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Article

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Institutional factors and subnational location choice for multinationals' R&D subsidiaries

Subnational
location choice

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Abstract

Purpose – Using an institution-based view, this study aims to conceptualize how sub-national institutional characteristics are likely to explain location choice of multinationals' research and development (R&D) subsidiaries.

Design/methodology/approach – In a conceptual paper, this study explores specific institutional facets of the regional environments within a country that are capable of explaining, at least in part, the location choices of multinational corporations' R&D subsidiaries.

Findings – This study thus explores the more nuanced influences of the institutional environments at a subnational level and develops propositions to explain location choices based on the differences of the institutional environments.

Originality/value – This study contributes to international business theory by incorporating a location-specific analysis that contrasts to the usual country-level observation on the determinants of firms' location decisions.

Keywords Location choice, Regional differences, Institutional environment, Innovation

Paper type Conceptual paper

Introduction

Research on innovation-driven multinational corporations (MNCs) has gained increasing significance in international business studies (Cano-Kollmann, Cantwell, Hannigan, Mudambi, & Song, 2016). This interest warrants more attention on the institutional settings where innovations are conducted. Especially, how MNCs explore and exploit their knowledge (March,

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1991) worldwide to acquire novel resources and learn (Tallman & Fladmoe-Lindquist, 2002; Luo & Tung, 2007). That is, some locations have specific and largely idiosyncratic institutional settings that may be more prone to innovation than others (Mudambi, 2008). However, while we understand well that institutions develop differently across countries (Dikova & Van Witteloostuijn, 2007; Jackson & Deeg, 2008; Berry, Guillén, & Zhou, 2010) and that different countries have different national innovation systems (NIS) (Lundvall, 2007), we have but a poor understanding of how the sub-national institutional differences (Mudambi, 2008; Chan, Makino, & Isobe, 2010; Ma, Delios, & Lau, 2013) determine MNCs' location choices, in particular regarding the location of research and development (R&D) subsidiaries. This line of enquiry is especially relevant given the foundational role of knowledge, learning and innovation for MNCs' competitive ability (Feinberg & Gupta, 2004).

Institutional environments have become central to international business (IB) research (Jackson & Deeg, 2019) because of a focus on an institution-based view (Peng, Wang, & Jiang, 2008). Some studies have investigated the effects of the institutional context on cross-border acquisitions (Pinto *et al.*, 2017; Dow, Cuypers, & Ertug, 2016), subsidiary performance (Brannen, Pekkari & Tietze, 2014) and choice of location for foreign operations (Ma *et al.*, 2013; Lu, Liu, Wright, & Filatotchev, 2014). Most of the existing institutional-based studies take on a country-level perspective (Meyer, 2001; Dikova & Van Witteloostuijn, 2007; Cuervo-Cazurra & Dau, 2009), that is, they consider nation-level institutions. However, a small stream of research has defended that countries are not homogeneous among their internal regions (Beugelsdijk & Mudambi, 2013) and that examining how subnational institutions may influence MNCs could bring important contributions to IB (Chan *et al.*, 2010; Meyer & Nguyen, 2005). More specifically, themes such as subnational region variations (Dai, Eden, & Beamish, 2013), global cities (Goerzen, Asmussen, & Nielsen, 2013; Asmussen, Nielsen, Goerzen, & Tegtmeier, 2018) and microfoundations of spatial perception (Piscitello, 2011) have the potential to contribute to IB theory regarding how subnational institutional environments are capable of shaping location choice.

In this article, we use an institutional based view and follow the studies that propose that differences across sub-national locations (cities, states, regions and countries) matter – because of pronounced differences in the economic, productive, cultural, social, historic, demographic, administrative and governmental backgrounds (North, 1990; Ghemawat, 2001; Berry *et al.*, 2010). We analyze how these institutional differences across locations render differences in the innovativeness (or ability to innovate) and are thus likely to drive the locations selected by MNCs to locate their international R&D subsidiaries. Our purpose is thus to advance how the institutional and economic contexts are asymmetrical across regions within the same country, affecting innovativeness, to then point out conceptually driven propositions of how these asymmetries can affect subsidiary location choice.

