

# Approaching multinationals in clusters from different perspectives: an integration of literatures

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**Abstract:** For the specific topic of multinationals in clusters, both regional strands and international business and management literatures address the topic from different yet intertwined perspectives. This study attempts to facilitate the integration of the conversations and the distinct literatures in order to produce a clear understanding and conceptualization of the existent knowledge on the topic, with the aim of fostering an integration of those different lines of inquiry on the topic that can advance scholarly research and improve policymaking. Mixing a robust and longitudinal *bibliometric* analysis (1992-2018) and a qualitative critical review, the study disentangles subconversations on the topic in each literature. The article also encounters commonalities that foster cross-fertilization and blind spots that prevent integration of findings from each literature. Implications for the advance of the topic are presented.

**Key words:** MNEs, internationalization, localization, co-location, economic geography, international business, clusters, innovation.

**JEL** O3, R1

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## 1-Introduction

In this study we aim to discuss the intersection of clusters and industrial districts (CIDs) within globalization and global value chains. Specifically, this paper seeks to discuss the topic of multinationals in CIDs and their intersection and interaction effects within a framework of local development (Parrilli, 2019; Hervas-Oliver et al., 2019; Belussi, 2018; De Marchi, De Maria and Gereffi, 2017; Hervas-Oliver and Parrilli, 2017; Belussi, 2015; Hervas-Oliver et al., 2015; Hervas-Oliver and Boix-Domenech, 2013; Parrilli et al., 2013; Elola et al., 2013).

Why this paper? The interest and justification for this paper is based on the fact that CIDs are under pressure and transiting through a reconfiguration process because internationalization and global value chains posit opportunities and threats (eg. Gereffi et al., 2005; Humphrey and Schmitz, 2002; Gereffi, 1999). The main actors of GVCs are leading firms that are usually multinationals that are multi-embedded throughout clusters. These multinationals in CIDs require further investigation (Belussi, Caloffi and Sedita, 2017; Belussi, 2018) because multinationals are central actors articulating global value chains (GVC) and also connecting CIDs. When addressing multinationals in CIDs, however, cluster literature has not yet fully considered the literature of multinationals in clusters from the (management strand) strategy and international business literature (see Mudambi et al., 2018; Beugelsdijk and Mudambi, 2013). The debate about multinationals in clusters in economic geography, therefore, is still biased because the literature has not incorporated knowledge about the topic from that neighbouring discipline (e.g. Bathelt, Cantwell and Mudambi, 2018). Connecting both literatures and exploring in-depth the state of the art of the topic (multinationals in CIDs) crossed by two different disciplines (economic geography and international business) would improve our understanding of the role that multinationals exert in CIDs and the space of CIDs in GVCs. This knowledge, generated from the cross-fertilization of different disciplines may, eventually, enrich scholars' research agendas and improve place-based policymaking to make clusters more competitive under globalization, thereby fostering local development.

Pioneering studies in economic geography/regional science such as those of Amin and Thrift (1992) or Harrison (1994) emphasized the intersection between MNEs and highly localized knowledge. In parallel, a different community of scholars from international business literature started to recognize the similar pattern, writing for a distinct audience and using different assumptions (e.g. Head et al., 1995; Nachum, 2000; Birkinshaw and Hood, 2000).

The present study's purpose consists of integrating literatures on the same topic: attempting to integrate conversation on the same phenomenon for the advancement of scholarly research and policymaking in clusters. The integration of each strand's specificities (intellectual structure, conversations, assumptions, conclusions, etc.) can facilitate a richer dialogue between those strands and also contribute to building up a more comprehensive and integrated framework on the topic to improve research and effective place-based policymaking for improving local development with the presence of both home-grown and foreign multinationals. In fact, the exploration of this intersection of literatures has been claimed as necessary in diverse calls and it is still open (e.g. Mudambi et al., 2018; Bathelt, Cantwell and Mudambi, 2018; Beugelsdijk and Mudambi, 2013; Beugelsdijk, McCann, and Mudambi 2010; Dunning, 2009).

Methodologically, we use *bibliometrics* in order to organize and understand the relationship between a vast amount of differing and disconnected literature covering similar phenomena and topics. In total, 601 journal articles, including 40,176 references and covering the 1992-2018 period, were analyzed. We focus on the analysis of documents (601) and their cited references (40,176) for co-citation method, exploring within two sets of information the authorship, the outlets and the lines of inquiry. Subsequently, and for the purpose of obtaining a deep understanding of the theory, the bibliometric insights are also revisited and interpreted by analyzing the content of the literature qualitatively.

After this introduction, Section 2 presents bibliometric methods utilized in the study. Then, Section 3 addresses the *bibliometric* analysis on the topic. Afterwards, Section 4 presents the qualitative critical review of the EG literature, while Section 5 does the same with the IB strand. Finally, Section 6 discusses and concludes the study, pointing out contributions by scholars and policymakers.

## **2- Methods for bibliometrics: tools and data**

Our method is rooted in bibliometrics (Boyack and Klavans 2010), with the purpose of organizing and understanding the relationship between a vast amount of differing and disconnected literature covering similar phenomena and topics. Bibliometric techniques encompass different methods for analyzing interrelationships (among authors, documents or journals) and the potential influence of subsequent publications, based on the analysis of a document's bibliographic references. Within these methodologies, co-citation entails the identification of the most influential works, authors and journals layering an intellectual

structure of each topic or discipline. A co-citation between two documents, analyzed in a third document's references, is established when they both simultaneously appear in the list of that third document's bibliographic references. This type of analysis of scientific literature took off during the 1970s, with pioneering studies by Marshakova and Small, who proposed this research methodology in 1973 as a way to measure the relationship between two documents (Marshakova, 1973; Small, 1973). In addition to documents or works, this method also applies to authors' co-citations and journal co-citations (White and Griffith, 1981).

