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The role of destination contextual effects in driving the expenditure of tourists: a multilevel spatial modelling approach

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ABSTRACT

Tourist's expenditure is a key variable for the tourism industry with a high presence in the literature. Recent micro-econometric approaches estimating the factors driving the expenditure of visitors do not confer much relevance to destination features, despite its relevance shown by the theoretical tourism literature. The present investigation proposes a novel framework in tourism demand studies, expanding the previous modelling approach, in order to take into account such contextual destination effects. Particularly, we define a two-level hierarchical spatial model that includes spatial effects, operating at both the level of the destination and the neighbouring clusters, accommodating in this way for a spatial local dependence structure in the spending choices of visitors. Empirical evidence on the performance of this modelling framework is obtained by building on a relevant dataset for more than 136,000 international visitors reaching 1872 destinations in Spain. This allows for a multi-destination analysis showing that the destination contextual and local neighbourhood effects could account up to 50% of the variance of the expenditure of tourists in the case of most popular destinations. However, such effects do not show this salient role in the case of less developed destinations. Policy recommendations emerging from the results of the investigation are discussed further.

KEYWORDS

tourists' expenditure; contextual dimension; unobservable effects; hierarchical spatial model; spatial clustering; tourism policy

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1. INTRODUCTION

Despite the sudden stop caused by recent lock-down episodes, the tourism industry continues to be a key source of wealth and prosperity for many countries around the world (United Nations World Tourism Organization (UNWTO), 2022). As a result, the study of factors driving the expenditure of tourists occupies a central place in the literature, as a key piece of the socio-economic sustainability of destinations (Sainaghi, 2012; Wang & Davidson, 2010). The most recent approaches to this topic employ tourists' spending as a representation of demand, with micro-econometric models, based on questionnaire data, estimating the factors driving expenditure. However, the geographical focus arising in this type of studies has been always that of a single destination or the aggregate country case. For example, the comprehensive survey by Brida and Scuderi (2013) reviewed a total of 86 papers dealing with the micro-econometric modelling of tourism expenditure appearing at top journals. Results show that 40 of them were focusing on whole country studies (47% of total), 32 were based on a single-destination analysis (37%) and the remaining 14 (16%) were about visitors attending to specific events.

Explanatory variables in expenditure models usually contain four sets of covariates, namely, economic constraints faced by the tourist, plus socio-demographic, trip-related and psychographic visitor's characteristics. In this way, the individual characteristics of the tourist and of the visit itself represent the bulk of factors under study. In particular, among all the 34 covariates employed along the regression analyses reviewed by Brida and Scuderi (2013), only one of them is defined to capture direct destination effects, defining a single dummy variable for the territorial space investigated. Further on, the focus on the role of destination characteristics appears only in 41 of the models reviewed (11.6% of the total), 40 of them using the traditional approach of territorial dummy variables (Brida & Scuderi, 2013, tab. 1, p. 33). In fact, from a total of 78 regressions included in this review, just 34 of them (43%) show these destination dummy effects to be positive and significant. All these facts make patent that the traditional approach employed in the literature shows a low level of elaboration regarding

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the role played by destination features in driving the expenditure of tourists, despite its relevance in shaping the tourist experience and related spending opportunities (Romao, 2018, 2021).

In this context, the present paper seeks to address the role of destination more carefully. In dealing with such an experiential issue, the main research objective pays attention to the role that contextual factors could play in explaining the spending behaviour of tourists along their vacational time. Contextual effects are intrinsically linked to locational destination features, such as the very nature of the tourism offer and specialization, existing natural or cultural endowments spreading along nearby territories, or the mobility pattern of tourists that good infrastructures and marketing policies could allow for (Romao, 2021).

With this objective, we introduce a number of novelties in the research framework. First, we employ a multilevel modelling approach allowing us to identify how contextual factors influence the spending behaviour of tourists at both observable and unobservable levels. This is a relative novel methodology in regional science, recently applied by authors such as Savitz and Raudenbush (2009), Pierewan and Tampubolon (2014), Dong and Harris (2015) and Osland et al. (2016). These authors particularly focus on the study of housing prices, individuals' well-being or collective efficacy.[1] Thus, to the best of our knowledge, the present study is a pioneer in the application of this type of models to the analysis of tourist demand. The multilevel model employs a two-level approach to the study of the expenditure behaviour of tourists. The first level controls for traditional covariates related to visitor's characteristics and trip features, while the second level captures the role of destination contextual factors in a more comprehensive way. Further, it allows us to compare the relative explanatory capacity of each block of determinants in this setting.

Second, we build on a relevant dataset including information of international visitors arriving to more than 1800 local destinations in Spain to get a better understanding of the spatial pattern of spending of more than 130,000 tourists, while retaining their own personal and trip characteristics. In this way, we can explore this topic in a multi-destination framework, avoiding traditional estimation bias arising in the case of studies for individual locations, while providing more robust and general results for policy recommendations.

And third, it is known that a relevant part of the holiday experience of tourists deals with the opportunities emerging in the surroundings of the chosen destination (Marrocu & Paci, 2013). In this way, the administrative boundaries defined for a territory impose artificial limits for researchers, for example, in terms of the compilation of geographically bounded statistical information. As a result, the spending behaviour of visitors tends to exhibit spatial dependence features (Romao, 2018, 2021). Accordingly, it is important to empirically determine the economic opportunities that short-haul mobility brings for a given destination, and how it could contribute to generate more value added for the local population, while upgrading the vacational offer. With this objective, we spatially extend the multilevel model specification to account for neighbouring destination effects in driving the expenditure of visitors. In this context, we seek to identify a clustering pattern arising along the Spanish geography, showing how contextual destination effects and spatial dependences could play a relevant role. Such a methodological focus would also help to expand the scope of policy recommendations emerging in the expenditure analyses, remarking the importance that joint development policies at the cluster level could play in shaping the expenditure of visitors, while improving the economic sustainability of destinations.

The remainder of the paper is structured as follows. Section 2 includes a short introduction to tourism demand research in order to position the current study. Section 3 describes the dataset and explains the econometric methodology for the multilevel modelling framework. Section 4 presents and discusses the empirical results. Finally, section 5 concludes and suggests some policy recommendations emerging from the investigation.

2. A BRIEF INTRODUCTION TO TOURISM DEMAND RESEARCH

Tourism has the potential to be an engine of growth that justifies the efforts made by destinations to develop this industry (Shanshan et al., 2018). However, to be more effective in this strategy, it is key to understand the tourism market and visitors' behaviour. In this setting, the analysis of tourism demand and its determining factors has become a salient topic in tourism research (Dwyer et al., 2010).

