-based* destinations proxied by their retail activity. Although the definition and the set of explanatory variables considered among the articles differ, this lack of significance would be confirmed in this note using panel data techniques and a broader set of destinations. All these results would also reverse the conclusions promoted by Exceltur studies.

Conversely, regarding employment levels, Perles-Ribes, Ramón-Rodríguez, Moreno-Izquierdo, et al. (2020) find that higher levels of employment prevail in destinations with a greater hotel presence and lower levels where there is a greater presence of rental accommodation (as is the case of the residential destinations). The better performance in terms of employment creation or the performance of *hotel-based* destinations would be in accordance with the studies carried out by Exceltur and Perles-Ribes et al. (2016) who conclude that during the last economic crisis (2008-2013) the increase in unemployment was greater in *residential* than in *hotel-based* destinations. All these results of a better performance in terms of employment levels in *hotel-based* destinations would not be confirmed in this note using dynamic panel data analysis and the broader set of destinations.

In summary, this result suggests, as in Perles-Ribes, Ramón-Rodríguez, Ivars-Baidal, et al. (2020), that the optimistic view of industry and academics of the hotel-based model is not entirely justified. The results show again that, as highlighted by Perles-Ribes, Ramón-Rodríguez, Ivars-Baidal, et al. (2020), there are no pure categories of tourist destinations, and a potential process of convergence seems to be occurring between Spanish destinations. In any case, if any difference exists in the generation of income and employment between the two models, it does not seem to translate into a substantial improvement in the levels of income for the residents of the destinations, which would lead us to reflect on the mechanisms of the distribution of the income generated and the quality of the existing employment in the destinations.

A potential explanation for the obtained result would be associated with the seasonality of the hotel activity in tourist destinations. Thus, only in those destinations where hotels remain open all year is the maximum potential deployed in terms of the economic impact for the residents of the destinations.

Other explanation would be that it is likely that the income and employment levels of the destinations would be explained more by territorial factors associated with the regions where they are located (productive model, productivity levels, regional regulations, etc.) than by the different paths of tourism development (*residential* or *hotel-based*) implemented in these destinations.

However, we cannot rule out that the lack of clear results may reside in the limitations of this study. For example, ideally, the *residential* variable should be probably re-estimated for the period under analysis, since with the proliferation of short-term rentals in the last decade might have dramatically changed the prevalent type of accommodation in individual municipalities. In further research, the changes caused by this circumstance should be included in the analysis when the first results of the next population census in 2021 become available.

In view of these limitations, for future research, the inclusion of more destinations in the analysis and new potential explanatory variables in the theoretical model would overcome these limitations and validate these efforts, which currently have only an exploratory character.

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