Co-citation analysis, therefore, is based on the identification and quantification of the frequency that a pair of documents appear (cited) in the references of scientific publications under study. Once the co-citation matrix is generated, incorporating all possible pairs of references in the group of (cited) documents analyzed, then network ties and groups (clusters) of documents can be visualized, showing insights of conceptual orientations, sub-lines of research or diverse methodologies of researching a topic or discipline. This allows researchers to identify the most influential documents, authors or journals that exist in the research landscape and their relationships. In table 1, we show different co-citation analysis techniques and their meaning. See table 1.

**Insert table 1 here.**

Analysis of information requires the making of decisions with respect to the search criteria or key words utilized. In order to achieve a complete coverage of the literature and avoid a reference bias, we run topic queries around key topics (phenomena researched) several times. The topic queries try to identify all scholarly articles published in refereed journals. We searched within *Social Sciences Citation Index* (SSCI) by Clarivate Analytics, using a search strategy depicted in the field named TOPIC (title, abstract, key words). After testing different "topics" representing the phenomenon (multinationals in clusters, industrial districts and agglomerations), a search in the SSCI was undertaken through the TOPIC criteria: [(Agglomeration\* OR Cluster\* OR Industrial district\*) AND (Multinational\* OR Multi-national\* OR MNC\* OR MNE\*)], and by then further restricting the output to the *BUSINESS, ECONOMICS, ENVIRONMENTAL STUDIES, GEOGRAPHY, MANAGEMENT, PLANNING DEVELOPMENT, URBAN STUDIES and REGIONAL URBAN PLANNING* fields within the SSCI. Then, after cleaning the dataset we listed a sample composed of 601 journal articles which included 40,176 references, covering the 1992-2018 period. Our procedure assigned a

numeric code to every document, so that they could all be identified throughout the study. Every document contains references. We focus on the analysis of documents (601) and their cited references (40,176) for co-citation method, exploring within two sets of information the authorship, the outlets, the lines of inquiry and even the content of the conversations.

Processing and crunching data (both documents and references) requires the generating of matrixes of co-citation using *Access* and *Bibexcel* (Persson, Danell, and Wiborg Schneider 2009), with the purpose of visualizing networks or graphic maps of co-citation using *Pajek* and *Vosviewer* software and their respective algorithms. For the sake of brevity, more information and results are available upon request. References for that search are in Appendix I. We applied a co-citation analysis, that is, measuring the citation frequency of pairs of references (40,176) contained in those 601 documents at three levels: articles, authors and journals. As previously explained, two documents are co-cited (concurrence) when both simultaneously are listed in a document's list of references. Thus, significant relationships exist between two references (or, alternatively, journals or authors) when that co-citation or joint concurrence in a document's references occurs more times in the documents of the sample (e.g. Small 1973). This represents a thematic affinity or the existence of a similar conversation, subgroup of research or line of inquiry within the field of study (intersection or concurrence of localization and multinationals). These matrixes are ultimately represented in networks whose visualization casts key information for identifying the structure of the literature and its lines of enquiry. Furthermore, other relevant information such as seminal authors/studies or bridging nodes linking different subgroups of research are also obtained. In figure 2 we observe the network of co-citation (>10 joint co-citations) formed by nodes (representing each reference) and their links to other nodes. The size of the node depicts the intensity or number of times a document or node is cited, while the width or thickness of the links represents the intensity of the relationship and relatedness between documents. In all, we observed the following authors constituting the seminal foundations or status of leading authors of the topic, that is, they represent the cornerstones of the intellectual structure of the topic.

### **3-Analysis from bibliometrics: some facts on the evolution of the topic**

Bibliometric techniques have been used in cluster literature relatively recently (e.g., Lazzeretti, Sedita and Caloffi, 2014; Hervas-Oliver et al., 2015; or Sedita, Caloffi and Lazzeretti, 2018). In the present study, bibliometrics facilitate the visibility of the foundations and evolution of literatures, helping researchers to contextualize and analyze the discussion. Subsequently, we do perform a critical review analysis, interpreting and discussing the state of the art of the topic. These two methods attempt to contribute to improving future scholarly research and policymaking.

### **Insert figure 1 here**

See figure 1. Despite finding documents preliminarily addressing this conversation since the 90s, the small number of documents of the sample reflects the very emergent and nascent character of the conversation and the growth in the last decade in the study period (2001-2018) is especially noteworthy (see figure 1), showing clearly the growing importance of the topic.

As regards Web of Science thematic categories for those 601 documents, EG (hereafter, composed of Geography, Environmental Studies, Planning & Development Urban Studies and Regional Urban Studies), account for a total of 204 documents (33.9%). Therefore, *Management and Business and Economics*, jointly, represent the largest knowledge strand addressing the intersected field, with a total of 514 documents (out of 601, 85.5% of the sample)<sup>1</sup>.

### **Insert Table 2 here**

### **Insert Figure 2 here**

Applying co-citation analysis, Table 2 and Figure 2 present interesting insights. In figure 2, we can see different *foundational authors* (those most cited among the searched documents' references). For the IB perspective, Dunning (495), Cantwell (465), Porter (379), Rugman (214) and Birkinshaw (186) (other authors are Mudambi or Cohen) got more citations. Then, Krugman (216) and Head (285) for the international economics perspective. From the EG strand, Markusen (175), McCann (149) or Bathelt (128) are also prominent (other authors are

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<sup>1</sup> There are documents assigned to those categories at the same time.

Scott, Amin or Maskell, among others) (Persson 2001; >60 joint co-citations). Overall and according to citations, the IB literature is more proactive and their authors are more prominent in the intellectual structure of the topic, as can be seen in the size of the nodes and the intensity of the ties (Figure 2). See Table 2 for number of citations and Figure 2 for graphic representation.

**Insert Figure 3 here**

**Insert Table 3 here**

As shown in figure 3, with *Vosviewer* technique, the analysis of journals through citations suggests two big groups (those around IB and EG) and one peripheral (international economics, with journals such as *J. of Int. Economic* or *Am Econ Rev*). In the IB group, JIBS (1,989) and SMJ (1,256) are the most visible and authoritative, receiving the majority of the citations on the topic. Then, Acad Manage Rev (498) and Academy of Manage J (449) are also visible and central. In the EG group, Regional Studies (1,036) and Journal of Economic Geography (739) are the most cited and visible ones, followed by Economic Geography (345) and the World Development journal (359). Next, Research Policy (908) is the connector between the two groups, and also represents by itself a regional-oriented innovation literature. Finally, Journal of International Economics (572) or American Economic Review (494) are the leading ones in the international and general economics strand. In short, these insights mean that those journals are the most cited, containing a prominent part of the intellectual structure of the topic. See Table 3 for citations and Figure 3 for graphical representation.