A common methodological approach to tourism demand builds on the contribution of Downward and Lumsdon (2000, 2003), employing the following representation for the total expenditure in tourist products by the visitors:

$$\sum_k p_k q_k = f(B_i, T_i, C_i) \tag{1}$$

where p_k is the relative price of the k product, q_k is the quantity purchased by individual i, B_i represents the budget or income of individual i, T_i their tastes and C_i is the trip characteristics. Downward and Lumsdon (2000) give two main reasons for using an Engel curve instead of the most conventional direct demand curve in the modelling of tourism demand. First, if data on demand refer to a single point in time, relative prices are fixed, so measuring the effects of prices on demand becomes practically impossible. Second, the consumption of visitors includes a mix of services difficult to be captured by a single variable, so the examination of tourists' spending becomes again the most tractable option in practice. In this sense, from the point of view of the destination, the main interest is usually in total spending rather than on the number of arrivals, as this variable directly determines the sector's profitability and its economic sustainability.

In this basic specification of tourism demand, the level of spending made by the visitor is explained by their socio-demographic profile, income plus tastes and

trip-related characteristics. Recent studies include a range of factors as proxies for these two dimensions. For the socio-demographic profile variables, researchers have employed factors such as age, gender, education, marital status, residence, occupation or professional status, among others. Trip characteristics are approached by the type of accommodation chosen, length of stay, purpose of the visit, travel party size, or previous experience and knowledge about the destination (Brida & Scuderi, 2013; Wang & Davidson, 2010).

The incorporation of variables related to the tourism supply conditions and the characteristics of the destination would also help to obtain deeper insights into tourist spending choices. For example, the availability of tourist attractions, amenities or leisure opportunities for visitors clearly determines the level of spending and the tourism experience itself. In this way, it is important to specify new variables in the tourist spending function capturing destination-related contextual effects. Two sets of covariates appear desirable from the very beginning: one captures the common regional factors where the destination is located, including aspects such as culture, geography, location economies, etc.; and the other captures destination-specific attributes that influence tourists' spending behaviour, the so-called contextual factors. Further, and given that the tourism experience usually transcends the geographical limits of the destination, it becomes relevant to introduce a spatial dependence structure into the model by using spatial econometrics' techniques. In this case, the model could account for some sort of agglomeration or clustering effects at the level of spending, or even identifying the relevance of counting on a good mobility situation that helps destinations to increase the level of expenditure per visitor, improving the tourist experience as well.

With this aim, the present research proposes an econometric methodology that explicitly models the likely influence of space and destination-specific characteristics on tourists' behaviour. It would also help to draw a picture of the expenditure clusters where the destinations are embedded along the country's geography, opening new grounds for tourism cooperation policy for groups of neighbouring destinations. This then becomes another novelty of the present research regarding previous studies on tourist expenditure. The defined multilevel model would then explain the spending of tourists through a two-level structure of factors. The first level collects variables that represent personal attributes, including income and tastes, plus trip-related characteristics; and the second level captures the effect of both observable- and unobservable-specific contextual factors related to the destination, including regional effects and the tourism industry's degree of development. It also includes the capacity of accounting for the role of clustering, spatial dependence and effects on spending.

3. DATA AND METHODS

3.1. The dataset and country distribution of tourists' expenditure

The empirical analysis in this paper is carried out for the whole tourism market in Spain at the level of local destinations. Spain represents one of the most affluent tourism markets in the world, in terms of both arrivals and revenues, occupying the second position in the UNWTO's ranking in 2019, with more than 80 million international visitors and US$80,000 million of revenues (UNWTO, 2021). The country has been also in the last three years at the top of the ranking of the Tourism and Travel Competitiveness Index of the World Economic Forum.[2] Since many years ago, Spanish destinations have attracted tourists from all over the world, with the core business being that of sun and sand, but many other products have developed since then, including cultural and city tourism, nature-based and health tourism, or meetings, incentives, conferences, exhibitions (MICE) tourism, for example. In terms of affluence, Catalonia, the Canary Islands, the Balearic Islands, Andalusia and the Community of Valencia are the Spanish regions receiving the bulk of tourists, with 60% of the country annual arrivals. The tourism industry is also an important engine of the Spanish economy that creates many opportunities for development, contributing the 12% of national gross domestic product (GDP) and 14% of total employment. Given the economic and social relevance of the tourism industry in Spain, getting a deeper knowledge about tourists' behaviour is a major concern for firms' managers, destination management organizations (DMOs) and other policymakers. Equally, lessons emerging from the Spanish case may be translated to other emerging or established tourism countries.

With the objective of examining how contextual factors could explain a share of tourists' spending behaviour across the Spanish geography, we employ data from the Spanish Tourist Expenditure Survey (EGATUR) conducted by the Institute of Tourism Studies of Spain (TURESPAÑA). The survey compiles 136,757 questionnaires made to international tourists visiting the country in 2014 arriving at 1872 destinations. This is the last survey of this type available with such a level of detail, as the profound crisis hitting the country resulted in a reduction of budget for statistical works by the private and public sectors. It includes information on the expenditure level of tourists at their visited destination, the individual tourist's profile and related trip characteristics. In this respect, it is important to be aware of the richness of information provided by this survey, allowing one to mix geographical and individual characteristics of the tourism experience, a key question for expanding expenditure studies. Moreover, it is also relevant to note that despite the huge financial crisis hitting the country since 2009, tourism was one of the few industries that remained quite resilient, with growth rates of around two-digits until 2019, given the coetaneous Arab Spring movements affecting their closer competitors of Turkey, Tunisia or Egypt (e.g., Artal-Tur et al., 2019). In this way, the same year of the survey, 2014, 64.9 million international visitors arrived in Spain, adding 4.3 million from the previous year. This gives a relevant scenario to run the current exercise, given that since 2019 the pandemic crisis has been sharply affecting international visits to the country.

More details on the specified variables in the empirical model and data sources are included in Table 1. The dependent variable of the model is the total expenditure made by each visitor during their trip. Explanatory covariates capturing the tourist's profile include their origin country and their level of income and studies. Regarding trip characteristics, these include the type of accommodation chosen, the size of the party (group size along the visit), length of stay, purpose of the visit and holiday organization mode. To measure supply conditions at the destination, we include a tourism index taken from the Fundación La Caixa Yearbook. This measure evaluates the level of development of the tourism industry at each municipality through its local participation in the tourism business tax revenues collected for the whole country level (with a value of the index of 100,000 for the country aggregate measure).[3] At the regional level, covariates in the model include a set of dummies to capture the effect of regional policies or potential differences in the overall specialization of each region in a country setting.

