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Clustering strategy and development of subsidiaries in China

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Abstract Location is a critical decision for multinational enterprises as it affects the growth of their foreign direct investment (FDI) in the host country. Although clustering provides information- and knowledge-based advantages, it also entails costs and risks associated with the hazards of competition, congestion and imitation. Consequently, heterogeneous influences may arise from the clustering, producing unexpected results. This paper aims to analyse the association between the portfolio of decisions relative to internationalization, (e.g. the decision to choose a clustered location, and their relationship to the subsidiary's future investment. Our qualitative empirical study is based on a sample of 31 Spanish firms investing in China. The findings suggest that manufacturing firms—efficiency seekers—associate more with clustered locations than trading-service firms—market seekers. The connection between clustering and Spanish subsidiaries' outlook is heterogeneous across the different types of investment, namely, market versus efficiency seekers, since there is a certain level of association between the decision of future reinvestment and the original strategic motivation to enter. Thus, the findings have several implications for both practitioners and policy-makers wanting to attract increased levels of FDI.

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1 Introduction

World economic activity today is becoming increasingly integrated due to globalisation and rapid improvements in transport and communications (Buckley and Ghauri 2004). This situation highlights the increasing presence of multinational enterprises (MNEs) virtually everywhere and the importance of choosing the best location for each slice of their value chain (UNCTAD 2015; Dabic et al. 2014). Globalisation also highlights the importance of selecting the right entry mode according to the firm's experience and the host country's features (He 2003; Buckley and Ghauri 2004; Nishiyama and Yamaguchi 2013).

MNEs normally decide to locate in areas where there is a high density of firms (agglomerations) such as industrial clusters (co-location of firms of related industries) and country-of-origin clusters (co-location of firms of the same country in the host country) (Crozet et al. 2004; Majocchi and Presutti 2009; Meyer et al. 2011; Alcácer and Chung 2013). Clusters entail a "hybrid" or intermediate organizational form that helps minimize problems deriving from size and control (Mudambi 2008). This is widely accepted as the main reason of the importance of clusters in international business (IB) literature. Another reason is that co-location with other firms belonging to the same or related industries helps the investing firm gain access to both local industry-specific knowledge and specialized industry-related resources, a requirement for success when entering a foreign market (Meyer et al. 2011; Wang et al. 2014).

In other words, clustering can provide an important source of competitive advantage to both host and guest firms in the highly competitive environment of a specific area. This can reduce the handicap stemming from being abroad—the liability of foreignness. As a result of these positive spillovers, renovation and growth of the population of firms take place from the inside out, taking advantage of the flow of resources and business opportunities *created by* and *in* the local market. A more homogeneous space is then formed where there is an exchange of employees among the clustered firms, which share the same value system and fully understand the rules governing the business activity in the cluster (Puig and Marques 2010). The main objectives for setting up business in clusters abroad are diverse, including cost savings, market proximity and investment opportunity (Kedia and Mukherjee 2009; Yang et al. 2011).

The survival of the binomial MNE-subsidiary relies increasingly on its fit with the location features (Coucke and Sleuwaegen 2008). This may take the form of transferring certain activities of its value chain to foreign locations despite host and guest nationalities being culturally distant (Coucke and Sleuwaegen 2008; Puig et al. 2014), such as is the case of Spanish firms in China. This process entails the internationalization of the production, the distribution and marketing of good and services, and even the organization of economic activities in the value chain.

Literature on the conditions that must be met for the effective transfer of activities abroad has strongly relied on Dunning's eclectic paradigm (Dunning 2006). This states that international production financed by foreign direct

investment (FDI) and undertaken by MNEs is based on three drivers. First, there is a set of (net) competitive advantages stemming from the country-of-origin features and the position of the MNE to take advantage of them (O), both of which influence the investment motivation, namely, efficiency seekers versus market seekers. Second, there are the host-country location advantages (L) that lead the MNE to choose a given location for certain value-adding activities because that location offers the best conditions for undertaking those activities. Third, it considers the advantages derived from the internalisation (I) of markets and assets that MNEs tend to exploit, which partly shape the dynamics of the ownership structure, such as evolving from an international joint venture to a wholly-owned subsidiary.

Since the writings of Alfred Marshall (1890) there have been numerous studies on the "location effect" (spillovers and advantages of clustering) impacting on host-country firms. However, the study of this effect on foreign MNEs has received scant attention to date (McCann and Folta 2008; Dunning 2009; Jean et al. 2011). This is noteworthy because of the different processes and institutional changes taking place in China (Li and Park 2006; Bellandi and Caloffi 2010): while inward FDI in China is expected to keep following an upward trend in the coming years (Davies 2013; Dencik and Spee 2014), the patterns of location may shift due to new policies to locate FDI outside the usual industrial parks for foreign MNEs (Bellandi and Caloffi 2010). Furthermore, the problems and failures that some firms have experienced deserve further attention. Examples are the Spanish firms Orbea and Fagor who decided to disinvest and/or close their factories in China in March 2015.[1]

Hence the objective of this paper is to explore the association between decisions to locate in clusters and decisions about whether or not to reinvest in subsidiaries. For methodological reasons, a sample of 31 Spanish subsidiaries located in China was chosen for the empirical study. Our contribution helps clarify whether the decision of location is more associated with issues related to the MNE's strategic objective to invest in the host country (O issues), to locational advantages (L issues) such as the existence of a cluster, or to internalising issues (I issues) linked to the entry mode. Our results help clarify the potential influence of this portfolio of decisions—entry mode, host-country location type, economic activity—on the outlook of reinvestment decisions in subsidiaries in foreign countries in future studies.

The article is organized as follows. In Sect. 2, a literature-based theoretical framework of location and clusters in emerging countries is provided based on findings from both research streams. Section 3 details the empirical study addressing the mode of entry, location and types of activities chosen by Spanish firms when entering China. In the last two sections, implications and conclusions are discussed.