**Insert table 4 here**

Then, in table 4 the co-citation strength (journal co-citation index) or the number of times that a pair of references in those 601 articles is co-cited on that topic are shown. In table 4, it is observed how the pairs of IB and management journals are the ones showing the highest strength, specifically the ones with most citations are also the ones with the highest journal co-citation index JIBS-SMJ (10,790). So, Research Policy (RP) acts as a connector with the IB group: (RP-SMJ 4,374) and JIBS-RP (4,186) are the leading pairs of journal co-citation. Subsequently, Research Policy also connects with EG group, such as the pair of Regional Studies and RP (RS-RP 2,845). In the EG group, another important pair is that from the

Journal of Economic Geography and Regional Studies (JEG-RS 3,139). Generally, we primarily observed an isolation of sub-conversation in the different groups, such as the strength of the journal co-citations in each distinct literature (e.g. JIBS-SMJ or JEG-RS), creating invisible colleges that are coherently structured within specific journals. Despite these containerized conversations, we also observed a cross-fertilization of journals that indicate an incipient integration of the conversation. Thus, the two groups of literature are jointly co-cited (their journals) through the intersection of the main outlets in each: JIBS and Regional Studies (JIBS-RS 3,654) and the pair of Journal of Economic Geography and JIBS (JEG-JIBS 3,102). It is also important to highlight the role of RP as the leading outlet for regional-oriented innovation studies and also its role as connector between the IB and EG group. See table 4.

Overall, the empirics show a very nascent but growing conversation that is fragmented in two principal literatures. Specifically, findings reveal that both main conversations tend to be isolated and self-contained within their own discipline (represented by their journal co-citation); the core of the intellectual structure of the phenomenon is primarily represented by the IB/Management discipline (led by JIBS and SMJ). So, Regional Studies and Journal of Economic Geography are the ones leading the EG group, but far distant from the IB contribution to the matrix analysis of the topic. Leading journals (co-citations) are also intersected showing an incipient integration.

## **4-Economic Geography, multinationals and clusters**

### **4.1- An introduction**

From the EG or cluster perspective, this nascent conversation about multinationals in clusters started with regional researchers such as Markusen (1996), Harrison (1994) or Amin and Thrift (1992), among others, categorizing types of clusters and their global-local scope and emphasizing the importance of contextualizing clusters in global networks of production. In these studies, the novelty consisted of presenting globalization and multinationals as actors influencing local development phenomenon (especially in the industrial district or flexible specialization realm). Pointing out a new heightened international competition and the importance of global networks (e.g., Harrison 1994 or Amin and Thrift, 1992), those studies opened a new debate about the limits of local development and the necessity to also consider



global networks and the intersection of the local and the global. Subsequently, this line has been well studied with extensive contributions from the regional literature (Bellandi, 2001; De Propris et al, 2008; Parrilli, 2019), highlighting the diverse role of leading firms (mostly multinationals) for local development. Besides, from innovation and innovation systems literature, other researchers (e.g. Hervas-Oliver and Albors-Garrigos, 2008; Belussi 2015) also contribute, among many others (Sedita, Lazzeretti, Cooke, Caloffi, Rabellotti, etc.).

In these contributions, a distinction between home-grown locally embedded multinationals and foreign ones was established (e.g. Hervas-Oliver and Albors-Garrigos, 2008; Hervas-Oliver and Boix-Domenech-Domenech, 2013), emphasizing the internationalization of local production systems (de Propris et al., 2008; Belussi and Sammarra, 2009; Belussi and Sedita, 2010; Elola et al., 2013; Parrilli et al., 2013; Belussi, 2015; Hervas-Oliver, 2015). In addition, local gains from foreign multinationals and their positive FDI in regions is also pointed out (Menghinello, et al., 2010). Simultaneously, the concept of global value chains (Gereffi, Humphrey, Schmitz, among others) took off in development studies and also in the economic geography community, especially by Bathelt, Malmberg and Maskell (2004) and subsequently Bathelt's works, elaborating more extensively on local and global connectedness.

In summary, EG primarily researches local/regional spaces and their specificities and the impact that globalization and multinationals exert on territories and their constituents (SMEs, institutions, knowledge, etc.), both positive and negative. All in all, this literature has i) recognized the key importance of global networks and the internationalization of local production systems, complementing or substituting local ones, ii) stressed the key importance of multinationals' impact (and embeddedness) on local development, and iii) theorized extensively on the local-global intersection through the GVC concept.

#### **4.2- Zooming on the regional and economic geography perspective**

From the EG perspective, and after analysing all the retrieved documents, here are the following sublines of inquiry or subconversations:

First, the sub-line of research focused on global networks (commodity chains, value chains and production networks), studying how production is spatially organized or the local and global intersection of economic activities (e.g. Bathelt et al., 2004; Coe and Yeung, 2019).

This line focuses intensively on power asymmetries and the type of network that multinationals develop in each location, particularly in developing countries (e.g. Gereffi et al., 2005; Coe, 2018). This perspective recognizes the advantages of clusters connected to global value chains (e.g. Amin and Thrift 1992; Harrison 1994) and the necessity to connect clusters (e.g. Bathelt et al., 2004; Lorenzen and Mudambi, 2013). Also, it is focused on showing the differing multinationals' embeddedness in local spaces and how local development is impacted (Parrilli, 2019). From this perspective, opening clusters/industrial districts is a way to reduce lock-in (e.g. Bathelt, Malmberg, and Maskell 2004) and thus complement local buzz. In this line of research, generally, the multinationals' strategy is not usually considered.