Table 2 reports descriptive statistics for all the variables employed in the study. The tourists in the sample show an average spending of around €1102 per trip, with a mean stay of 6.6 days. Regarding trip characteristics, tourists majorly come alone or as a couple (71.3%), for leisure (66%), studies (12.9%) and business (14%) purposes, accommodated in hotels (53%) and second homes (31%), and coming from Europe mostly (83%), with medium- (67%) and high-income (29%) levels, and secondary (27%) and tertiary (69%) levels of studies.

At a more aggregate country level, we begin by testing whether the average expenditure by visitors in any given municipality in the sample exhibits spatial dependence treats. In doing so, we employ Moran's I statistic, showing a value of 0.1330, with $p < 0.001$.[4] This result points towards the existence of a positive spatial dependence pattern in tourist spending for the Spanish destinations. A closer inspection of the spatial distribution employing the local Moran statistic (local indicator of spatial association – LISA) shown in Figure 1 reveals a significant tendency of the average tourist expenditure at the destination to be geographically clustered. In fact, we see the presence of high–high expenditure spots for destinations along the continental Mediterranean coast, together with clusters arising in the region of Madrid, the northern seaside destinations in Asturias and Cantabria, and the Balearic and Canary Islands. In sum, the main seaside country destinations and the capital city area accumulate the highest levels of expenditure across the sample. On the contrary, low expenditure (low–low) clusters characterize the inland

Table 1. Variables in the model.

Variable		Description	Source
Dependent variable	Tourist expenditure	Tourist expenditure at the destination (logs)	EGATUR
Profile of the tourist	Origin of the tourist	Geographical area of origin of the tourist. Grouped for visitors coming from the European Union, North America (United States, Canada), North of Europe (Sweden, Finland, Denmark), rest of Europe and rest of the world	EGATUR
	Level of income	Tourist's level of income. Coded as: high (> €80,000 per year), middle (between €20,000 and €80,000 per year) and low (< €20,000 per year)	EGATUR
	Level of studies	Tourist's level of studies. Coded as: primary, secondary and tertiary schooling (according to UNESCO's International Standard Classification of Education (ISEC) 2011 classification)	EGATUR
Trip characteristics	Length of stay	Days at the destination (logs)	EGATUR
	Companionship in travel	Travel companion (travel alone, with spouse/partner, with the family, with friends/colleagues)	EGATUR
	Purpose of the visit	Main purpose of the visit to the destination. Distinguish between leisure, studies, personal, business and other purposes	EGATUR
	Holiday organization mode	Organization of the travel as a package tour or individually	EGATUR
	Type of accommodation	Type of accommodation at the destination, including hotel, second home, rented apartment and other accommodation	EGATUR
Destination attributes	Tourism index	Measure of the size of the available supply of tourism-oriented services at the destination (logs)	La Caixa Spanish Social Yearbook
	Region	Regional dummies	

Source: EGATUR, Spanish Tourist Expenditure Survey.

Table 2. Descriptive statistics of variables in the model.

	Mean	Q1	Median	Q3
Tourist expenditure (€)	1102.2	516.9	816.0	1281.9
Origin of the tourist:				
European Union	0.6064	–	–	–
North of Europe	0.1635	–	–	–
Rest of Europe	0.0721	–	–	–
North America	0.0388	–	–	–
South America	0.0531	–	–	–
Rest of the world	0.0660	–	–	–
Level of income:				
High	0.2952	–	–	–
Medium	0.6689	–	–	–
Low	0.0359	–	–	–
Level of studies:				
Primary	0.0293	–	–	–
Secondary	0.2797	–	–	–
Tertiary	0.6910	–	–	–
Length of stay (days)	10.7253	4.0	7.0	10.0
Companionship in travel:				
Travel alone	0.3785	–	–	–
Spouse/partner	0.3346	–	–	–
Family	0.1688	–	–	–
Friends/colleagues	0.1181	–	–	–
Purpose of the visit:				
Leisure	0.6703	–	–	–
Studies	0.1291	–	–	–
Personal	0.0550	–	–	–
Business	0.1456	–	–	–
Holiday organization mode:				
Tour package	0.1889	–	–	–
Individually	0.8111	–	–	–
Accommodation:				
Hotel	0.5364	–	–	–
Second home	0.3130	–	–	–
Rent apartment	0.0911	–	–	–
Other	0.0595	–	–	–
Tourism index:	103.34	1.0	2.4	18.1

Source: Authors' own elaboration. See Table 1 for a description of the variables and data sources.

territories of the country, and more isolated regions of Extremadura on the south-west, plus mountain places such as Aragón and Castilla-León in the north and centre.

3.2. The econometric model

A key feature of geographical data analysis is that individuals clustered within the same spot would be similarly influenced by the characteristics of the shared locational area. For this reason, it could be unrealistic to assume that observations within locally delimited areas behave independently. Therefore, one contribution of the present study is to introduce a nested structure in data when analysing the tourists' expenditure function. In doing so, we employ a multilevel modelling strategy as a novel approach in tourism, following the spirit of a slight number of contributions in regional studies previously reviewed. Regarding the structure of this section, we start by describing the standard multilevel model to be employed, then examine how this initial specification could be extended to accommodate for spatial dependence effects.

As pointed out by Corrado and Fingleton (2012, p. 226-ss.), 'one way of incorporating the group effect in a multilevel framework is to evaluate the impact of higher [second] level variables that measure one or more aspects of the composition of the group to which an individual belongs'; however, they also note that, 'it is possible that