In sum, in this study, we propose that places (cities, states and regions) within a country have specific institutional contexts that are distinct, albeit probably dependent from the wider country-level institutional context. The evidences for our premise are abundant. First, historical and economic trajectories of a society shape the institutional context (North, 1990). The government regulatory laws, the very culture of the society and even the firms operating in a location can have an impact on the development of institutions (Faulconbridge & Muzio, 2015). Second, the different economic and social developments of a location will generate different institutional contexts across regions (Krugman, 1991; Combes, Duranton & Gobillon, 2011; Andersson & Henrekson, 2014; Winters, 2013), and different coercive and normative pressures (DiMaggio & Powell, 1983). Even slightly different societies are likely to mean greater difficulty of gaining legitimacy (Suchman, 1995).

This study has two main contributions to international business theory and research on innovation. First, we provide a perspective for researchers to analyze how the sub-national institutional variation will determine MNCs' location choice. That is, we gain additional insight into the location determinants using an institutional perspective that delves into the specificities, or variations, within a sub-national level. While the focus of attention on studies on location choice have mostly taken the country as the unit of analysis, research studies in international business and innovation are likely to gain from recognizing the sub-national institutional heterogeneity and how it matters for firms' decisions.

A second contribution is directed to studies on innovation in an international perspective whereby firms expand to learn, augment their knowledge-based capabilities and acquire new ones. Often this stream of research relies on examining country-level differences and variations on knowledge and innovation are assessed in terms of differences between countries. These differences between countries are the outcome of differences in the cultural, economic, entrepreneurial, social, political, legal, geographic, demographic, etc. milieu (Berry *et al.*, 2010; Ghemawat, 2001). Hence, some regions may be more institutionally sophisticated and more innovative than others. In other instances, scholars have delved into the difficulties of learning across borders because of, for example, the liability of foreignness (Zaheer, 1995). We propose that by bringing together what we know about the national variations with additional knowledge on how the subnational idiosyncrasies matter, we come closer to understand how firms can leverage or augment their innovation capabilities across heterogeneous spaces.

Literature review

Although Dunning (1998) has perceived location as an underdeveloped and neglected aspect in international business, the field has been receiving greater attention over the past decades. Mostly, this research has taken the national border, or the country, as the unit of analysis to understand decisions and actions of firms in such respects as location choice (Makino, Lau, & Yeh, 2002; Chung & Alcácer, 2002; Ramasamy, Yeung, & Laforet, 2012) and entry mode choice (Kogut & Singh, 1988; Dikova & Van Witteloostuijn, 2007; Mueller, Hendriks, & Slangen, 2017). The focus on the border as a central part of the analysis makes sense as most of the institutional constraints change rather drastically from country to country, resulting in a heterogeneity of environmental contexts in which firms operate.

However, a complementary perspective has been emerging observing additional levels of heterogeneity at the subnational level. The special heterogeneity at the subnational level is a critical factor driving the actual location decisions by MNCs (Ma *et al.*, 2013; Lu *et al.*, 2014; Kim & Aguilera, 2016; Asmussen *et al.*, 2018). As pointed by Asmussen *et al.* (2018) this stream of inquiry is still debating with clear guidelines on how to divide countries in more meaningful units and precision in establishing and measuring spatial differences. The characterization of locations has been more scrutinized in fields such as economic geography, urban planning, demography and even sociology, showing the opportunity of developing further works in IB studies.

The extant research on MNCs' location choices has somewhat moved from the country to the regional or subnational level (Beugelsdijk, McCann, & Mudambi, 2010; Ma, Tong & Fitza, 2013; Chan *et al.*, 2010). This has meant greater focus on economic geography and how firms tend to concentrate, or agglomerate, in some center, often large cities (Combes, Duranton & Gobillon, 2011) and global cities (Goerzen *et al.*, 2013), as these are centers of economic activity. The duality of large and small cities is very visible in many countries and perhaps more remarkably in the emerging economies of Brazil, China and India, where such cities such as Sao Paulo, New Delhi, Shanghai and Mexico City are far larger than other

cities in the country (Ma & Delios, 2007). These cities are also often either capital cities, political centers or economic hubs, financially more developed and broadly stated more institutionally developed than peripheral areas, and thus attractive to large populations.