Second, a sub-line of research studying multinationals' embeddedness and their impact on local/regional innovation (e.g. Hervas-Oliver and Boix-Domenech, 2013; Østergaard and Park, 2015; Belussi, 2018). This conversation also focuses on unfolding the local/spatial specificities or the local/regional context where multinationals locate and the transfer of highly tacit and sticky architectural knowledge occurs across borders and clusters (Hervas-Oliver and Albors-Garrigos, 2008; Tallman and Chacar, 2011; Hervas-Oliver and Boix-Domenech, 2013; Jenkins and Tallman, 2010, 2016). Embeddedness is thus one of the central concepts in this literature. In fact, the idea of embeddedness has also motivated an emerging sub-research line about *home-grown* multinationals (Sedita, Caloffi and Belussi, 2013; Belussi and Hervas-Oliver, 2017) or indigenous multinationals (Hervas-Oliver and Albors-Garrigos, 2008), referring to those small MNEs that are from and have been created originally at the focal cluster. From this perspective, the more the subsidiary of a foreign MNE is entrenched in the local system (social, business and institutional dynamics), the more likely it is considered a driver for local development and catch-up (e.g. Østergaard and Park, 2015). However, there are also conditions related to the local context that can facilitate the activation of local development paths, among which is the level of local technological knowledge, which influences cluster absorptive capacity (Edgington and Hayter, 2013). Success stories seem to exist (Harrison, 1994; Ivarsson, 2002; Eisingerich et al., 2010; Hervas-Oliver and Boix-Domenech, 2013), but there are also works which are a bit skeptical about the ability of MNEs to trigger sustainable processes of local development (e.g. Ter Wal, 2013). Finally, MNE strategy is also considered in some cases, as bridging with the IB literature (see Hervas-

Oliver and Boix-Domenech-Domènech, 2013; Cainelli, Di Maria and Ganau, 2014; Mariotti, Piscitello and Elia, 2014; Li and Bathelt, 2018).

Third, there is a sub-line of research dealing with local externalities and FDI, pointing out the FDI synergistic effect which promotes localization-based regional growth, due to the multiplicative effects in the region from receiving FDI (e.g. Cantwell and Piscitello 2005; Menghinello, De Propris, and Driffield 2010). In this particular sub-line of research, EG has primarily devoted efforts to the understanding of the effects of MNE entry in regions/clusters (e.g. Menghinello, De Propris, and Driffield 2010) and the relative attractiveness of regional spillovers or location strategies (e.g. Cantwell and Piscitello 2005; Crescenzi, Pietrobelli and Rabellotti, 2016). Generally, the assumption establishes that the more the MNE is rooted in the local context, the greater the likelihood that local firms and the wider local context benefit from the knowledge and skills of the MNE. The conversation focuses primarily on understanding of the conditions that can allow a cluster/region to benefit from the presence of MNEs (De Propris and Driffield, 2006; Edgington and Hayter, 2013). MNEs can work as knowledge gatekeepers (Raines, Turok and Brown, 2001; Mariotti, Mutinelli and Piscitello, 2008) and labor mobility from foreign MNEs to local firms can be seen as a manner of knowledge transfer (Angeli, Grandi and Grimaldi, 2014). Evidence points out that the interaction between local externalities and FDI has a synergistic effect which promotes localization-based regional growth (e.g.; Cantwell and Piscitello 2005; Menghinello, De Propris, and Driffield 2010). The study of MNE subsidiaries, their strategies and interactions with clusters, however, is under-researched from this perspective.

## **5- IB literature: a review of the conversation on the topic**

### **5.1-An introduction.**

At the foundational stage, IB literature highlighted the advantage of clusters/agglomerations for multinationals (Head, Ries and Swenson, 1995; Nachum, 2000; Birkinshaw and Hood, 2000). These initial studies bridged quite well both strands (see Nachum, 2000 as a remarkable paper), stressing the key importance of local knowledge and networks for multinationals and emphasizing embeddedness as a profitable strategy. In this chain of thought, Nachum (2000) explicitly reported that IB should incorporate EG concepts in order to enrich its repository of knowledge in location (from the abstract):

*This paper attempts to examine theoretically and empirically the explanatory power of concepts drawn from economic geography for the explanation of the location of multinationals. It combines concepts from economic geography and international business theories in a model that seeks to explain the location of multinationals, and tests the model of financial and professional service FDI to the US. The findings suggest a need to extend the conventional location model of international business by acknowledging the processes taking place among firms located in geographic proximity.*

This literature, however, produced a very limited amount of studies intersecting local and global until Dunning (2009) stressed it by redefining location in the OLI (L-ocation) paradigm. More recently, a renewed interest in the topic has improved production in IB literature (see authors like Cantawell or Mudambi), stressing the necessity to bridge and cross-fertilize both strands (e.g. Bathelt, Cantwell and Mudambi, 2018). By focusing on multinationals' strategies, this literature analyzes how to gain the most by properly managing collocation and embeddedness (primarily, at the national level). IB neither uses the global value chain framework, nor delves into the nuances of local spots, pioneering the intersection of strands at the foundational stage (around 2000) but abandoning the topic up until recent years, as we explained below.

## **5.2-Unit of analysis and embeddedness**

International business literature is entirely focused on MNE and how it coordinates economic activities across borders, emphasizing the national or country-level of analysis and giving less importance to the specific geographic location, as EG does (e.g. Dunning 2009; McCann and Mudambi 2004). Following Bathelt et al., (2018), IB literature highlights the analysis of corporate networks across borders over territorial embeddedness, treating locations as sources of advantages or disadvantages.