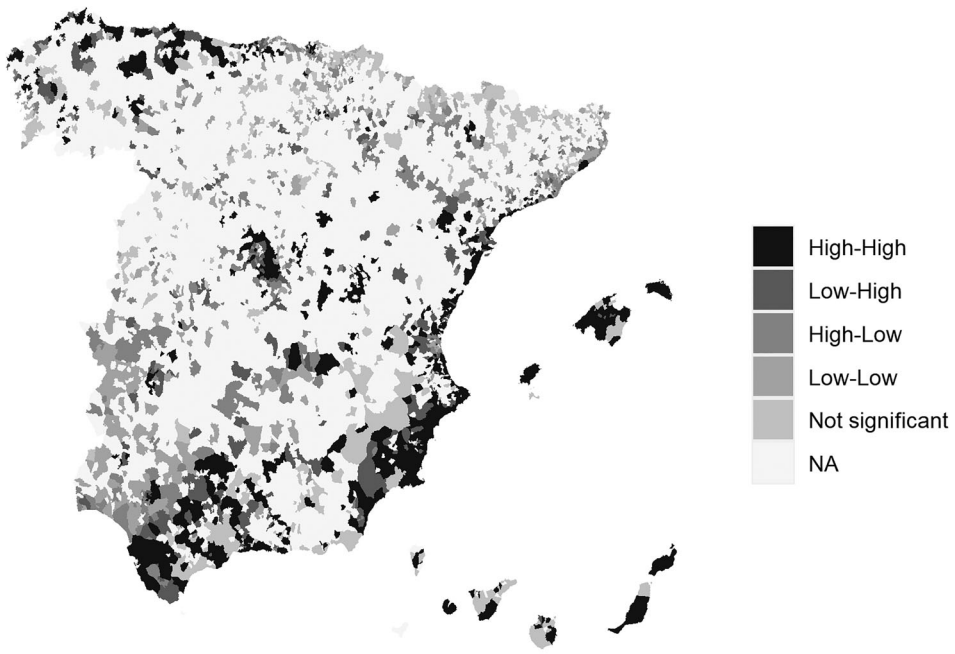

Figure 1. Local indicator of spatial association (LISA) cluster map for mean tourist expenditure at the destination.
Note: LISA is for tourist expenditure averaged over municipalities. The local Moran statistics measure the contribution of individual destinations (municipalities) against the global Moran's *I* statistic. The map shows places where significant spatial autocorrelation exists.

having controlled for these measurable compositional effects there are still unobservable spatial effects' that could be modelled either as fixed or random effects. In this study, we account for unexplained local correlations in multilevel models by introducing a random term for each spatial unit defined.[5] Note that we employ the tourist index variable for capturing observed destination effects on expenditure in the second level of the model, as well as regional dummies capturing regional commonalities of destinations; however, we decide not to give more structure to this destination-related level in order to let the model by itself capture all potential contextual group effects appearing in the data, this being the main objective of the present research. This is a usual approach in the multilevel model setting as they are defined to accomplish such a specific function.

Particularly, when dealing with hierarchically structured data, the multilevel approach offers several advantages over the previous regression frameworks.[6] First, it allows us to jointly account for the two dimensions influencing the tourists' expenditure choice pointed out by the literature, namely, the tourist- and destination-related factors. Besides, the destination features captured by the multilevel model include both the observable and unobservable factors, enriching the previous more naïve use of dummy variables, and controlling for omitted variables in the model, two key issues in the estimation process. Further on, and properly specified, the multilevel model can also capture additional spatial effects arising in the geographical area where the destination locates, for example, spatial dependence or neighbouring effects.

Second, the multilevel modelling framework offers a more efficient alternative to either the complete pooling approach that ignores the differences between groups or the group-based analysis in a single regression framework (no-pooling approach). Under the traditional complete pooling regressions, the units are treated as independent observations, leading to an underestimation of the standard errors of the coefficients, and correspondingly to an overstatement of their statistical significance. On the other hand, a no-pooling strategy may be not possible if the sample size is not large enough to obtain robust estimates per group.

In this framework we consider the case where data are collected on N individuals (tourists) over J sites (destinations), so that individuals (level 1 units) are nested in sites (level 2 units). The initial specification of the proposed tourist expenditure multilevel model is defined as follows:

$$\begin{aligned} &\text{Level 1 } EXP_{ij} = \beta_0 + PROF_{ij}^{'}\beta_1 + TRIP_{ij}^{'}\beta_2 + \alpha_j + e_{ij}, \\ &\qquad\qquad e \sim \mathrm{N}(0, \sigma_e^2 I_N) \\ &\text{Level 2 } \alpha_j = DEST_j^{'}\gamma + u_j, \quad u \sim \mathrm{N}(0, \sigma_u^2 I_J) \end{aligned} \tag{2}$$

where EXP_{ij} is the total expenditure of tourist i at the destination j (logs), $PROF_{ij}$ is a vector of variables conforming the profile of the tourist i at the destination j, and $TRIP_{ij}$ gathers the trip characteristics of tourist i at the destination j. The term α_j captures the destination effects affecting the tourist expenditure, including a set of observable characteristics of the destination ($DEST_j$). Unobservable

effects operating at each level are captured by the error term ε_{ij} (for level 1 units) and the site-specific random error u_j (for level 2 units/places). It is assumed that $\text{cov}(e_{ij}, u_j) = 0$. We will refer to this specification henceforth as a multilevel hierarchical error model (HEM).

The main advantage of the HEM specification in equation (2) lies on its ability to control for the destination-specific effects arising in data for the tourist expenditure function. In this setting, the underlying hypothesis is that tourists with similar characteristics, profile and trip-related ones, could differ in their total level of expenditure because of the differing characteristics of the destination visited. That is, some of the expenditure differences existing among tourists may be attributable to the opportunities arising at the destination level, what in fact accounts for specialization and size effects not explicitly present in the explanatory factors, but highlighted by the literature (Marrocu & Paci, 2013; Bernini et al., 2017).

Under this setting, if we denote the variance of the outcome variable (tourist expenditure) by σ^2_ε, then $\sigma^2_\varepsilon = \sigma^2_u + \sigma^2_e$, with the intraclass correlation coefficient (ICC) measuring the proportion of the variance explained at the group level:

$$ICC = \frac{\sigma^2_u}{\sigma^2_u + \sigma^2_e} \tag{3}$$

The ICC thus quantifies the intensity of the group effects, so that as ICC approaches 1, the heterogeneity in the levels of the outcome variable would be mainly attributable to the site unobserved features. On the contrary, when the ICC is closer to 0, heterogeneity would be driven by individuals' heterogeneity features.

Despite the multilevel specification in equation (2) helping to capture the so-called contextual group effects, and also specifying regional effects, it does not include any spatial dependence term for unobserved factors. That is, the expenditure of tourists would not be influenced by the characteristics of the surrounding or neighbouring destinations. However, such an assumption appears to be quite implausible in the present case. Destinations located closer to each other tend to be more similar than destinations located further away, so it is quite likely, as shown by the literature, that clustering forces come into play, affecting somehow the spending opportunities of visitors. In this way, the tourism offer of a single destination could be potentially influenced by the very nature of its surrounding area. Therefore, we should expect a positive correlation between destinations closely located, as Figure 1 suggests. In this setting, we expect this type of spatial dependence effects to be local in nature, as the capacity of a visitor to move around or be attracted by features of nearby destinations would be limited by time, distance and budget restrictions. In order to account for such spatial effects, we introduce an additional spatial structure to the multilevel model of tourism demand. To do so, we consider an extension of the HEM specification where the contextual random effects, u_j, follow a spatial autoregressive process. This procedure is similar to that followed in previous studies, such as Savitz and Raudenbush (2009), Smith and LeSage (2004) and Dong and Harris (2015) for the housing sector, for example. This extension represents a way of introducing spatial dependence effects in a simpler way, avoiding other estimation complexities that could arise. Given that we are interested in capturing the general role of local contextual effects in the demand for tourism, this appears to be a relevant model specification for the current study.