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[1] There are other examples. Reports in the media have included attention-grabbing headlines such as "Chinese ordeal", "toy industry come home", "companies relocation to Spain", "the Chinese bittersweet cake" or "textile companies that went to China".

2 Theoretical framework

2.1 The nature of industrial clusters

Since its first appearance in the literature, application of the cluster concept has been influenced by the theoretical development of cluster academic literature (Cruz and Teixeira 2010). In fact, the notion of a cluster of firms has a broad variety of notions as a consequence of the existence of a number of different perspectives in the literature (Martin and Sunley 2003). These perspectives have emerged according to the particular context in which cluster theory has been applied (Mudambi and Swift 2012). Briefly, the dimension and linkage types can be classified into two different approaches, namely industrial organization and regional studies.

In the first approach, Porter (1990) categorizes the clusters into two dimensions based on vertical and horizontal relationships that involve different advantages for the cluster members (Malmberg and Maskell 2002). The horizontal dimension entails those firms producing similar products, competing among themselves. These firms do not necessarily demonstrate close cooperation or contact with one another since they possess similar know-how and may be targeting similar groups of customers. The proximity in this dimension provides advantages based on continuous monitoring and comparison of the firms' performance (i.e. benchmarking), which enables all the firms in the area to develop very similar production conditions. The vertical dimension refers to those companies with complementary products that potentially benefit from a network of supplier and customer relationships. In this dimension, the suppliers can reach economies of scale that generate increasing numbers of transactions and development of linkages within the cluster thanks to specialisation in a certain economic activity.

In the second approach, McCann et al. (2002) state that the cluster concept can be summarized according to three dimensions: The first dimension is geographical proximity among the clustered firms that generates agglomeration economies of skills and scale through an internal labour market pool (Swann and Prevezer 1996). The second dimension is associated with social networks based on trust and loyalty usually formed as a result of a historic process. This dimension leads to the formation of various types of proximities such as those derived from sharing common technologies, labour workforce, or infrastructures, as well as knowledge exchange and collective learning (Asheim and Coenen 2005). The third dimension refers to cultural aspects within the business environment that allow for the evolution of the cluster through the development of new ventures and the use of resources generated by the cluster itself (Rosenfeld 2005). This is connected to the organizational ecology viewpoint: the cluster evolves owing to the survival and growth of the ventures that fit best to the cluster's internal conditions (Puig et al. 2014).

Previous studies in the fields of economic geography and IB have indicated that the main value added by clusters is the expansion of a kind of *sane* competition among companies located within the cluster. However, more recent research findings in the literature of both fields supports the concept of industrial clusters and

country-of-origin clusters as an agglomeration of information and knowledge spillovers arising from dynamic interdependencies among companies located in the same area (Tan and Meyer 2011; Alcácer and Chung 2013). Enterprises and suppliers within the same area are not only linked through goods traded, but also through shared knowledge, which is an intangible, tacit asset available to all stakeholders within the area (Tallman et al. 2004). According to Maskell (2001), the existence and success of industrial clusters, and clustering in general, is strongly linked to knowledge generation-based advantages. Accordingly, once the knowledge and spillovers are in place, international firms are attracted to be located in the area. Consequently, the interorganizational dynamics enables new attainment of knowledge stemming from new firms entering the area (Guillén 2002).

2.2 Factors influencing the decision of location choice

Porter (1990) and Dunning's eclectic paradigm (2006, 2009) both state that the specific characteristics of the location determine the competitive advantages a firm can enjoy. In the context of MNE innovation processes in clusters, Mudambi and Swift (2012) suggest two complementary mechanisms, namely, oligopolistic deterrence and physical attraction, which lead to the co-location of activities in technology clusters. Although the location of a firm is a well-known research topic, there is a gap in the literature regarding a deeper understanding of the location of manufacturing and service activities when facing IB decisions (Dunning 2009; Rugman et al. 2011). The necessity of a broader understanding of this topic has been generated by continuous economic and political changes that have led to reconsideration of the meaning of knowledge-sharing among companies and the competitive advantages derived from location (Buckley and Ghauri 2004). Several studies in recent years have highlighted the existence of new opportunities for firms to offshore their activities, especially to those countries with low production costs (Farrell 2005). In emerging markets like China, however, there is scarce evidence of whether the location offers knowledge-based advantages or a more primitive source of locational advantages such as cost-based resources and shared infrastructure.

Whereas previous studies concur that the primary advantage of offshoring activities is based on cost reduction, more recent findings highlight that offshoring advantages rely on the combination of three related factors: disintegration, externalization and location (Kedia and Mukherjee 2009). The location factor can be better addressed at a more granular level through the advantages of the specific country area, workforce and knowledge-sharing, following the ownership, location and internalisation (OLI) paradigm. Cantwell and Mudambi (2005) report that multi-established firms use their international position to create a competitive advantage out of the location factor, which might grow not only due to a unique combination of assets and knowledge, but also due to the specific characteristics of the host location. These two main factors imply issues related to the MNE's strategic objective to invest in the host country (O), namely, seeking efficiency or seeking markets. Meyer et al. (2011) emphasize that firms are strongly influenced by the relative importance of these factors when making location choice within the host country.

Location-specific (L) factors play an important role in the international companies' roadmap. To be able to benefit from the advantages of the location, they need to continuously monitor and revise their strategies on a regular basis (Mudambi 2008). Furthermore, the specific characteristics in a particular country will determine the type of activities expected to be established there. However, as Dunning (2009), and Kim and Aguilera (2015) claim in the IB literature, there is excessive focus on considering solely the nation as the unique unit of analysis rather than a lower level or a different geographical approach.

This is particularly relevant in countries like China, where diverse and heterogeneous territories and types of clusters cohabit (Bellandi and Caloffi 2008). The particular features of each territory make each one more or less appropriate for certain types of activities and entry modes (Li and Park 2006). Those activities based on value creation normally will be largely located in developed territories, while labour intensive activities will be located in emerging areas (Linares-Navarro et al. 2014). In other words, MNEs prefer industrial clusters in the host country in the context of manufacturing activities and strategic objectives related to efficiency.

