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**Research note: Does Institutional Knowledge Attract New Firms in Tourist Districts?**

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**ABSTRACT**

This paper focuses on the tourism sector, analysing the extent to which the degree of firm concentration in industry is higher or lower amongst the tourist districts located along the Spanish Mediterranean coastline depending on the knowledge resources generated by the institutions located at each destination (universities, vocational training centres and technological centres). Certain factors, such as the technical characteristics of the generated knowledge and the absorptive capacity of firms, influence the power of attraction that such institutions may exert for new firms to join the tourist district. For that reason, a U-shaped relationship between agglomeration and institutional knowledge is proposed. The empirical evidence supports this hypothesis for the knowledge generated by universities and higher-level vocational training centres, though not for the knowledge generated by medium-level vocational training centres and technological centres.

**KEYWORDS:** Agglomeration, Location, Tourist Districts, Coastal Management, Knowledge Spill-overs

## INTRODUCTION

Firms tend to concentrate geographically in many industrial sectors creating 'industrial districts,' 'spatial cluster' or 'agglomerations' (Malmberg and Maskell, 2002). The essential idea underlying the geographical concentration of firms is that they are located in a particular place because that brings them some kind of advantage or externality which goes beyond their internal capabilities; those externalities range from the exploitation of the common resources and infrastructures developed in the geographical area, along with a greater degree of accessibility to the providers and distributors based therein, the creation of a large labour market with a specialised and efficient workforce, and the knowledge transfer which takes place between the agents located in that territory (Becattini, 1990).

Majority of works have traditionally focused on analysing firm agglomeration in medium- and high-technology industrial sectors, because it is in these sectors that externalities can be generated to a larger extent with business concentration. However, an increasingly high number of papers have recently been dealing with business concentration in low-technology sectors, such as service firms, and within them, tourism firms. The main reason behind the concentration of tourism firms in specific geographical areas has traditionally been found in the so-called economies of geography (Ellinger, 1977), which explain why these firms are located together along the beach or close to a theme park, a highway, the airport or in the centre of a city close to its landmarks or historic or monuments. This reason has to do with the demand perspective, insofar as hotels and related firms tend to be situated where visitors come in search of tourist resources (e.g. sun, sea and sand; complementary tourist services; museums...). Nevertheless, the geographical concentration of hotels, restaurants and other firms around the resources demanded by tourists is likely to generate agglomeration

economies that will benefit companies (Canina *et al.*, 2005; Chung and Kalnins, 2001; Baum and Haveman, 1997; Baum and Mezias, 1992; Marco-Lajara, Claver-Cortés, Úbeda-García and Zaragoza-Sáez, 2014) –though to a lesser extent than in medium and high-technology sectors. From this point of view, the question that arises is whether the managers’ decision about the location of their firm must be exclusively based on the availability of resources demanded by tourists (demand perspective), or whether it is also important to consider the existence of large agglomerations of tourism companies and institutions that can bring benefits in the form of externalities generated at the destination (supply perspective).

A particular kind of externality generated by firm agglomeration stems from the knowledge exchanges which take place in the territory, being this one of the reasons for business location (Alcácer and Chung, 2007), since intangible assets and knowledge has gradually consolidated as a significant source of competitive advantage for any firm (Lev and Daum, 2004), also for tourism organisations (Shaw and Williams, 2009; Baggio and Cooper, 2010). It can consequently be expected that the greater the knowledge sources available at a destination, the greater the concentration of firms located therein.

In this line of thinking, it is necessary to stress the importance that the knowledge coming from universities, vocational training centres (VTCs), and R&D organisations has for innovation and competitiveness because of its highly technical and original nature. Authors such as Malmberg and Power (2005) point out that many of the studies which highlight the beneficial effects on the creation of knowledge stemming from university-industry ties are based on empirical works about high-technology sectors or biomedicine (characterised by the use of patents). Nevertheless, they also argue that research should carry out a more in-depth

analysis of the local effects caused by the relationship with universities and research centres in other types of sectors, such as services.