Such an alternative specification, denoted here as a multilevel or hierarchical spatial error model (HSEM), can be rewritten as follows (Lacombe & McIntyre, 2016; Dong & Harris, 2015):

$$\begin{aligned} &\text{Level 1}\ EXP_{ij} = \beta_0 + PROF'_{ij}\beta_1 + TRIP'_{ij}\beta_2 + \alpha_j + e_{ij}, \\ &\qquad\qquad e \sim N(0, \sigma^2_e I_N) \\ &\text{Level 2}\begin{cases} \alpha_j = DEST'_j\gamma + u_j \\ u_j = \lambda \sum\limits_{h \neq j} w_{jh}u_h + v_j, \quad v \sim N(0, \sigma^2_v I_J) \end{cases} \end{aligned} \tag{4}$$

where the error term u_j now captures the potential spatial dependence structure between the destination j and their neighbours; w_{jh} is the (j,h) element of the W normalized spatial weight matrix; and v_j is an error term that satisfies the condition $\text{cov}(e_{ij}, v_j) = 0$. The coefficient λ would be then capturing the degree of spatial dependence arising in the contextual unobserved effects.[7] As highlighted by Smith and LeSage (2004), the above specification postulates that all unobserved dependencies between individuals in related destinations are captured by dependencies between the contextual effects, u_j. This feature of the model creates an extra complexity in the correlation scheme between individuals' outcomes, so the intraclass correlation term will not be constant anymore, depending now on the degree of spatial clustering with their neighbouring locations.

The term u in the model can be expressed as $u = (I_J - \lambda W)^{-1}v$, so whenever $\lambda \neq 0$, we will have $u \sim N(0, \sigma^2_v\Omega)$ where $\Omega \equiv [(I_J - \lambda W')(I_J - \lambda W)]^{-1}$ is a matrix with non-zero off-diagonal elements. Therefore, the proportion of the variance of the tourist expenditure explained by destination clustering effects will not be constant too. Indeed, for the HSEM model in equation (3), the ICC must be computed for each destination as:[8]

$$ICC_j = \frac{\sigma^2_v \Omega_{jj}}{\sigma^2_v \Omega_{jj} + \sigma^2_e}, \quad j = 1, \ldots, J \tag{5}$$

In this way, the HSEM specification allows us to capture the spatial dependence effects at the level of nearby destinations, showing that a change of an (unobservable) feature of a given destination would affect the level of expenditure at that municipality directly, and indirectly to the expenditure of tourists visiting other destinations belonging to the same cluster.

4. ESTIMATION AND DISCUSSION OF THE EMPIRICAL RESULTS

The main objective of this study is to examine the role of destination contextual factors in explaining the tourists' spending decisions, both observable and unobservable, with an application to more than 1800 Spanish destinations. To estimate this effect, we employ a multilevel model as a recent and novel method, in both regional science and particularly in tourism studies. Table 3

Table 3. Estimates of the HEM and HSEM models.

	Multilevel hierarchical error model (HEM)			Hierarchical spatial error model (HSEM)		
	Coefficient	**SE**	***p*-value**	**Coefficient**	**SE**	***p*-value**
Intercept	5.7268	0.0172	0.0000***	5.7021	0.0261	0.0000***
Origin of the tourist:						
East Europe	0.0823	0.0036	0.0000***	0.0822	0.0034	0.0000***
North of Europe	0.2080	0.0052	0.0000***	0.2078	0.0051	0.0000***
North America	0.6944	0.0069	0.0000***	0.6941	0.0069	0.0000***
South America	0.8135	0.0061	0.0000***	0.8140	0.0062	0.0000***
Rest of the world	0.5265	0.0054	0.0000***	0.5260	0.0056	0.0000***
Level of income:						
High	0.1794	0.0030	0.0000***	0.1794	0.0030	0.0000***
Low	−0.1139	0.0071	0.0000***	−0.1124	0.0067	0.0000***
Level of studies:						
Primary	−0.0188	0.0080	0.0185*	−0.0184	0.0081	0.0236*
Tertiary	0.0703	0.0031	0.0000***	0.0704	0.0032	0.0000***
Length of stay (days)	0.4917	0.0017	0.0000***	0.4915	0.0017	0.0000***
Companionship in travel:						
Spouse/partner	−0.1800	0.0036	0.0000***	−0.1799	0.0036	0.0000***
Family	−0.3003	0.0042	0.0000***	−0.3008	0.0044	0.0000***
Friends/colleagues	−0.1055	0.0045	0.0000***	−0.1054	0.0043	0.0000***
Purpose of the visit:						
Studies	0.1876	0.0045	0.0000***	0.1880	0.0045	0.0000***
Personal	−0.0269	0.0060	0.0000***	−0.0268	0.0058	0.0000***
Business	−0.0960	0.0045	0.0000***	−0.0947	0.0042	0.0000***
Holiday organization mode:						
Tour package	0.1826	0.0043	0.0000***	0.1822	0.0042	0.0000***
Accommodation:						
Second home	−0.4432	0.0039	0.0000***	−0.4441	0.0038	0.0000***
Rented apartment	−0.0168	0.0052	0.0012**	−0.0176	0.0054	0.0010**
Other	−0.3078	0.0061	0.0000***	−0.3075	0.0060	0.0000***
Tourism index	0.0072	0.0026	0.0047**	0.0070	0.0023	0.0023**
Region dummies included						
Spatial coefficient (λ)	–			0.8763	0.0313	0.0000***
σ_e^2	0.2208			0.2208	0.0009	0.0000***
σ_u^2	0.0188			–		
σ_v^2	–			0.0115	0.0020	0.0000***
Observations	136,757			136,757		
Groups	1872			1872		
ICC	0.0786			0.0971		
R^2 (marginal)	0.6129			0.6084		
R^2 (conditional)	0.6434			0.6464		

Note: The dependent variable is Tourist's expenditure (logs). For HSEM, posterior means and Bayesian *p*-values are reported. Significance: *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$. R^2 values are according to Nakagawa and Schielzeth (2013).

presents the results of two specified multilevel models denoted by HEM and HSEM, respectively.[9] The first model (HEM) represents a standard multilevel model, while the second one (HSEM) is a multilevel model where the second-level random disturbances are assumed to be spatially correlated.[10]

As the reference category in the empirical model, we set a tourist coming from a Western European country, with a medium level of income, secondary studies, travelling alone for leisure in a non-organized trip, and lodged in a hotel. In general, the estimated coefficients and R^2 do not change dramatically for the two hierarchical models considered, HEM and HSEM. It is worth noting that the model outperforms the goodness-of-fit of the previous expenditure literature in general, with a reference R^2 of around 0.40–0.50, and the current one in the 0.60–0.64 range (Thrane, 2014). The estimated effects of the explanatory variables for the first level of the model are consistent with those of the related literature, including variables for the profile of the visitor and trip features (Brida & Scuderi, 2013; Sainaghi, 2012; Wang & Davidson, 2010; Marrocu et al., 2015).