Moreover, there is a lower likelihood for MNEs to take advantage of internalising advantages (I) in territories more distant culturally or where there is a lower chance of success for the more committed modes of entry (Kogut and Singh 1988). In such cases, firms willing to enter those territories will tend to choose less committed modes of entry, for example, a representative office versus a wholly owned foreign equity. The chances for a cluster to exist in that location are slim due to its lower level of development such as less specialized labour pool and lower levels of infrastructure development. Such a situation may cause a higher number of exits when the global competitive conditions change and MNEs demand conditions different to only cost-based advantages.

2.3 Clusters in China and international success of firms

In China clusters are a key factor for succeeding in international competition regarding manufacturing industries and enhancing territory competitiveness (Lin et al. 2011). Although industrial clusters in China have traditionally existed for centuries, for example, needlework in Suzhou and rice paper in Anhui, the true development of industrial clusters across the country has been over the last two decades (Yu et al. 2006). The clusters in China are the direct result of the opening-up policy in the 1970s and of higher levels of technology diffusion. After China joined the World Trade Organization in 2001, the government's awareness of the importance of *Intellectual Property Rights* rose dramatically. On the one hand, this triggered the creation of obstacles for those companies intent on copying products already available on the market; and on the other hand, it has stimulated the sharing of technology accumulation among companies (Li and Park 2006).

Chinese MNE clusters that are highly concentrated geographically around certain industrial sectors have become an important icon of regional competitive advantage due to their primary role in the economy and industrial development. The clusters are mainly concentrated in the high-development zones in the coastal part of China
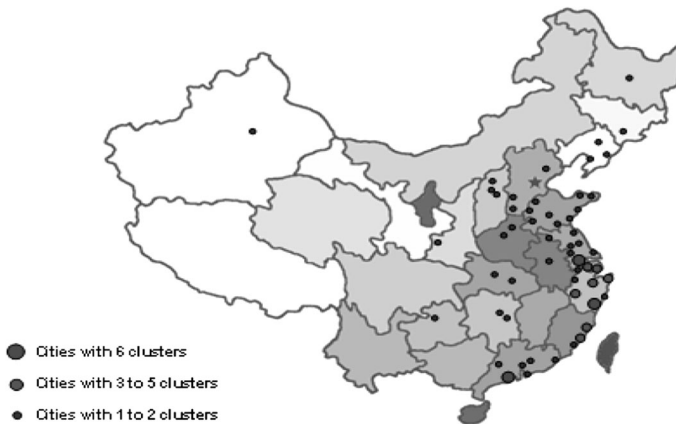
Fig. 1 Location of the main clusters in China. Source: Li and Fung Research Center (http://www.funggroup.com/eng/knowledge/research/LFIndustrial6.pdf) and authors

such as the Pearl River Delta economic zone, the Yangtze River Delta economic zone and the Bohai rim economic zone (see Fig. 1).

Despite these findings, new competitive clusters are starting to emerge in other territories of China. This has happened particularly in the less-developed coastal cities and the Central and Western regions, due to increased domestic demand and infrastructure improvements (Davies 2013). Most of these new clusters are attractive to companies with an intensive-labour production process because they offer lower production costs. The drawback of these "low-cost" clusters, however, is that they hardly communicate or share information with each other even though the firms work in very similar sectors (Bellandi and Caloffi 2010). Moreover, foreign firms entering these locations have difficulty finding local agents with whom they can exchange valuable knowledge for the guest firm since they are merely low-cost seekers. As a result of the lack of trust and collaboration, and dominance of horizontal links, this type of cluster does not facilitate development of innovation-based advantages to promote the regional economy in China (He 2003).

Industrial clusters located in coastal areas of China manufacture a broad variety of products while those located in inland regions are more focused on products processed from natural raw materials or resources available within the regions (Yang et al. 2011). The largest clusters in China are mostly engaged in manufacturing. However, higher value-added industrial clusters are gaining in prominence since total production costs have increased in China in the past decade.

In this regard, Peng's (2004) question about what determines the international success and failure of firms can be used to hypothesize the case of Spanish firms in China. While many of these companies chose to locate in and around Shanghai (the coast) and Beijing (Perea and Ripoll 2014), others dispersed to isolated areas. Reasons for these location decisions include positive spillovers of knowledge, cost of logistics, and compliance with governmental regulations or financing (Cui and Liu 2000). While some of these companies have survived and grown, others have failed or have decided not to increase their investment.

In line with Buckley et al. (2010) and Bellandi and Caloffi (2010) and several other studies across the IB literature (e.g. Enright 2000; Chung and Alcácer 2002; Brouthers and Hennart 2007; Mudambi and Swift 2012), the reasons for not increasing the investment are twofold: external causes relating to globalization and changes in the Chinese economy, while at the same time internal causes relating to misalignment between three critical decisions. First, the (un)fit between the decision relative to the strategic motivation and the location's characteristics, for example, cost-seeking strategies in places where costs have increased. Second, inconsistency in the location's characteristics and the firm's entry mode, for example, committed modes in places where it is risky due to lack of knowledge relative to local conditions. Third, potential inconsistency between the firm's economic activity and entry mode, for example, manufacturing activities undertaken by means of high committed modes in places where the MNE lacks knowledge of local conditions. This means we should explore the associations between the selection of a clustered location, the activity offshored in China, and the entry mode. This can help explain the heterogeneous outlook of subsidiaries in the case of emerging markets.