In order to fill this gap and ever considering that the main reason for location of tourism firms is the pre-existence of several natural and other touristic resources, the aim of this paper is to analyse the extent to which the degree of firm agglomeration in a territory will depend on the external knowledge resources that the firms in question can obtain. More precisely, our work focuses on analysing the link between the degree of tourism firm agglomeration in Spanish ‘sun and beach’ tourist districts and the knowledge spill-overs produced from universities, medium- and higher-level vocational training centres, and research organisations.

The present paper is structured as follows. After introduction, a review of the literature about the link between knowledge and agglomeration in tourist districts is made, formulating a number of hypotheses for their empirical verification. An explanation of the methodology used and the variables follows, complemented with a description and the discussion of the findings reached. The paper finishes with the main conclusions and implications derived from the study.

## **LITERATURE REVIEW AND HYPHOTESIS**

In tourist districts firms find it much easier to create and accumulate knowledge thanks to the constant interaction maintained with similar firms, as well as with training and research centres, and to the knowledge exchange occurring between them (Bathelt *et al.*, 2004; Jaffe and Trajtenberg, 2002; Feldman and Audretsch, 1999; Audretsch and Feldman, 1996), being these processes facilitated by geographical as well as cultural proximity (Boschma and Ter

Wal, 2007). According to the knowledge-based theory of geographical clusters developed by Maskell (2001b), which includes an explanation for cluster growth and evolution, this new knowledge can not only be exploited by the first firms established in the district but also by others for which the attraction exerted by this new knowledge will become a reason to start operating therein. Thus, agglomerations of related economic activities can no longer be seen mainly as the outcome of initial differences in natural resource endowment or as a mere reminiscence of previously cost-efficient spatial configurations, but also they are currently recreated as a result of the knowledge generated inside the cluster which makes the latter evolve (Malmberg and Maskell, 1997).

Several reasons explain why new tourism firms may feel attracted by this knowledge generated in the district by universities, vocational training centres and research centres. To start with, Marshall (1890) already highlighted as one of the advantages of industrial districts the existence of a specialised workforce, being human resources a critical factor to competitiveness of tourism firms (Jacob *et al.*, 2003) and of destinations (Mazanec *et al.*, 2007; Assaf and Josiassen, 2012; Hanafiah *et al.*, 2014). Thus is not rare that most tourism firms approach colleges for training (Dewhurst *et al.*, 2006) and that any firm belonging to the sector should wish to be located where the more advanced knowledge in relation to their activity is generated (Jones-Evans and Klofsten, 1997; Kirby, 1990). From another point of view, the presence of academic institutions implies that the geographical area in question is home to better educated (or trained) individuals who are able to start their own businesses which are often similar or complementary to what already exists locally (Maskell and Malmberg, 2007).

Notwithstanding the above, the greater or lesser attraction of firms will depend on several factors, both external and internal. Amongst the *external factors* stands out the *district's lifecycle*, since local collaboration with universities, research centres, and other training centres acquire more relevance during the early stages of a district's lifecycle (Malmberg and Power, 2005; Audretsch and Feldman, 1996), meanwhile the wide availability of knowledge in mature districts means that this knowledge no longer has a strategic value to provide competitive advantages for firms (Breschi and Lissoni, 2001). Amongst the *internal factors*, *size* is determinant, highlighting the literature that the knowledge generated in an industrial or tourist district usually attracts small new or recently-created firms which have at their disposal fewer financial, material, and human resources to undertake internal R&D activities (Rodríguez-Pose and Refolo, 2003; Acs, Audretsch and Feldman, 1994; Gilbert *et al.*, 2008; Stuart and Sorenson, 2003; Maskell, 2001a). On the other hand, it seems reasonable to foresee that the ability of firms located in a tourist district to understand and absorb the knowledge provided by universities, training centres, and research organisations will depend on their *absorptive capacity* (Cohen and Levinthal, 1990). This is a topic widely treated by the literature in knowledge spill-overs generated with the co-location of firms (Boschma and Ter Wal, 2007; Barney, 1991; Wernerfelt, 1984; Penrose, 1959; Boschma and Lambooy, 2002; Audretsch and Feldman, 2004; Cainelli, Iacobucci and Morganti, 2006; Whitford, 2001). Finally, factors such as the '*myopia of learning*' (Levinthal and March, 1993) and the '*not invented here syndrome*' (Gupta and Govindarajan, 2000) are likely to influence the volume of knowledge that the firm will be able to obtain from external sources.