Regarding the coefficients for the covariates on the tourist profile, we find that tourists from more distant origins, such as North and South American countries, with high income level and a tertiary education, spend the most in comparison with the reference category. Being more specific, the estimated coefficient for tourists from South America is 0.8135 in the HEM model, so that the expenditure of these tourist is about 2.26 times ($e^{0.8135} = 2.26$) the expenditure of a tourist from Western Europe.[11] The coefficients for the level of income are positive for high-income tourists and negative for low-income ones, so that the expenditure made by high-income tourists is 1.20 times the expenditure of medium-income tourists, while for low-income visitors this quantity reduces to 0.89 times. Regarding the level of studies attained by the tourist, the estimated coefficients, though statistically significant, suggest a more modest effect in the tourists' expenditure function. In fact, the expenditure of those tourists having completed tertiary studies is 1.07 times the expenditure of tourists with secondary studies and, at the same time, the level of expenditure for visitors with primary studies are 0.98 times those of the reference category for secondary studies.

Trip characteristics also determine the tourists' expenditure level reached. Starting by the length of stay, the estimated coefficient is of 0.4917, suggesting that for every percentage point increase in the stay, there would be a 0.49 percentage point increase in total tourist expenditure. For the rest of explanatory variables, the estimates imply that travelling alone, with studies as the purpose, in an organized tour, and lodging in a hotel, would render the highest personal spending level. The estimated coefficients for the dummies associated with company while travelling (group size) or size of the party are negative, so that the level of expenditure of tourists travelling with their partner, family or friends, is lower in comparison with the expenditures of tourists travelling alone. In this way, economies of scale in expenditure emerge when people travel in group, as expected. Moreover, trips with the family imply a total expenditure per tourist of only 0.74 times that of a tourist travelling alone. The purpose of the visit also affects the tourists' expenditure; however, the largest deviations from the reference case are estimated for tourists who travel for study purposes, with a level of expenditure that reach 1.21 times those of people travelling for leisure purposes. The dummy variable for tour package has a positive coefficient; thus, choosing a package tour results in a 1.20 times increase in the total tourists' expenditure. There are also additional differences in tourists' spending attributable to the type of accommodation chosen. Tourists lodged in hotels spend the most as compared with other types of chosen accommodations and, especially, in comparison with people staying at their second homes. In the latter case, the level of expenditure is of 0.64 times that of tourists staying at hotels.

Finally, the estimated coefficient for the tourism index is statistically significant with a value of 0.0072, showing a low effect of the variable on expenditure, what could be associated with the big scale employed in computing this particular variable. It could also reflect the lower level of variation exhibited by this measure, despite this being the only tourism development index available at a municipal level in Spain. In all, more efforts should be devoted to collecting datasets at a local level in order to continue improving the analysis of the tourism sector in Spain.

The coefficients for the regional dummies appear significant too, capturing differences in the tourism specialization pattern, as well as the effect of institutional factors that operate at the regional (NUTS-2) level. For example, the tourism product in Catalonia and the Balearic Islands, with more of a presence of hotel visitors arriving as couples or with friends, differs from that of the regions of Valencia, Murcia and eastern Andalucía, where second home family visits account for an important share of the total arrivals. Indeed, purchases of second homes by non-residents in Spain are concentrated in Costa Blanca (Valencian region) and Costa del Sol (Andalucía), which jointly represent more than half of the transactions (Romero, 2014).

Turning to spatial effects in the HSEM modelling approach, the random terms in the multilevel specification allow one to capture the effects of unobserved destination contextual factors on tourists' expenditure. In this study, we assume that these contextual effects are spatially dependent, this hypothesis being supported by the highly significant value of 0.8763 for the coefficient exhibited by the λ parameter in the HSEM specification. As shown, this parameter appears positive and statistically significant, suggesting that tourists' decisions on spending are driven by factors linked to the destination visited, together with factors linked to the neighbouring destinations. The estimates of the regional fixed effects also loose magnitude once the spatial hierarchical specification expressly account for the whole contextual effects.[12] Such a result suggests that spatial dependence effects may be confounded by the regional effects in the non-spatial specification, noting

in this way the advantages of employing the multilevel approach for dealing with destination-related effects in tourism demand.

The posterior means of the spatially structured random effects from the HSEM model are mapped in Figure 2. These values capture the deviation of the tourist expenditure in a destination, with regard to the country average, explained by contextual effects. In general, the contextual effects appear to be relevant at the destinations on the Mediterranean coast of Spain, particularly in the middle and southern axis, together with the Balearic and Canary Islands, all destinations with a strong specialization in sun and sand tourism products. We also observe significant high values for the contextual effects at the largest cities of the country, such as Madrid, Barcelona, Valencia and Sevilla, which are the main urban destinations in Spain. In contrast, less developed destinations in the inland areas of the country do not show contextual effects to be relevant in driving the expenditure of visitors. In this sense, it seems that contextual destination effects appear to be relevant when the destination and the surroundings present a remarkable level of development, with some kind of agglomeration forces at the tourism cluster level promoting new expenditure opportunities of visitors. In this way, the structure of the HSEM model allows us to identify this type of local effects, showing its relevance in shaping tourism demand at the level of destinations. Correspondingly, the HSEM model contributes with a new methodological approach to capture this type of effects described in the literature, for example, the presence of spillover effects in tourism demand arising between nearby places (Gooroochurn & Hanley, 2005), or spatial effects influencing the profitability of the tourism industry (Marco-Lajara et al., 2016). In this context, the HSEM methodology enables one to capture the local nature of such contextual effects, their spatial dependence structure, and the relevance of the destination features and its surrounding cluster in driving the expenditure of tourists. This novel approach in tourism demand also helps to expand the scope of micro-econometric studies by highlighting in a more comprehensive way the role played by destination features in shaping the expenditure of visitors.