Despite the overwhelming emphasis on the national-level as a unit of analysis, the IB literature also attempted to shift the traditional national-level discourse toward a more regionally-focused lens in order to source advantages when co-locating overseas (Dunning, 1998; 2009) and thus understanding the impact of location and firm characteristics on location choices (e.g. Alcacer and Chung, 2014). Thus, and within the context of Dunning's OLI paradigm, the study of the L (-ocation) factor has been claimed to be of utmost importance for the future of IB studies. As Dunning (1998; 2009) stated, the importance of specific geographic location for MNEs was overlooked: *“The extent to which MNEs promote, or*

*gravitate to, spatial clusters within a country or region is an under-researched area*” (1998, p. 58). In fact, a growing number of studies are addressing the *L(-ocation)* advantages, explicitly recognizing that co-location in particular geographic areas can shape multinationals (e.g. Monteiro and Birkinshaw, 2017; Goerzen et al., 2013; Narula and Santangelo 2012; Meyer, Mudambi, and Narula 2011; Alcacer and Chung, 2007; Cantwell 1995), bypassing thus the general nation-level of analysis.

Overall, the IB strand has evolved, incorporating different ideas from EG, such as that of *embeddedness*, referring more to the specific geographic location or CIDs. In fact, in IB the importance of the geographic space for the creation of competences through a network of subsidiaries is recognized, requiring a balance between internal and external embeddedness<sup>2</sup> (Narula 2014). Multiple embeddedness implies collaboration (Narula and Santangelo 2012) with local partners that make up the local innovation system (Rugman 2000). In any case, external embeddedness from the IB perspective coincides with that of the EG, but the focus in IB is given to the multinational’s *internal process* and strategy to become embedded (e.g. Monteiro and Birkinshaw, 2017).

### **5.3-MNE effects from entry in nations/regions: gains or losses?**

As regards sourcing from territories, IB literature struggles to answer a critical question: *how worthwhile is entering clusters?* The debate on entering clusters or not has been a growing line of enquiry, discussing the positive and negative benefits from entering agglomerations in strategy (e.g. Shaver and Flyer, 2000; Alcacer and Chung, 2007; Cantwell and Mudambi, 2011). In this sub-line of research, MNEs present differences in their location strategies, suggesting that firms consider not only gains from inward knowledge spillovers but also the possible cost of outward spillovers, opening the *asymmetric gains* debate from collocation, lately developed in strategy (e.g. Canina et al., 2005; Alcacer and Chung, 2014). In particular, this line of research presents an interesting assumption: firms will locate to maximize their net spillovers as a function of location knowledge activity, their own capabilities, and competitors’ anticipated actions. In fact, as pointed out by Shaver and Flyer (2000) or Alcacer

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<sup>2</sup> This is what Mudambi (2011) calls the “innovation-integration dilemma”: foreign subsidiaries need to be locally embedded to have access to leading-edge ideas; also, integrated into the corporate network to transfer those ideas.

and Chung (2007) there are negative effects from collocations, that is, negative net spillovers that don't signal location.

Complementary to the former sub-line of research, IB has also researched the *MNEs' strategies accessing agglomerations* (e.g., Enright, 2009), assuming that each cluster presents different advantages to consider when deploying specific activities. Thus, location and firm characteristics impact on location choices (Alcacer, Dezsó and Zhao, 2013; Goerzen, Asmussen and Nielsen, 2013; Alcacer and Chung, 2014; Alcacer, Dezsó and Zhao, 2015).

## **6-Conclusions and discussion: proposing a future research agenda**

This study's aim has consisted of attempting to provide an account of the current state of the conversation on the topic of multinationals in clusters (districts, regions and agglomerations), pursuing an integration of literatures that fosters a potential cross-fertilization to improve knowledge on the topic. For this purpose, a bibliometric study on the topic and a critical review of the literatures of the conversation are accomplished.

The analysis of literatures, however, suggests different conversations and lines of inquiry around the same topic. EG literature, on the one hand, focuses research primarily on the specificities of the spatial location (region/cluster) and the effect that the MNE entrance exerts on it through three different sub-lines of inquiry; a global networks sub-line that emphasize power asymmetries between MNEs and locations and the global-local knowledge intersection (Bathelt et al., 2004; Gereffi et al., 2005), deciphering cluster global connectivity or global value chains. A sub-line of inquiry addresses the embeddedness of multinationals and effects on local/regional innovation. This line also studies knowledge exchange across borders and between locations (e.g. Jenkins and Tallman, 2016; Hervas-Oliver and Boix-Domenech, 2013). Lastly, there are the effects of MNE entry in a cluster/region (Menghinello et al., 2010).

IB literature, on the other hand, focuses primarily on how MNEs organize activities across borders, putting less emphasis on the analysis of the location that is just a source of advantages or disadvantages. Despite the focus on the multinational strategies, IB literature

has also highlighted the importance of embeddedness from the specific perspective of the multinationals' strategy, overlooking the potential effects on the local context (e.g. Narula and Santangelo, 2012; Monteiro and Birkinshaw, 2017). IB organizes through two different sub-lines of inquiry. First, addressing external embeddedness, researching how multinationals are embedded to source resources (Nachum, 2000, Monteiro and Birkinshaw, 2017). Second, studying multinationals' performance effects of entry in locations. This evaluates whether accessing agglomerations benefits multinationals or not, signaling the existence of net effects or spillovers, that is, gains and losses from collocation that may foster or prevent, respectively, the entrance of MNEs in clusters (e.g. Shaver and Flyer, 2000) and the impact of location and firm characteristics on strategic location choices (e.g. Alcacer and Chung, 2014).

It can be concluded that the topic is still divided into silos of knowledge, forming coherent invisible colleges around the journals of each literature. Despite this isolation of conversations, recent studies facilitate the conversation by cross-fertilizing authors, literatures and journals<sup>3</sup> (see Bathelt et al., 2018; Mudambi et al., 2018).

The most active research lines in EG are those referring to global networks (value chains, commodity chains, production) and cluster/region connections to global value chains; embeddedness of MNEs, emphasizing local/regional contexts; and, the effects of MNE entry in a cluster/region. Overall, the influence of EG issues in the IB research agenda is minor and less active, with some exceptions (e.g. Li and Bathelt, 2018; Bathelt and Li, 2014; Hervas-Oliver and Boix-Domenech, 2013). Similarly, the study of MNE subsidiaries, their strategies and interactions with clusters is under-researched in the EG literature. For EG, it may be worth considering MNE strategies, noticing also that MNEs invest in an activity-by-activity basis, and thus location choices are driven by the compatibility between activities and local advantages in agglomerations (e.g. Hervas-Oliver and Boix-Domenech, 2013). For future studies, EG should devote more efforts to studying MNE mode of entry, along with MNE's ownership choice (similar to Mariotti et al., 2014; Ascani et al., 2018), because it may

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<sup>3</sup> Also, leading journals such as Research Policy bridges literatures, acting as a channel of knowledge exchange from each strand.

condition the effect of entry on clusters/regions. Also, it becomes very attractive to continue researching on home-grown multinationals and their relationship with foreign MNEs.