In short, the knowledge externalities available in a tourist district will only attract new firms if they have the capacity to absorb and assimilate that knowledge. On the other hand, the existence of a U-shaped relationship between agglomeration and business profitability

demonstrated by Marco-Lajara *et al.* (2014) makes it clear to us that profitability decreases with low tourism firm agglomeration levels –high agglomeration increases profitability, though. The joint consideration of these two arguments enables us to state that, when the knowledge generated in the district is scarce and very specific, the latter attracts very few firms, as a result of which firm agglomeration in the district does not reach a high level. Consequently, the firms located there are less profitable, which can eventually lead some of them to disappear or leave the destination. However, a broad knowledge level attracts more firms capable to absorb it, increasing the degree of agglomeration and, accordingly, profitability. It can thus be deduced that the higher the level of knowledge, the higher the degree of agglomeration. In the light of all these ideas, we formulate the main hypothesis:

*H1: The degree of firm agglomeration in a tourist district follows a U-shaped relationship with the availability of knowledge resources at the destination.*

Considering that this paper focuses especially on the knowledge generated by universities, higher- and medium-level vocational training centres, as well as centres dedicated to technological research on tourism, the hypothesis can be disaggregated into the following sub-hypotheses:

*H1a: The degree of firm agglomeration in a tourist district follows a U-shaped relationship with the availability of knowledge resources generated by the universities located at the destination.*

*H1b: The degree of firm agglomeration in a tourist district follows a U-shaped relationship with the availability of knowledge resources generated by higher-level vocational training centres.*



*H1c: The degree of firm agglomeration in a tourist district follows a U-shaped relationship with the availability of knowledge resources generated by medium-level vocational training centres.*

*H1d: The degree of firm agglomeration in a tourist district follows a U-shaped relationship with the availability of knowledge resources generated by centres dedicated to technological research on tourism.*

Figure 1 offers a graphic representation of this approach.

Insert Figure 1 here

## **RESEARCH METHODOLOGY**

### **Analysis method**

Taking into account that the hypotheses posed foresee a U-shaped relationship between dependent variable and knowledge resources, a quadratic regression like the one given below must be used to check if those hypotheses are empirically verified:

$$Y = \beta_0 - \beta_1 * X + \beta_2 * X^2$$

where Y is the degree of tourism firm agglomeration, and X the knowledge resources existing at the tourist point or destination. However, other factors that can play a determining role in business concentration are introduced in the model as control variables: characteristics of firms already established at the destination (size, category and chain-affiliation of hotels);

demand (average length of stay; hotel occupancy level; hotel prices; and number of overnight stays); transport infrastructures available in the area; and other variables related to the destination's inherited resources (beach quality). Considering all the hypotheses posed, along with the proposed control variables, the model can be expressed using the following equation:

$$\begin{aligned}
 \text{AGGLOMERATION} = & \\
 & + \beta_0 + \beta_1 * \text{SIZE} + \beta_2 * \text{CATEGORY} + \beta_3 * \text{CHAIN} \\
 & + \beta_4 * \text{OCCUPANCY} + \beta_5 * \text{AVERAGE-STAY} + \beta_6 * \text{OVERNIGHT-STAYS} + \beta_7 * \text{PRICE} \\
 & + \beta_8 * \text{INFRASTRUCTURES} + \beta_9 * \text{BEACHES} \\
 & - \beta_{10} * \text{UNIVERSITIES} + \beta_{11} * \text{UNIVERSITIES}^2 \\
 & - \beta_{12} * \text{HIGHER VTCs} + \beta_{13} * \text{HIGHER VTCs}^2 \\
 & - \beta_{14} * \text{MEDIUM VTCs} + \beta_{15} * \text{MEDIUM VTCs}^2 \\
 & - \beta_{16} * \text{RESEARCH CENTRES} + \beta_{17} * \text{RESEARCH CENTRES}^2 \\
 & + \varepsilon
 \end{aligned}$$

SPSS version 23 was used as our statistical package and the hierarchical regression model was designed.