3 Methodology

3.1 Sample and data collection

In accordance with the objective of this paper, the sample needed to meet two requirements: (1) the companies must be Spanish and (2) must be located in China. In Spain, statistical information related to FDI is gathered by the ICEX (*Institute for Foreign Trade* in Spanish). At the time of consultation (May 2012), the list comprised 217 firms. Today it lists 185 Spanish companies, a marked drop compared with the 360 when Perea and Ripoll (2014) consulted the list in January 2012. This difference is likely due to exclusion of parent firms based in Spain that have a high proportion of foreign stakeholders such that they cannot strictly be considered as fully Spanish firms. This exclusion is highly relevant given that our objective is to investigate the country-of-origin effect for the Spanish case. Future studies, however, should consider the additional impact of multiple nationalities among the stakeholders.

A final total of 31 companies participated (14.1% of the total sample) from the initial target group of 217. The reasons behind this low ratio are twofold: On the one hand, the nature of the target group itself was a relative barrier. They included CEOs (42%) or top managers (58%) difficult to get in contact with. On the other hand, many companies cited distrust of being perceived as "made in China" producers as the main reason for not participating. No response bias evidence was identified regarding differences between early and late responders, citizenship or the gender of those surveyed. Due to the low number of responses, we had to test the potential sample bias by means of Fisher's exact test (Fisher 1935; Finney 1948). The results showed no evidence that the observed and expected proportions for each category differed significantly since the two-sided p values were above the minimum threshold of 0.05. In addition, we performed a Heckman analysis to test the potential

Table 1 Sample representativeness

Sector	% on target population (n = 217)	% on respondents (n = 31)
Food and beverages	8	3
Services	56	65
Raw material, industrial intermediate goods and equipment	26	19
Other consumer goods	10	13

Pointprob = 0.006; (*) P(Observed ≥ Expected/O ≤ E) = 0.684; mid-p = 0.681; 5494 tables evaluated

Location in China	% on total sample (n = 217)	% on usable sample (n = 31)
Beijing and North China	37	18
Shanghai and Centre of China	47	64
South of China	16	18

Pointprob = 0.002; (*) P(Observed ≥ Expected/O ≤ E) = 0.086; mid-p = 0.085; 595 tables evaluated

(*) Two-sided Fisher's exact test computed by the method of small p's: add all the probabilities that are the same size or smaller than the pointprob; the mid-p method is to add all the values more extreme than the pointprob and then add these to one half of the pointprob; p values above 0.05 accepts the null hypothesis that observed and expected values in each cell are not statistically different

selection bias of one of the variables of interest (cluster). The Mills lambda was not significant at an alpha level of 0.05, with a 95% confidence interval of (−2.16, 1.48). Therefore, the sample is statistically significantly similar to the total sample of 217 firms in terms of sector and geographic location, and cluster membership (see Table 1). However, there could be potential bias owing to unobservable characteristics that we could not test for, so the results should be interpreted with caution.

Primary and secondary sources were used to gather all the necessary information. The primary sources consisted of a two-stage survey. In the first stage, a web-based survey was conducted by June 01 2012. We sent an email with explanation of the survey's purpose and the web link to the survey. To increase the response rate a reminder was sent by email two weeks prior to the deadline. At the end of this process we obtained a total of 31 valid completed questionnaires.

In the second stage, interviews were organized with the top managers of two of the companies surveyed. The objective of this second stage was to employ qualitative analysis to clarify and have a better understanding of the findings from the first survey, following the recommendations of Marschan-Piekkari and Welch (2004). For this purpose, two companies (Firms A and B) were invited to participate in a structured interview. This additional survey included only open questions relating to the company's decisions of location, mode of entry and the underlying reasons for their choices, which allowed us to delve into the issues the managers believed had been fundamental in their decision-making process to enter China (Oppenheim 1992). Each interview (approximately 2 h) was recorded using an audio record system. We have included their comments and nuances in the discussion section where appropriate.

Firm A operates in industrial equipment. It decided to establish a wholly-owned foreign enterprise (WOFE)[2] in 2006. Its intention was to operate a dual activity subsidiary to both produce and sell in China. It first searched for the right partners located in a cluster close to Shanghai (Mid-Eastern region of China). This decision was made because the place offered the right balance of suppliers, universities and marketers. Its future intention is to increase its investment in China.

Firm B belongs to a traditional manufacturing industry. It decided to establish a WOFE in 1998. For its manufacturing subsidiary it chose a southern location in the region of Guandong. This was because it wanted to follow its customers, who were located there. By that time the location contained an agglomeration of firms. Later on, it became a cluster of agents related to that industry. In fact, the regional government fosters related firms locating in the cluster. The manager emphasized that the cluster has a very different impact on WOFE than it has on Chinese firms. Local firms share information and place joint orders to suppliers. Meanwhile, foreign companies are excluded from these shared resources. Its future intention is to increase its investment in China. The manager emphasized that the key role of the company's innovation is to compete in this market. Innovation protects against imitation. So those firms willing to compete at lower cost are abandoning the clusters because of increased costs in several productive factors across China.

As in other research focused on the study of Spanish companies in China (e.g. Quer and Claver 2008), secondary sources were used to collect more information from the companies to complement the results obtained from the primary source. This was compiled from the databases of both *Sistema de Análisis de Balance Ibéricos* (SABI-Informa) and the *Instituto Español de Comercio Exterior* (ICEX).