The principal research lines in IB for clusters are those devoted to the study of external embeddedness: how multinationals are embedded in the local context to source resources; how MNE affects from entry in nations/regions: gains or losses; and, agglomerations, locations choices and MNE strategies. External embeddedness from the IB perspective coincides with that of the EG, but the focus is on the multinational's internal process to become embedded (e.g. Monteiro and Birkinshaw, 2017). For IB and management scholars, unfolding the nuances and characteristics of agglomerations from the EG perspective can prove to be relevant for advancing location and firm characteristics on location choices. This can be approached by addressing some stylized facts from the EG literature about cluster evolution and life cycles (e.g. Belussi and Sedita, 2009; Menzel and Fornahl, 2010) or cluster taxonomies (Markusen, 1985; Gordon and McCann, 2000), researching the diversity of agglomerations and their relationship to diverse MNE strategies.

To sum up, this study's findings suggest that different literatures diverge and present different conversations, dealing with the same phenomenon from different points of view, angles and assumptions. This limited awareness of each other, that also constitutes a richness of diversity, leads to the formation of invisible colleges of coherent knowledge (within strands and journals) and signals the still fragmented nature of the topic. Despite this fragmentation, there are recent signs that show an emergent convergence and the nascent integration of the conversation. This is observed in a cross-fertilization of journals and mixed (from both disciplines) scholars' studies, as it occurs with some authors (e.g. Bathelt, Mudambi or Birkinshaw) producing *cross-fertilized* studies (e.g. Mudambi et al., 2018; Bathelt, Cantwell and Mudambi, 2018; Li and Bathelt, 2018), that are building momentum for a more integrated and substantial joint conversation.

From this study's results several implications about clusters and multinationals emerge. First, economic geographers and regional scientists should open up towards the consideration and understanding of MNE strategies accessing clusters, undertaking more research in the IB and management strand. For example, the work of Parrilli (2019) can be enriched by understanding not only each multinational's embeddedness in local territories, but



understanding those multinationals' strategies (e.g., it may be worth considering that MNEs invest in an activity-by-activity basis, and thus location choices are driven by the compatibility between activities and local advantages in agglomerations, as Hervas-Oliver and Boix-Domenech, 2013 do).

Second, for IB and management scholars, unfolding the nuances and characteristics of agglomerations from the EG perspective can prove to be relevant for advancing location and firm characteristics on location choices. This can be approached by addressing some stylized facts from the EG literature about cluster evolution and life cycles<sup>4</sup> (e.g. Belussi and Sedita, 2009; Menzel and Fornahl, 2010; Østergaard and Park, 2015; Belussi and Hervas-Oliver, 2017), cluster taxonomies<sup>5</sup> (Markusen, 1985; Gordon and McCann, 2000), embeddedness and the case of the home-grown MNEs (Sedita, Caloffi and Belussi, 2013) or the structure of local networks in clusters, especially in relation to technology gatekeepers (e.g. Giuliani, 2007; Hervas-Oliver and Albers-Garrigos, 2014). Lastly, and complementing these implications from existing lines of research, some potential research questions are listed in table 5.

### **Insert Table 5 here**

The integration of literatures may enrich cluster policymaking, developing knowledge to manage specific policies properly. For example, policymakers can thus select and incentivize specific foreign (industries or firms) MNEs that can impact positively in CIDs and would potentially show a positive embeddedness in local networks. From that knowledge from integration, policymaking needs to comprehend local geographies (CIDs) in order to formulate proper place-based policies that consider not only CIDs (type of agglomeration, local networks, life cycle, etc.) but the effects of multinational interaction (as regards type of activity, mode of entry, etc.) on the local performance, designing incentives and schemes that can optimize all parts of the interaction.

This study presents limitations. First, the selection of a database (Web of Science) and key words using English might exclude important works written, or listed in journals, or indexed in a different language. Second, the process of citation can be motivated by self-legitimization

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<sup>4</sup> Also developed in management by Pouder and St. John (1996), although just at the theory level.

<sup>5</sup> Alcacer and Chung, 2014 at SMJ have started this line from the IB and Management perspective.

strategies or other purposes (see Bornmann and Daniel 2008) rather than for the purpose of drawing on prior knowledge. Third, our own “qualitative” interpretation of literature might also influence the conclusions of this paper. For future research, a meta-analysis could also improve results. The best thing for the advancement of the topic, however, may be the participation of really diverse scholars from different fields of research in the elaboration of studies on this particular topic. These multidisciplinary teams can really contribute to crossing lines and integrating perspectives for cross-fertilization.