### **Variable measurement and data collection**

The variables are described in Table 1. The study population comprises all the Spanish tourist districts situated along the Mediterranean (peninsular or Balearic) coastline. As can be observed in table 2, up to 113 tourist districts could be identified, obtaining data from them all –which means that it was ultimately possible to work with the whole population.

Nevertheless, the data for independent variables and those corresponding to control variables used in the model do not individually refer to each tourist district. Table 2 summarises the analysis level used for each variable, as well as the number of different values that each variable may adopt, showing the bottom part of the table the distribution of values by Autonomous Regions. As can be seen, knowledge resources refer to provinces, *comarcas* or autonomous regions; demand variables refer to the municipality or tourist area where hotels are located; beach quality and transport infrastructures correspond to the autonomous region in which the tourist district stands; and characteristics of established hotel firms were estimated with information about each one of the hotels located in each tourist district for which data exist on the SABI database and for which it was possible to collect information about number of rooms, category or affiliation to a chain.

Insert Table 1 here

Insert Table 2 here

## **RESULTS AND DISCUSSION**

Table 3 provides a summary of the results obtained with the different regression models. As can be seen, model 3 presents an  $R^2$  of 0.383, explaining 38.3% of variance for the dependent variable. The model as a whole is significant.

Insert Table 3 here

A comparison between the models reveals that the first one, where only a few of the control variables are included, hardly accounts for 3.1% of variance. The model shows that the

presence in the tourist district of hotels with a certain size and belonging to a chain positively influences the attraction of tourism firms towards the destination –thus making the degree of agglomeration grow within the district. In contrast, the category of already established hotels has no bearing on this aspect. In the second model, high hotel occupancy levels, beach quality, and suitable transport infrastructures do influence the degree of tourism firm agglomeration to a greater extent, jointly explaining up to 22.6% of variance.

Model 3 explains up to 12.6% of variance, hence why it becomes obvious that the knowledge resources available at the destination have a high relevance for firms. Empirical evidence is obtained for hypotheses H1a and H1b, which predicted a U-shaped relationship between agglomeration of tourism firms and knowledge generated by universities and higher-level vocational training centres, respectively. Instead, the evidence obtained for medium-level vocational training centres and technological research centres is just the opposite one, namely: an inverted U-shaped relationship with the degree of tourism firm concentration, not supporting H1c and H1d. Figure 2 provides a graphical representation of these results.

Insert Figure 2 here

Several arguments can serve to explain the contradictory results of H1c and H1d. It is likely that knowledge generated by medium-level vocational training centres to be more standardised and more easily assimilated by firms; for that reason, the availability of such knowledge, however small it might be, will attract firms –thus increasing the degree of firm concentration. However, this knowledge may end up becoming redundant at a certain point in time, with firms in the district being saturated with it, as a result of which their interest and appreciation for this type of knowledge will start to diminish –and some of them may even

decide to leave the place. This result coincides with the work of Breschi and Lissoni (2001), who conclude that the wide availability of knowledge means that the latter no longer has a strategic value. As for tourism research centres, it is possible that, despite being SMEs, several of the firms located in a tourist district belong to chains or larger-sized business groups from abroad –hence their reluctance to acquire the external technological knowledge of their district, and the efforts to impose their existing technology and procedures upon the business groups to which they belong (*not invented here syndrome*).

In short, it can be inferred that institutional knowledge generated in the district attracts new firms because it proves valuable to them, as Alcácer and Chung (2007) point out. Therefore, the knowledge path-dependence approach serves as a theoretical foundation to explain the evolution of tourist clusters or districts (Maskell, 2001b; Maskell and Malmberg, 2007), allowing the latter to become regenerated and its firms to be increasingly competitive (Malmberg and Maskell, 1997).