3.2 Variables and analytical techniques

Six variables were defined: outlook, cluster, activity, entry mode, subsidiary size, and period of entry. Information on these variables referring to the subsidiaries in China was obtained directly from the questionnaires completed by the companies together with secondary sources where appropriate. This information refers to the subsidiary in China. The procedure was as follows:

- Since there is no single measure of future performance (Schmid and Kretschmer, 2010), we define the variable *outlook* as a proxy for the intention of the prospective decision relative to the investment made in China. This was obtained directly with the question: *What will be the trend of your future activity in China?* No increase or reduce business = 0, increase business = 1.
- The *cluster* dummy variable takes the value 1 if a firm is located in an industrial cluster and 0 otherwise. The question asked was: *given that an industrial cluster is a concentration of businesses/commercial sectors related to each other at a given location, and also is supported in the area of a greater number of*

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[2] WOFE (Wholly Owned Foreign Enterprise is a common investment strategy for China whereby a Chinese investor is not required), a Joint Venture is an agreement in which two or more parties agree to develop a new entity and new assets for a certain period of time, while a Representative office is an office established by a company in a foreign country to carry out non-transactional operations.

suppliers, raw materials needed, workers formed, do you think that your subsidiary in China is located in an industrial cluster? (Yes/No). This means that it is not solely the fact that the subsidiary is located in a cluster but that the manager believes that there is a sense of being located in a cluster and an active exchange within the cluster, which is in line with the arguments provided by Molina-Morales and Martínez-Fernández (2003).

- *Subsidiary's activity* measures the primary motivation for undertaking investment in China. Some prior studies have shown that investment motivation has a significant impact on MNEs' location preference (Chung and Alcácer 2002; Alcácer and Chung 2013). Following these authors, we distinguished two types of investment motivations in the sampled firms: production/manufacturing or efficiency seekers (coded as 1); and trading/services or market seekers (coded as 2). The latter includes activities related to overseas market expansion, either by wholesaling or retailing products or services, and other sales-support activities. A third category was created for those firms with a mixed objective for their investments, taking the value of "3", implying the double motivation of seeking efficiency and markets.

- In line with Brouthers and Hennart (2007), and Quer and Claver (2008), we classified the entry mode decision according to the differences in the contractual modes of the equity involvement. Accordingly, the *entry mode* takes three values: 1 = representative office, 2 = joint venture and 3 = wholly owned foreign equity-WOFE.

- To isolate other effects such as the *size*, and in accordance with the Spanish Ministry of Industry, three types of subsidiaries in China were defined: 1 = small (less than 50 employees), 2 = medium (more than 49 and less than 250 employees) and large (more than 249 employees).

- *Period of entry* was included to control for possible differences in the observed patterns owing to the potential impact of certain economic events. We split the period of entry in three sub-periods: The first big change relevant for FDIs happened in 2001, when China entered World Trade Organization agreements on free trade. A second relevant change happened after the global financial crisis of 2007. We specify these sub-periods as follows: (1) 1991–2000; (2) 2001–2007; and (3) 2008–2012. Notably, none of the surveyed firms entered China during 2007, which can be attributed to relatively high uncertainty following the global financial crisis of that year. The last sub-period begins in 2008, the year of the Summer Olympic Games in Beijing.

The objective of the qualitative analysis was to identify patterns of association between the responses of the companies and current theories on location and clustering. MNEs tend to seize on locational advantages by internalizing knowledge and productive means, a consequence being that the MNE will increase its commitment and control in the host country (Buckley et al. 2010). On the other hand, subsidiaries have to balance their external embeddedness in both the location and the internal network of subsidiaries in the cluster (Meyer et al. 2011). Therefore, MNEs tend not to develop internal networks in those locations that do not offer the required knowledge or resources, and thus will make the decision to either not

increase investment or abandon the location altogether. However, cluster location is a fertile area for MNEs to internalize valuable knowledge relative to the location so it is likely that MNEs will decide to increase investment in those locations. By means of the two subsequent interviews we sought a better interpretation of the results relative to this issue.[3]

Our analysis was twofold: First, a cross-tabulation tested the differences in proportions between pairs of categorical variables. Due to low counts in some cells (below 5 or even 0), we had to use Fisher's exact test to assess the null hypothesis of independence between the categories of the qualitative variables (Fisher, 1935). The results yield the statistical significance of whether the figures observed in a certain cell are different to what can be expected if the numbers were randomly distributed. Accordingly, Fisher's p values below 0.05 will reject the null hypothesis of independence between categories of variables (rows and columns) and, therefore, the existence of some level of association between rows and columns can be accepted. Due to the constraints in the cell counts, the results of other tests such as the Z test for the adjusted residual between the observed and the predicted proportion may be misleading. Although Fisher's exact test accepts or rejects the null hypothesis, it does not reveal anything about the intensity of the association, if any. So for the sake of richness, we have included the results of the Z test of column proportions. However, these results should be interpreted with caution since the tests are based on the Chi square distribution (Chi square is equal to Z^2). Yet more important than the exact value, we are interested in analyzing the potential directionality of associations between specific categories of variables, which should be tested in future empirical studies.

According to Everitt (1977), it is possible to calculate a measure of association, which is different for nominal than for ordinal variables. In the latter case, the number of each category expresses an order, while in the former the value for each category is randomly chosen and is meaningless. For ordinal variables, Gamma and Kendall's tau c are the upper and lower bounds for the association observed and can be interpreted in a similar manner to correlation statistics between scale variables. They are non-parametric measures of association and thus make no assumptions about the data distribution. For nominal variables, we used symmetric directional measures to quantify the reduction in the error of predicting the row variable value when the column variable value is known and vice versa. Lambda defines error as the misclassification of cases based on the modal category. The uncertainty coefficient defines error as the entropy, or P(category j) * ln(P(category j)) summed over the categories of the variable. For measures of associations, values below 0.3 indicate a weak association between rows and columns, while for symmetric directional measures low values mean weak levels of association. The error reduction when considering one of them as a dependent variable is very low.