In a second step, the ICC indexes in Figure 3 show the share of the variance of the expenditure explained by contextual destination features, highlighting their relevance for tourism demand. In this case, for the HEM specification, the mean ICC is estimated as 0.0786, whereas it is 0.0971 in the HSEM equation. Despite the average ICC appearing to be of around 7–10% in Table 3, those values reach levels of 10–40% in the Island destinations, and for some well-known tourism places on the Mediterranean coast and the capital city of Madrid and its surroundings (Figure 3). Once more, the model shows the relevance of contextual local effects in shaping the expenditure of tourists for well-established destinations, while the traditional variables of tourist profile and trip characteristics make the set of leading variables in the expenditure function for other less developed destinations in this multi-destination analysis. In this way, this novel methodology for tourism demand studies provides a framework enabling one to identify the importance of accounting for contextual destination effects when modelling the expenditure behaviour of tourists at a local level. In fact, not expressly accounting for this type of effect could result

Figure 2. Destination-level random effects from the hierarchical spatial error model (HSEM).
Note: Estimates are of the destination second-level random effects from the HSEM specification.

Figure 3. Intraclass correlation coefficient (ICC) from the hierarchical spatial error model (HSEM).
Note: Estimates are of the ICC for each municipality taken from the HSEM specification (see equation 5 in the main text).

in an inflation of the type-I error in estimation, leading to incorrect conclusions (Musca et al., 2011).

Further on, the HSEM specification allows one to incorporate the presence of spatial dependence effects at the level of destination, highlighting both the role played by local contextual effects in driving the tourist expenditure, given destination features, and how nearby destinations could conform a cluster of opportunities for extending the holiday experience, increasing in this way the spending level of visitors, and surely their trip satisfaction (Bernini & Galli, 2022). It also captures improvements in the destination features and attractiveness reinforced by developments in the cluster area where the destination is embedded in.

In sum, it is important to highlight the capacity shown by the multilevel model to capture the role that all defined destination-related effects play in the demand for tourism. First, they allow one to account for unobservable attributes of the destination that may influence the tourists' expenditure, traditionally omitted or just partially captured by previous studies. In fact, estimations for the Spanish destinations in Figure 3 show that altogether these effects could account for the 10–40% of the variance of the expenditure of tourists at popular destinations. Second, the HSEM multilevel specification also accounts for neighbouring/clustering effects. In this respect, and given that the spatial dependence coefficient is also significant and with a relevant value of 0.8763, additional cross-destination effects appear to influence the spending opportunities, in a clustering dimension reinforcing the range of possibilities that the visitor can reach. It could even be the case that within-destination spending levels are also influenced by the level of development and specialization of nearby destinations, in a typical endogenous growth process fuelled by a number of agglomeration forces, as previously noted. Third, regional dummies also play their role in this setting, together with the low contribution of the tourist index. This situation makes destination effects account for more than 50% of the variance of the expenditure of tourists at well-established destinations, which reinforces the relevance of the present study in highlighting this particularly issue in a more comprehensive way. Other less developed destinations in the centre of the country seem not to show that relevance of destination effects in driving the spending of visitors, in a dual situation where the higher the level of development of a given destination, the higher the relevance of local policies in fostering the expenditure of visitors, and hence its socio-economic sustainability in the long-run.

To close the model, the rest of the explanatory covariates for the tourist expenditure equation, namely income constraints, trip, socio-demographic and psychographic characteristics highlighted by the literature, continue to play a salient role in the multilevel specification, confirming the relevance of previous research efforts in this direction. However, it is worth noting that the role played by all these tourist-related factors, with a major presence in the literature, would show the same relative weight as the destination-related effects for several popular destinations in Spain, which is a leading tourist power in the world. Such a result highlights again the relevance of the present research in the study of factors leading to the expenditure of tourists, expanding the focus of the previous literature.

5. CONCLUSIONS AND POLICY RECOMMENDATIONS

This paper has provided new insights into how destination-related contextual factors could influence tourism demand alongside of the expenditure of tourists. Drawing upon a dataset of more than 136,000 international tourists visiting more than 1800 destinations in Spain, we have investigated the effect of traditional tourist and trip-related factors, along with destination features, in an expenditure function modelling approach. From a methodological point of view the main contribution of the present investigation is the use of a multilevel specification that structures the explanatory variables into two levels. The first level includes variables describing the profile of the tourist and the trip features, while the second level has been designed to capture the impact of such contextual factors on the visitors' expenditure decisions. The second level accounts for unobserved local contextual factors, plus observed regional dummy variables and a tourism industry index reflecting the level of development of each local destination. Further on, we have introduced spatial dependence effects in the second level of the model, capturing additional clustering local effects in the expenditure function that may arise because nearby destinations could share some natural, cultural or infrastructural features relevant in this setting. In this way, the proposed methodology has provided a framework to test for destination-related effects on tourism demand in a more comprehensive way, as a contribution to this literature, also controlling for traditional variables in recent micro-econometric models.

We have decided to specify a spatial error model to accommodate for contextual and related spatial dependence effects as a standard way to capture them. In this way, the objective of the research was to design a modelling approach able to highlight the role of local contextual effects in tourism demand studies, given the relevance of these effects in the theoretical tourism literature, but its low presence in the empirical analyses of the type. It is worth noting that the study was not designed to discuss all possibilities of the spatial econometrics' methods, but to proportion a framework that could extend the tourism demand literature in a novel way by using tools emerging in regional science. Moreover, the current proposal intends to become a seminal contribution to this type of analysis, being on the agenda of the authors to account for additional methodological possibilities when dealing with local contextual factors.

The empirical findings of the present investigation indicate that conventional drivers of tourist demand and expenditure, linked to both the tourist profile and trips characteristics, still exert a significant influence on spending. In this way, the statistical results for the first level of the specification are consistent with those of the previous literature. Even in the case of less developed destinations, those factors still seem to play a major role in driving more classical expenditure choices, such as choosing the accommodation, days of stay at the destination, or economic constraints and personal features of the visitor. However, as the empirical results have shown, destination contextual effects present at least the same relevance than classical factors in driving the expenditure of tourists for more developed destinations. That is because the high number of opportunities available at well-established destinations foster the quality and complexity of the visitors' experience and corresponding level of expenditure. In fact, results have also indicated that local contextual factors are not randomly distributed, but spatially dependent indeed, showing the presence of high–high and low–low spending spots where determinants of expenditure clearly differ, which leads to several relevant policy implications.