## CONCLUSIONS

Tourism firms concentrate geographically around resources demanded by tourists, becoming important agglomerations of firms and institutions where knowledge externalities are generated. Knowledge generated in clusters and tourist districts by universities, VTCs and research centres, can attract new tourism firms, the cluster will grow and evolve following an increase in the number of firms. It can be concluded that knowledge constitutes an important source of competitive advantage for any firm belonging to the tourism sector.

Nevertheless, empirical evidence points out that firms, do not value all kinds of knowledge in the same way. The strategic value of knowledge generated by universities and higher VTCs is greater, but its high technicality and specificity makes it more difficult to absorb by firms; on the opposite hand, knowledge generated by medium VTCs and research centres is of a standardised nature and easier to absorb, for that reason being not an important source of competitive advantage for firms. This explains the U-shaped relationship between business agglomeration and knowledge in the first case, and the inverted U-shaped relationship in the second one.

The present paper has important implications both for public administrations and for the actual firms operating in the sector. The former must support and encourage knowledge generation by public and private institutions, but always paying attention to knowledge specificity or variety, since the potential utility for firms will depend on it. As for the latter –tourism firms– they need to analyse the characteristics of the knowledge generated in a tourist district when it comes to deciding their location.

The conclusions reached here result from an initial approach to the study of the link between the degree of firm concentration in a tourist district and the level of knowledge generated therein. Nevertheless, the need still exists to work and to further deepen the analysis of the influential and determining factors when it comes to decisions related to tourism firm location according to the sort of knowledge generated by institutions such as the ones examined in the present paper. It could additionally be interesting to carry out a dynamic analysis, comparing the number of concentrated firms with that of knowledge-generating institutions at first, and with the existing numbers of both at a subsequent time.

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Table 1.- Description of the variables used in the regression models

Variable classification	Variable name	Measurement	Data source
Dependent	Agglomeration	Result of the following equation: $\frac{\text{Tourism employment in tourist district } i}{\text{Total employment in tourist district } i} = \frac{\text{Tourism employment in Spain}}{\text{Total employment in Spain}}$ Tourism sector = hotels, restaurants and cafés (codes 5510, 5610 and 5630 of CNAE2009) Tourist district = local labour system (LLS) where 1 or more coastal municipalities are integrated LLSs identified according to ISTAT methodology by Boix and Galletto (2005)	Database of the Spanish Chambers of Commerce (CAMERDATA)
Independent (Knowledge resources)	Universities	No. of universities with tourism degrees in the province / No. of inhabitants	Web page of the Autonomous Region
	Higher VTCs	No. of higher-level VTCs with tourism programmes in the <i>comarca</i> / No. of inhabitants	Web page of the Autonomous Region
	Medium VTCs	No. of medium-level VTCs with tourism programmes in the <i>comarca</i> / No. of inhabitants	Web page of the Autonomous Region
	Technological RC	No. of centres focused on tourism research and tourism observatories in the region or autonomous region	Web page of the Autonomous Region
Control	Size	Number of employees of the hotel	SABI database
	Category	Number of stars of the hotel (it ranges between 1 and 5)	Hotels' web page
	Chain	Dummy variable (1 when hotel is affiliated to a chain; 0 in other case)	Hotels' web page
	Occupancy	Data corresponding to the municipality or tourist area where the hotel is established	National Statistics Institute of Spain (INE)
	Average stay	Data corresponding to the municipality or tourist area where the hotel is established	National Statistics Institute of Spain (INE)
	Overnight stays	Data corresponding to the municipality or tourist area where the hotel is established	National Statistics Institute of Spain (INE)
	Price	Data corresponding to the autonomous region where the hotel is established	National Statistics Institute of Spain (INE)
	Infrastructure	No. of operations by air in the Autonomous Region / potential users $\text{Potential users} = \text{Inhabitants} + \frac{\text{Overnight stays in hotels}}{365} + \frac{\text{Overnight stays in apartments}}{365}$	Spanish Airports and Air Navigation (AENA)
Beaches	Linear beach metres existing all over the Autonomous Region / potential users $\text{Potential users} = \text{Inhabitants} + \frac{\text{Overnight stays in hotels}}{365} + \frac{\text{Overnight stays in apartments}}{365}$	Ministry of Environment, Fishing and Agriculture	