In addition to the cross-tabulation analysis, we mapped the associations by means of a multiple correspondence analysis following the methods suggested by Gifi (1990) for categorical variables and examples such as Dabic et al. (2014), namely,

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[3] We analyzed the content of the two structured interviews that were conducted. By means of this procedure we gained more detailed information than that obtained from the initial questionnaires.

homogeneity analysis by means of alternating least squares (HOMALS). The ultimate goal is to find a low dimensional representation of the original high dimensional space, that is, a matrix of the cases and variables. A *loss function* is introduced to measure the goodness of fit of the approximation, in other words, the function that should be minimized. In SPSS the HOMALS algorithm is conducted with least squares loss functions. HOMALS falls in the optimal scaling approach developed by authors such as Gifi (1990). Those categories with a similar profile will lie in close proximity in the map, while those with a different profile will be distant. As a goodness-of-fit measure, the method yields the variance accounted for (VAF), with dimensions listed in descending order by VAF, so that the first dimension explains more than the second one, and so forth. This goodness-of-fit measure is similar to inertia, which is usually computed in multidimensional scaling techniques other than HOMALS. The VAF is obtained by dividing the eigenvalue associated with each of the first two dimensions by the sum of all the maximum number of eigenvalues. The maximum dimensions (eigenvalues) are the minimum between n − 1 (with n = 31 as the number of cases) and the result of adding up all the categories (16) minus the maximum between the number of variables and one. In our study this is equal to ten dimensions.

4 Results: profiles of firms

Table 2 presents the distribution of the 31 companies surveyed relative to the outlook, cluster location, subsidiary's activity, entry mode, size, location in China and sub-period of entry.

Table 3 shows the results obtained from the cross-tabulation analysis. When analysing the company's activity and co-location in a cluster, the distribution shows a certain level of association. *Medium-sized* subsidiaries are significantly overrepresented in clustered locations (adjusted residuals +2.0). Three groups of relationships are observed. The first group (no significance or independence) includes most of the cells showing the association between the "cluster" with "outlook", and "location" with "entry mode". In the second group (in italics and bold) are those cells where the Z test shows a non-significant association but proximal to the threshold level of significance, that is, they should be considered in future research since they indicate a certain trend. The cells that obtain the strongest associations are analysed in the third group (in bold and marked with two stars). Inverse association between "trading/no-clustered" (−3.0) and positive association between "production/clustered" (+1.7) should be highlighted, which is consistent with the findings of Bandick (2010). The strong dependence of companies producing in China on suppliers and on the infrastructure that is only available in certain areas (e.g. clusters) is one of the reasons that explains these associations. In contrast, trading companies have more freedom from these issues.

The inverse association between "increase business" and "production/manufacturing activity" (−2.9 adjusted residual) and the positive association between "increase business" and "both types of activities" (+2.2) is striking. Fisher's exact test finds that both variables are related and the symmetric uncertainty coefficient

Table 2 Descriptive analysis

	Number of companies	Percentage %
Outlook		
No increase business	6	20
Increase business	25	80
Cluster		
No	13	42
Yes	18	58
Subsidiary's activity		
Production/manufacturing	7	23
Trading/services	12	39
Both (production and trading)	12	39
Entry mode		
Representative office	4	13
Joint venture	5	16
WOFE	22	71
Size		
Small	13	40
Medium	11	37
Large	7	23
Sub-period of entry		
1991–2000	8	26
2001–2007[a]	16	52
2008–2012	7	23

[a] None of the surveyed firms entered in 2007

Source: authors

points the same: the consideration of one of them to explain the other reduces significantly the error by roughly 20%. Following Chang et al. (2013), these associations seems to indicate that China is no longer just the world's main production centre but also an important market for commercial activities.

A shift in the pattern of location in clusters seems to have emerged during the most recent sub-period (2008–2012): new entrants have significantly preferred to locate in non-clustered areas (71%). Authors such as Bellandi and Caloffi (2010) have discussed the process of the opening and liberalizing the Chinese economy, and the effect that this policy could have in the location choice of each part of the value chain. Nevertheless, we found no evidence relative to the existence of any level of association between sub-period and either cluster or outlook.

Figure 2 shows a more comprehensive picture with all the relationships considered simultaneously. The closer the points are depicted, the higher the portion of cases sharing a similar pattern. The cluster location is more associated with medium-sized firms, WOFEs and subsidiaries that are both manufacturers and traders that had entered China between 2001 and 2007. The category "increase

Table 3 Cross-tabulation analysis

	Outlook		Cluster	
	No increase business (n = 6; 19%)	Increase business (n = 25; 81%)	No CL (n = 13; 42%)	Cluster (n = 18; 58%)
Cluster	(a) Fisher's exact test p value = 1.000 (n.s.); Mid-p = 0.837 (n.s.) Kendall's tau-c: −0.07 n.s. Gamma: −0.22 n.s.			
No CL	15% (−0.5).	85% (+0.5)		
Cluster	22% (+0.5)	78% (−0.5)		
Activity	Fisher's exact test p value = 0.006 (††); Mid-p = 0.004 (††) Symmetric lambda = 0.200 (n.s.) Symmetric uncertainty coefficient: 0.208 (††)		Fisher's exact test p value = 0.014 (†); Mid-p = 0.011 (†) Symmetric lambda = 0.375 (††) Symmetric uncertainty coefficient: 0.174 (††)	
Production/manufacturing	57% (+2.9**)	43% (−2.9**)	14% (−1.7*)	86% (+1.7*)
Trading/services	17% (−0.3)	83% (+0.3)	75% (+3.0**)	25% (−3.0**)
Both (production and trading)	0% (−2.2**)	100% (+2.2**)	25% (−1.5)	75% (+1.5)
Entry mode	Fisher's exact test p value = 0.278 (n.s.); Mid-p = 0.236 (n.s.) Kendall's tau-c: 0.18 n.s. Gamma: −0.50 n.s.		Fisher's exact test p value = 1.000 (n.s.); Mid-p = 0.855 (n.s.) Kendall's tau-c: 0.02 n.s. Gamma: 0.47 n.s.	
Representative office	25% (+0.3)	75% (−0.3)	50% (−0.1)	50% (+0.1)
Joint venture	40% (+1.3)	60% (−1.3)	40% (+0.4)	60% (−0.4)
WOFE	14% (−1.3)	86% (+1.3)	42% (−0.2)	58% (+0.2)
Subsidiary size	Fisher's exact test p value = 0.772 (n.s.); Mid-p = 0.661 (n.s.) Kendall's tau-c: 0.13 n.s. Gamma: 0.49 n.s.		Fisher's exact test p value = 0.110 (n.s.); Mid-p = 0.082 (n.s.) Kendall's tau-c: 0.26 n.s. Gamma: 0.53 n.s.	