Such policy implications include the following. First, it is important to account for the level of development of the destination in the search for an optimal tourism planning policy. For example, destinations at their first stages of development should be aware of the relevance that contextual effects could play in the near future when defining their growth path. More established destinations should also be conscious of the relevant role that planning policies are playing in influencing the level of expenditure of their visitors. In this way, whenever the destination develops and reaches a relevant number of arrivals, sustainability policies should be more focused on fostering the opportunities and attraction features of the destination, in a typical urban development setting approach, with agglomeration forces playing an increasing role in improving the tourism industry conditions. This requires a clear bet of local, regional and additional levels of government for improving the quality and complexity of the tourism offer in the search for higher spending per visitor, in contrast with a policy just focusing on increasing the quantity of arrivals. This is an important recommendation emerging from the investigation for leading countries in the world tourism industry, such as Spain and many other EU countries, for example.

Second, the level of tourists' expenditure depends not only on the very local features of the destination but also on those of its surrounding area conforming a specialization clustering space. In this way, tourism authorities at the local destination level should coordinate some of their development and planning efforts inside their belonging clusters, sharing resources and planning actions altogether with closer destination authorities. It is worth noting here that we are not referring to the need of promoting the own features of a single destination, but those that can be shared with nearby ones. These would include a number of small infrastructures enhancing the in-cluster mobility, shared image and attractiveness, or joint efforts in restoring and putting in value some intangible shared assets, such as shared cultural and natural resources. It is also important to remember that the methodological approach in this research was interested in capturing the spatial dependence effects arising at the neighbouring area of destinations. This is important because additional

opportunities for increasing the level of tourists' expenditure would be arising in a short-haul environment as discussed in the main text. In this way, shared tourism planning policies recommended here focus on this local clustering environment for shared resources and opportunities. This is another interesting and quite novel finding of the present research. Moreover, the length of stay is a key factor in driving tourists' expenditure, as shown by the literature, so expanding leisure and visiting opportunities across the local cluster could lead to longer stays as well, reinforcing the relevance of the previous policy recommendation.

In all, these results on the behaviour of tourists at the destinations have provided useful insights for policy-makers and tourism managers. By better understanding the factors shaping the visitors' expenditure pattern, tourism managers can focus their policies on defining a more optimal development path for destinations. In this respect, the results of the current investigation have helped to highlight the need to coordinate some local policies and strategies with managers of nearby destinations. Moreover, the identification of expenditure clusters along the country geography points to the need of addressing a wise territorial focus for regional development policies as well. In this same setting, as contextual effects appear to play a key role in shaping tourism revenues, additional research efforts would be needed to disentangle the complex phenomena sketched here, and particularly to identify the main components of this set called contextual destination effects.

Finally, the present study is a first step in that direction, paying attention to the capacity of spatial multilevel models to extend the analysis of the demand for tourism. However, further investigations should be included in the research agenda, along with a clear claim for more resources devoted to build better datasets at the local level of destinations in Europe, the first tourism region in the world, but still with low levels of relative expenditure per visitor.

DISCLOSURE STATEMENT

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NOTES

1. For example, Pierewan and Tampubolon (2014) examine the determinants of individuals' well-being across the European regions; Dong and Harris (2015) evaluate the price of urban parcels; and Osland et al. (2016) analyse the effect of the spatial structure of the region on housing prices.
2. For the classification, see https://reports.weforum.org/travel-and-tourism-competitiveness-report-2019/rankings/.
3. The index is computed by the Spanish private organization Fundación La Caixa and is periodically disseminated through its Spanish Social Yearbook Report.
4. The Moran's test is based on a predefined structure of spatial dependence which is captured by a spatial weight matrix (W). This matrix indicates how the strength of the relationship between territorial units distributes across the whole space. In this case, the inverse of squared distance specification is chosen. Alternative specifications for the spatial weights, based on *k*-nearest neighbours or inverse distance, were also tried with non-remarkable differences in the empirical results, so we decide to keep this usual definition of the W matrix.
5. The main reason for employing a random effects multilevel/hierarchical model instead of a fixed effects specification lies on three main arguments. First, we are basically interested in capturing the distribution of the contextual effects, so employing a model that directly produces estimates of these components appears more desirable. Second, this type of specifications allows us to model spatial dependencies emerging at the destination-level. And third, random effects models offer more efficient estimations than other employed modelling strategies such as the full-pooling and no-pooling approaches as noted, for example, by Lacombe and McIntyre (2017, p. 154) and Bell et al. (2019, p. 1061).
6. Gelman and Hill (2007) offer a general introduction to multilevel models.
7. Corrado and Fingleton (2012) propose accommodating spatial effects in the contextual effects in multilevel models through a conditional autoregressive specification (see their equation 38). An equivalent approach can be found in Osland et al. (2016), and an empirical comparison of these two alternative approaches is presented by Bivand et al. (2017), who concluded that they produce results that are to a large extent comparable.
8. After denoting the dependent variable by y_{ij}, the ICC equals $corr(y_{ij}, y_{i'j})$, where i and i' represent individuals who travel to the same destination j. It is straightforward to check that in the HEM specification:

$$corr(y_{ij}, y_{i'j}) = \sigma_u^2/(\sigma_u^2 + \sigma_u^2) \text{ and}$$
$$corr(y_{ij}, y_{i'j'}) = 0 \text{ for } j \neq j'.$$

By contrast, in the HSEM specification:

$$corr(y_{ij}, y_{i'j}) = \sigma_v^2\Omega_{jj}/(\sigma_v^2\Omega_{jj} + \sigma_e^2) \text{ and}$$
$$corr(y_{ij}, y_{i'j'}) = \sigma_v^2\Omega_{jj'}/[(\sigma_v^2\Omega_{jj} + \sigma_e^2)(\sigma_v^2\Omega_{j'j'} + \sigma_e^2)]^{1/2}.$$

9. The estimation employs the Bayesian method introduced by Dong and Harris (2015), as implemented in the R package HSAR v.0.5.1 (Dong et al., 2017).
10. In both cases, the continuous covariates are grand mean centred (expressed as deviations from the grand mean), so that the contextual effects may be interpreted

as the deviation of the (logged) tourist expenditure from a reference individual evaluated at the mean.

11. When interpreting the coefficients for the dummy variables, it is assumed that $\exp(\beta)$ approximates the ratio between the expected tourist spending associated with the alternative values of the covariate (all else equal). More specifically, denoting the level of the dependent variable by Y, the dummy explanatory variable by X and the associated coefficient, say β, when the model specifies the dependent variable in logs, the following approximation may be considered for interpreting the estimated coefficient:

$$\begin{aligned}\beta &= E(\log(Y)|X=1) - E(\log(Y)|X=0)\\ &\approx \log E\left(\frac{Y|X=1}{Y|X=0}\right),\end{aligned}$$

so that:

$$\exp(\beta) \approx E\left(\frac{Y|X=1}{Y|X=0}\right).$$

12. Estimates of the coefficients for the regional dummies are not reported in Table 3 although, as usual, they are available from the authors upon request.

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