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## Figures and Tables

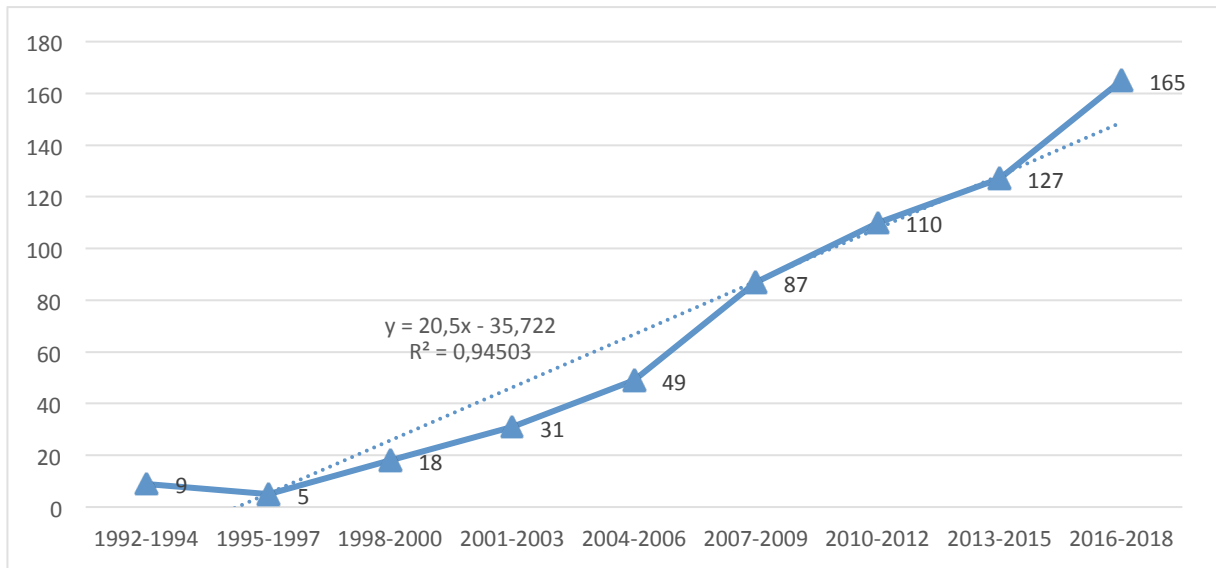


Figure 1. Diachronic evolution of the number of documents indexed in the SSCI database on localization and multinationals' research papers. Source: own

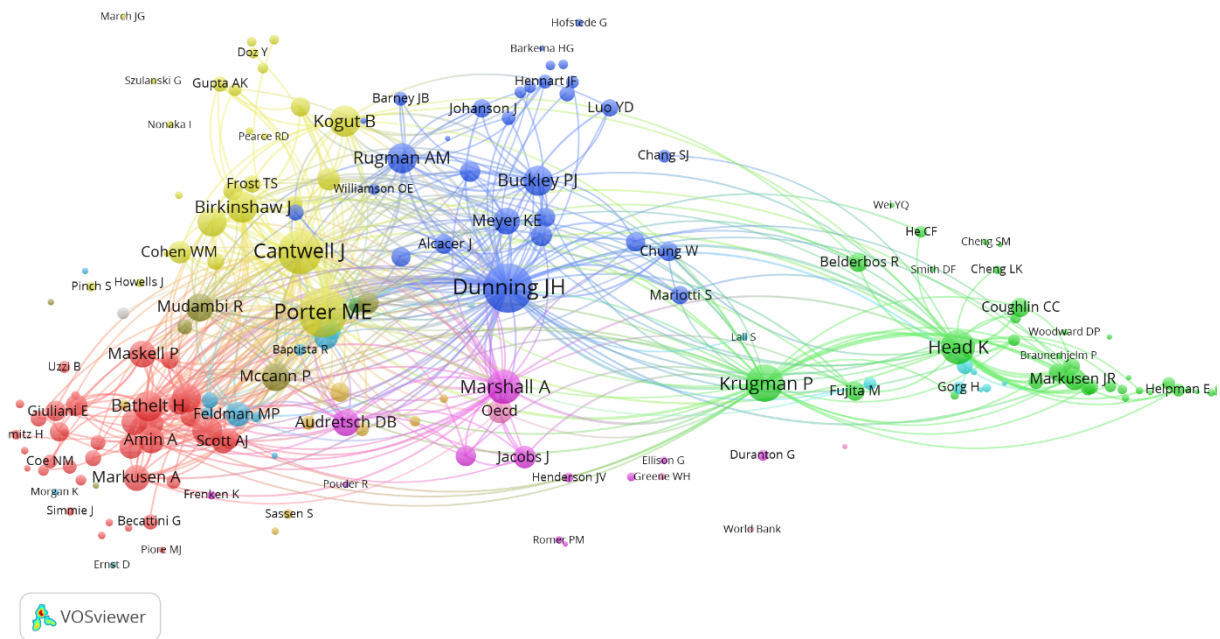


Figure 2. Network of authors' co-citation analysis on localization and multinationals research papers (visualization using Pajek software and Kamada-Kawai algorithm). Source: own



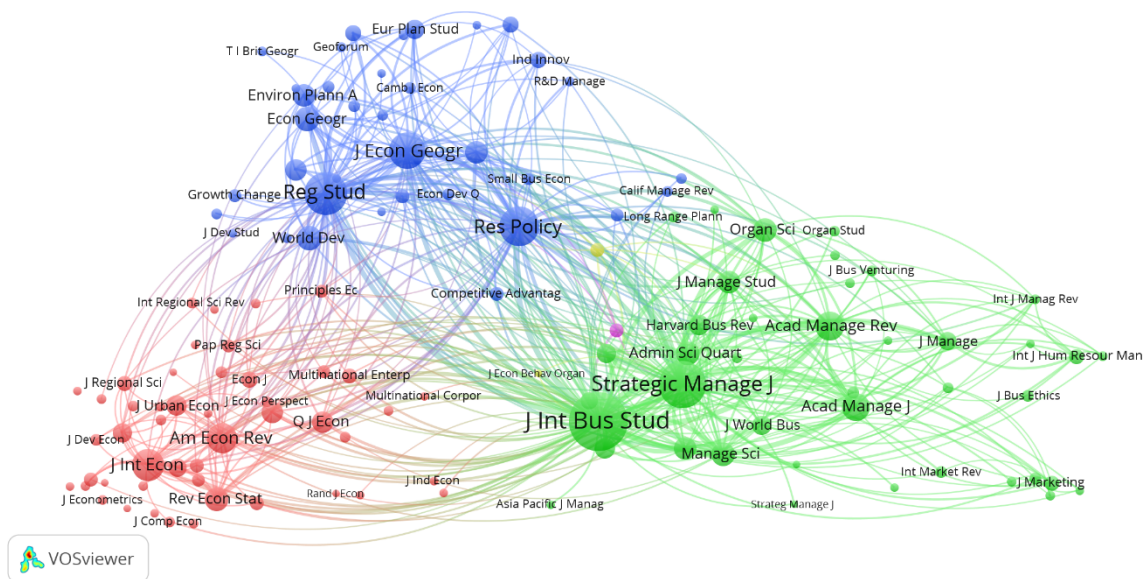


Figure 3. Journals' co-citation network on localization and multinationals' research papers (visualization using VOSviewer). Source: own

Table 1. Types of co-citation analysis, definition and meaning.