Table 3 continued

	Outlook		Cluster	
	No increase business (n = 6; 19%)	Increase business (n = 25; 81%)	No CL (n = 13; 42%)	Cluster (n = 18; 58%)
Small	24% (+0.9)	76% (−0.9)	52% (**+1.7***)	48% (**−1.7***)
Medium	13% (−0.6)	87% (+0.6)	13% (**−2.0***)	87% (**+2.0***)
Large	0% (−0.7)	100% (+0.7)	50% (+0.2)	50% (−0.2)
Sub-period		Fisher's exact test p value = 1.000 (n.s.); Mid-p = 0.925 (n.s.) Kendall's tau-c: 0.08 n.s. Gamma: 0.20 n.s.		Fisher's exact test p value = 0.2474 (n.s.); Mid-p = 0.222 (n.s.) Kendall's tau-c: −0.23 n.s. Gamma: −0.36 n.s.
1991–2000	25% (+0.5.)	75% (−0.5)	38% (−0.3)	62% (+0.3)
2001–2007	19% (−0.1)	81% (+0.1)	*31% (−1.2)*	*69% (+1.2)*
2008–2012	14% (−0.4)	86% (+0.4)	71% (**+1.8***)	29% (**−1.8***)

Each cell shows the proportion within the column. The parentheses show the adjusted residual and the significance in a Z test of proportion differences. (a) Fisher's exact test p value (two-sided) computed as p (O ≥ E/O ≤ E) by the method of small p's and the mid-p method. For nominal variables the Lambda and the uncertainty coefficient are reported; for pairs of ordinal variables the Kendall's tau-c and Gamma directional measures are shown

n.s. not significant

Z test of proportion differences (with Bonferroni's correction for multiple comparisons): (*) significant at alpha level = 0.10; (**) significant at alpha level = 0.05. Due to low cell counts, results should be interpreted cautiously

Bold-italic indicate values worthy to highlight close to significant threshold

Bold indicate significant values

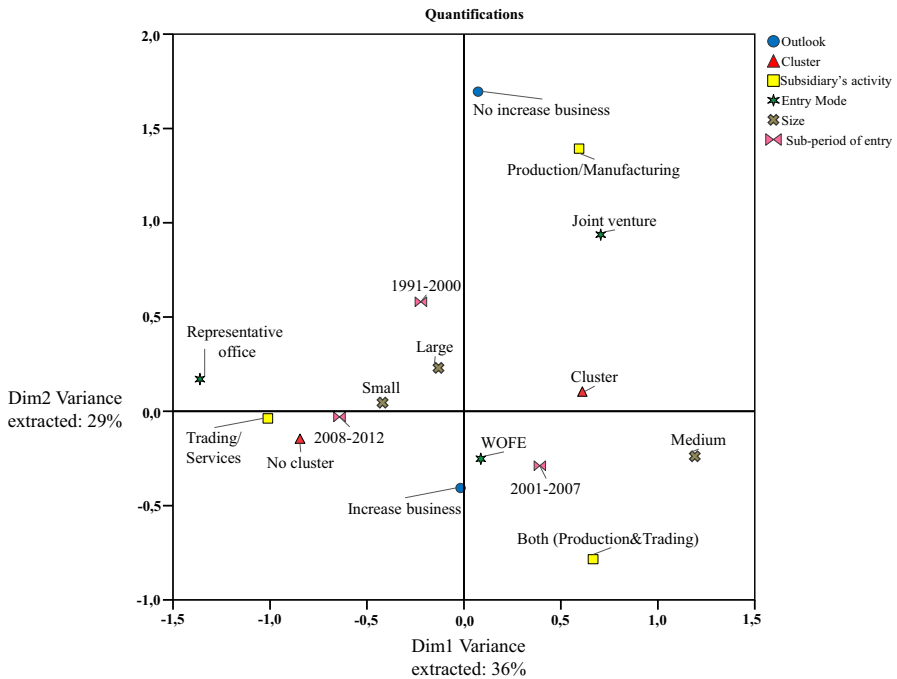(†) significant at p level <0.050; (††) significant at p level <0.010; (†††) significant at p level <0.001

Fig. 2 Quantifications of categories (HOMALS)

business" is located at virtually half the distance between the clustered and non-clustered locations. However, non-clustered locations are more associated with trading-service subsidiaries, representative office subsidiaries, firms that entered China between 2008 and 2012, and small-sized subsidiaries. A third group of categories is depicted quite distant to the latter two groups. They are associated with an outlook of no increase in investment in China, with manufacturing subsidiaries and the more proximal mode of entry being the joint venture. The sub-period 1991–2001 is relatively close to that cloud of categories. The first dimension accounts for 36% of variance, while the second one explains 29%. Thus 65% of the total variance explained in the map is above the usual threshold of 50% when taking into account other types of data reduction such as factor analysis (Bagozzi et al. 1991).