Notes: the variables 'Average-stay' and 'Price' were removed of the model due to collinearity problems

Table 2.- Unit of Analysis for Variables and Distribution by Autonomous Regions

Unit of Analysis	Dependent Variable	Independent Variables				Control Variables						
	Degree of agglomeration	Knowledge Resources				Demand Variables		Destination Resources		Characteristics of hotel firms		
		Universities/inh.	Higher VTC/inh.	Medium VTC/inh.	Technological Centres	Occupancy	Overnight Stays	Beaches	Transport Infrastructures	Size	Category	Affiliation to a chain
	Tourist District	Province	<i>Comarca</i>	<i>Comarca</i>	Autonomous Region	Municipality or tourist area	Municipality or tourist area	Autonomous Region	Autonomous Region	Hotel Firm	Hotel Firm	Hotel Firm
No. of Units	113	13	49	49	5	86	86	5	5	2,003	2,003	2,003

No. of units per Autonomous Region

Catalonia	20	3	12	12	1	16	16	1	1	467	467	467
Valencian Autonomous Region	26	3	13	13	1	12	12	1	1	302	302	302
Murcia	6	1	2	2	1	5	5	1	1	41	41	41
Andalusia	37	5	14	14	1	32	32	1	1	504	504	504
Balearic Islands	24	1	8	8	1	21	21	1	1	689	689	689

Table 3.- Summary of regression models

Variables	Model 1	Model 2	Model 3
Size	0.037*	0.032*	0.024*
Establishment Category	0.013	-0.044**	-0.012
Affiliation to a chain	0.154***	0.051**	0.042*
Occupancy		0.350***	0.508***
Overnight Stays		0.004	0.039*
Beaches		0.147***	-0.503***
Infrastructures		0.092**	0.399***
Universities			-3.185***
Universities <sup>2</sup>			3.352***
Higher VTCs			-0.236***
Higher VTCs <sup>2</sup>			0.194***
Medium VTCs			0.284***
Medium VTCs <sup>2</sup>			-0.177***
Technological Centres			2.720***
Technological Centres <sup>2</sup>			-3.496***
<i>F</i>	19,102***	89,526***	74,761***
<i>R</i> <sup>2</sup>	0.031	0.257	0.383
$\Delta R^2$		0.226	0.126

\*\*\*  $p \leq 0.01$ ; \*\*  $p \leq 0.05$ ; \*  $p \leq 0.1$

Fig. 1.- Foreseen relationship between firm concentration and knowledge

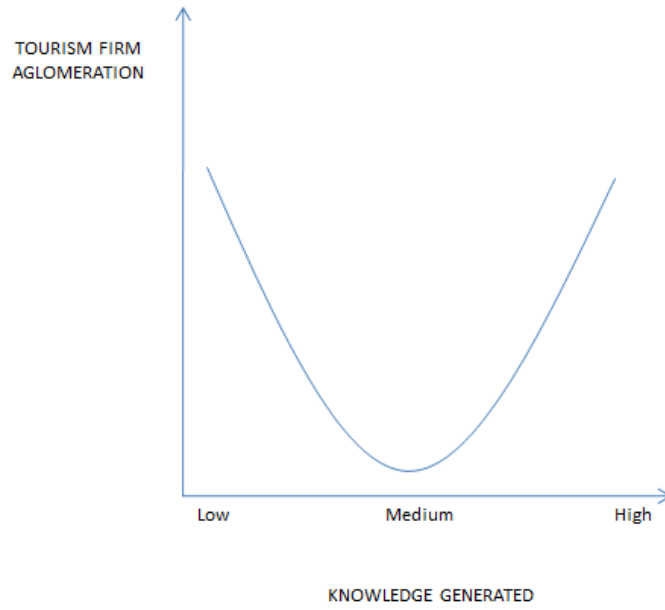


Fig. 2.- Real relationship between business concentration and knowledge