Co-citation analysis techniques	Definition and meaning
Document co-citation	Simultaneous citation of two documents in the reference section (bibliography) of a third document. The two joint documents belong to a similar line of research and their frequency of appearance among many documents signals strength and intellectual influence, conforming the intellectual structure sustaining that third document.
Authors' co-citation	Simultaneous citation of two authors, each of them in a different document, in the reference section (bibliography) of a third document. Its principal application is the identification of scientific domains or specialization realms (lines of research) within the intellectual structure of any given area of knowledge.
Journals' co-citation	Simultaneous citation of two journals in the reference section (bibliography) of a third document. Its principal application is the identification of scientific themes and/or strength and intellectual influence within the intellectual structure of any given area of knowledge.
Co-citation link (graphic network)	Graphical and visual representation of networks of co-citation (authors, journals, etc.)
Co-citation strength	Frequency or intensity of co-citation ties. The higher the values of relationships, the stronger the affinity (themes, conceptual, etc.) among nodes (authors, journals, etc.) in the network
Co-citation thickness	Graphical and visual representation of a co-citation network through <i>thickness</i> (line thickness measuring co-citation strength).

(graphic network)	
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Source: own

Table 2. The most cited authors on the topic of multinationals in clusters. Foundational authors

<b>Author</b>	<b>Number of citations</b>
Dunning JH	495
Cantwell J	465
Porter ME	379
Head K	285
Krugman P	216
Rugman AM	214
Birkinshaw J	186
Markusen JR	175
Buckley PJ	173
Mudambi R	169
Kogut B	155
Mccann P	149
Boschma RA	146
Storper M	133
Bathelt H	128
Saxenian A	127
Marshall A	121
Meyer KE	120
Gereffi G	119
Cooke P	118
Amin A	116
Scott AJ	116
Martin R	112
Audretsch DB	102
Phelps NA	102
Belderbos R	101

Source: authors. For the sake of brevity, more results upon request.

Table 3. The most cited journals on the topic of multinationals in clusters.

<b>Journal</b>	<b>Number of citations</b>
J Int Bus Stud	1989

Strategic Manage J	1256
Reg Stud	1036
Res Policy	908
J Econ Geogr	739
J Int Econ	572
Acad Manage Rev	498
Am Econ Rev	494
Acad Manage J	449
World Dev	359
Econ Geogr	345
Manage Sci	336
Rev Econ Stat	334
Organ Sci	332
Admin Sci Quart	317
Ind Corp Change	301

Source: authors. For the sake of brevity, more results upon request.

Table 4. Number of times a pair of references of these journals is co-cited on multinationals and clusters topic

<b>Journal 1</b>	<b>Journal 2</b>	<b>Co-citation strength</b>
J Int Bus Stud	Strategic Manage J	10790
Res Policy	Strategic Manage J	4374
J Int Bus Stud	Res Policy	4186
Acad Manage Rev	J Int Bus Stud	3755
Acad Manage J	J Int Bus Stud	3699
J Int Bus Stud	Reg Stud	3654
Acad Manage Rev	Strategic Manage J	3158
J Econ Geogr	Reg Stud	3139
J Econ Geogr	J Int Bus Stud	3102
Acad Manage J	Strategic Manage J	3007
Organ Sci	Strategic Manage J	3001
Reg Stud	Res Policy	2845
Manage Sci	Strategic Manage J	2658
Reg Stud	Strategic Manage J	2601

J Int Bus Stud	Manage Int Rev	2600
J Econ Geogr	Res Policy	2430
J Int Bus Stud	Organ Sci	2399

Source: own, for the sake of brevity, more results upon request.

Table 5. Existing lines of research converging EG and IB. Tentative research agenda suggested for the topic of multinationals in clusters

<p><b>Existing lines of research (the strand potentially more interested in or benefiting the most)</b>  Recognition of the convergent phenomenon and insertion of each other's concepts into both strands (hereafter, enriching IB and EG literatures)  Evaluating whether accessing agglomerations benefits or not: asymmetric gains for firms (IB) and impact on territories (EG)  Analyzing the impact of location and firm characteristics on strategic location choices (IB)  Understanding MNE impact on local contexts (EG)  Broadening our knowledge on cluster global connectivity or global value chains (EG)</p>
<p><b>Potential topics and research questions</b></p>
<p>How the life cycle of the focal agglomeration influences location choice by MNEs. Influence on subsidiaries' performance (enriching IB)</p>
<p>Modes of entry in clusters and the special case of different types of agglomerations (enriching EG)  Modes of entry in clusters and local impacts (EG)  Modes of entry in clusters and MNE gains (IB)</p>
<p>Home-grown or indigenous MNEs in agglomerations: facilitators or barriers to foreign MNEs' entrance? (for IB and EG)</p>
<p>Agglomerations taxonomies and MNE location choice (IB and EG)</p>
<p>Transfer of local tacit knowledge from subsidiaries' involvement in agglomerations* How local tacit knowledge is accessed by foreign MNEs? Mechanisms and strategies (both IB and EG)</p>
<p>Diversity of multinationals' strategies in agglomerations: what and when is it more advantageous for local agglomerations? (for EG)</p>
<p>The relationship between domestic and foreign MNEs, and their joint impact on local development **: can collaboration produce win-win strategies?</p>
<p>Social network analysis tools might be applied to increase present understanding of the embeddedness argument in subsidiaries intersecting local networks: Which is the best position in local networks for MNEs competence-exploiting? and for local cluster development? (improving EG and IB)</p>

Source: own elaboration; \*Tallman and Chacar 2011 have developed a theoretical model on that issue.

\*\* Belderbos and Somers, 2015 have initiated this line.