5 Discussion of results

The map in Fig. 2 clarifies the results obtained in the cross-tabulation. Some categories are more proximal to the outlook of increase business decisions, which are related to the fit between which activity the subsidiary undertakes and the decision of the type of location chosen, that is, clustered versus non-clustered locations, and manufacturing versus other activities, respectively. Some authors

have argued that the differences in the firms' location preferences when entering China are due to the characteristics of the location itself, namely, resources, competitors, institutions and labour market (Crozet el al. 2004; Li and Park 2006; Chang et al. 2013). For that reason, companies that are manufacturing in China have preferred to co-locate in a cluster while trading firms have preferred to locate not necessarily in a cluster (along with other related firms) but somewhere else. This is partly due to the increased openness of the policies of locations other than industrial parks for foreign firms that the Chinese government has adopted. Another possible explanation is the offering of subsidies to attract investors to locate in internal areas of China.[4] The following quote from one manager located in China summarizes these findings:

> …all companies competing in the upper-medium segment have to be in the cluster since the required suppliers, logistics and skilled labour are there. If we are to be located outside the cluster, then we would need to focus on low-quality segments, and currently this is the hardest market in China …

An explanation regarding some of the results may be due to the need to activate the knowledge-sharing mechanisms so the companies can get access to the cluster resources (Kogut and Zander 1992), which is particularly relevant in culturally distant countries (Kogut and Singh 1988). In China, this is achieved by means of being integrated and embedded in the local network, known as *Guanxi*.[5] This fact was also elucidated during another interview with one of the managers in China:

> …due to the fact that we have a local partner, we are able to obtain fair prices and the possibility of doing business with new customers …

However, it is also plausible that firms adjust their strategy to access the clusters' advantages (Mudambi 2008; Alas et al. 2009), so they can grow and survive more easily and quickly. This is due to the fact that the Chinese economy is under constant transformation. What was a clear emergent economy in the past is today becoming a great economic power. For this reason, the local government is demanding more activities based on value creation and less on labour intensive activities (Yu et al. 2006). Thus Chinese government policy has introduced stricter regulations for companies wanting to access the benefits available in the industrial clusters:

> …the Chinese government requires us to have ten new patents per year in order to access the extant benefits in our industrial cluster …

As a general understanding of the process, first the types of clusters and the advantages they represent are evaluated in each territory. After that, it is necessary to analyse the fit between the offshored business activities and the attributes of the different clusters the guest firm chooses for their co-location. Moreover, it has to be considered that the more different the subsidiary is relative to the other firms in the cluster in terms of activities undertaken, the more they may face adverse selection

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[4] We would like to thank the reviewer #1 for suggesting these two possibilities.

[5] *Guanxi* describes the basic dynamic in personalized networks of influence in China.

(Mudambi and Swift [2012](#)). Li and Park ([2006](#)) found that clustering of foreign firms in China has a positive impact on increased levels of FDI, while the clustering of domestic firms has a negative impact. This means that foreign firms are excluded from the sharing of resources and knowledge within domestic clusters, which is also highlighted by Shaver and Flyer ([2000](#)). In conclusion, the decision of co-location in clusters in emerging markets like China should be carefully considered together with other dimensions relevant to the subsidiary's outlook, such as type of activity and entry mode.

6 Conclusions

A number of prior studies have focused on the analysis of factors that determine FDI location across China. Our investigation concentrated on the study of some of the potential effects of the original decision in subsequent periods. This paper contributes to the literature on IB and MNEs by analysing the association of the duality of the subsidiary's clustered location-investment motivation in emerging markets. Within this framework, our study helps clarify whether the decision relative to the country is associated with externalities in the host-country business environment (clustered locations) or whether it is leveraged by some other strategic reasons such as investment strategic objectives represented by the variable activity, and even whether it may be due to a certain initial intention relative to the outlook of whether or not to reinvest. The analysis has revealed that, beyond the country unit, the type of activity to be developed by the subsidiary was associated with the location's features. In other words, those firms that are efficiency seekers searching for cheaper resources—identified as manufacturing subsidiaries—are more associated with clusters. On the other hand, those investments more focused on seeking new markets, namely, traders and services, are associated to a lesser extent with co-location in clusters. Therefore, a subsidiary's investment outlook is more closely associated with the MNE's motivations and economic activity in the host country than to the existence of a cluster in the host location.

The findings of this paper reveal a number of implications for practitioners and policy makers. A subsidiary's managers have to consider the alignment between the location's idiosyncratic features and the target activity of the subsidiary in that location. In general, FDI is planned over several years since it is costly to change or shift activities in the host location. Accordingly, the MNE's decision-makers and subsidiary's managers have to carefully consider all aspects and consequences regarding whether a location is a good fit with the MNE's target activity for that market in the medium- to long-term. If there is any misalignment, there is high likelihood the subsidiary will vanish, such as in the cases of Fagor and Orbea exiting China. This will mean that the investment is not renewed and the reduction of business in the local community will obstruct the virtuous mechanism of self-reinforcement between cluster and the economic development. For managers, the findings of this study emphasize the importance of having complete understanding of the role that industrial clusters play for companies in the host country. This is particularly relevant to the pairing of Western economies such as Spain with Eastern

economies such as China to identify offshored activities that fit best with the location's resources.

This research has a number of limitations that future studies should address. First, only Spanish companies were used as the sample. It would be illuminating to undertake this study in other countries that have companies with subsidiaries in China that are also culturally distant. Second, only one person per company was interviewed for the second stage, although the decisions and actions during the decision-making process relied on more than one person. Therefore, future studies should consider more participants from the same company to obtain greater consistency in the qualitative data. The variables included to analyze the process of co-location in clusters may be incomplete. In this mixed method study, we focused only on business ties between companies interconnected in related sectors. Future studies should enlarge the list of variables that have an impact on the performance and outlook of a clustered co-location, such as whether they share an ethnic group and cultural background in a particular area within the host country. A final limitation relates to the limitation of information available, preventing the development of a parsimonious statistical analysis (essentially, lack of degrees of freedom) and issues related with data distribution. This is why we chose this study of associations instead. Nevertheless, we identified patterns including a shift from clustered to non-clustered locations from our results. This issue should be further investigated in the future.

On the other hand, pairwise analysis of location between developed and emerging markets is a two-way investigation. Our findings can only be applied in one direction from the developed Spanish economy to the emerging Chinese one. The underlying rationale of the other direction deserves further attention in the wider case of MNEs in emerging markets. According to the evidence revealed in this study, the role of FDI depends not only on what each guest firm is searching for but also on what the location offers and the expectations of the host market.

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