However, some researchers have called for the attention to considering the specific characteristics of the location where the subsidiary will operate (city or region) rather than just the effects of national borders (Dai *et al.*, 2013; Goerzen *et al.*, 2013; Piscitello, 2011). Researchers usually calculate institutional distance from one country to another (Berry *et al.*, 2010), regardless of where – in what region, or city – in the target country the subsidiary will be installed (Beugelsdijk & Mudambi, 2013). The basic assumption is that the national border effects (the country-level distances and characteristics) are important, but recent advancements show that the micro-level characteristics of the location, albeit often disregarded, should not be neglected (Beugelsdijk & Mudambi, 2013), especially in the case of sub-national institutional characteristics (Nguyen *et al.*, 2013; Meyer & Nguyen, 2005). That is, while the more commonly studied nation-level effects are very important, more attention needs to be devoted to subnational effects on firms' strategies.

Location and institutions

It is essential to understand the institutional environments in international business (Kostova & Zaheer, 1999; Peng, Wang, & Jiang, 2008) and in innovation (Rasiah, 2017) as they influence firms' choices and strategies. Countries are essentially different in many aspects, possessing different cultures, laws, economies and ways of living and of doing business (North, 1990). The institutional settings have a strong impact on how firms will operate, as they need to deal with legislation, their competitors and the socially established expectations of what is required of them (DiMagio & Powell, 1983; Suchman, 1995). Hence, the set of institutions may sometimes have a greater impact on the choice of, for instance, foreign direct investment (FDI) location than economic-driven explanations (Kang & Jiang, 2012).

As institutions are “the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction” (North, 1990, p. 3), firms need to take into account the institutional constraints, inefficiencies and particularities of a country in the decisions regarding internationalization (Chan & Makino, 2007), such as location (Nguyen *et al.*, 2013). The diversity of institutional frameworks presents a major challenge for firms operating across countries and locations. Some countries have so little in common that they may present major economic disparities, such as different types of capitalism (Jackson & Deeg, 2008) and the cultural setting that determines the interpersonal relations as, for instance, the behavior of executives (Lau, Tse, & Zhou, 2002).

Because of institutional inefficiencies, many constraints rise to the concerns of firms. Formal institutional inefficiencies such as poor property rights, contract enforcement and flawed regulatory structures (Khanna & Palepu, 2000) will raise uncertainty in contracts between firms. Under conditions of contractual uncertainty, the costs of transacting increase (e.g. the costs of procuring operations and resources outside of the firms' boundaries), and it becomes more complex to adapt the firms' governance to the institutional characteristics of the location (Roth & Kostova, 2003). Another level of complexity is added when we take into account that institutions are likely to vary remarkably across the sub-regions of a country, and that governments have different levels of efficiency in different regions (Pearce & Ayres, 2009).

Countries have different settings regarding innovation incentives and support, which result in different innovativeness environments, largely because of different NIS (Lundvall, 1992; Freeman, 2002). NIS are formed by public policies and firms' initiatives that guide and support innovation efforts in a country (Nelson, 1993; Lundvall, 2007). Research regarding NIS has gone hand in hand

with policymaking in countries since its beginnings (Lundvall, 2007). Historically, international competitiveness has studied the innovativeness of a nation as a factor (Mowery & Oxley, 1995).

Subnational location choice for research and development subsidiaries

The location choice for R&D subsidiaries has been a topic of interest for researchers. More specifically, Demirbag & Glaister (2010) analyzed differences between emerging and developed regions; Siedschlag, Smith, Turcu, & Zhang (2013) conducted a study to analyze country-level determinants for location choice; Alcácer, Dezsó, & Zhao (2013) analyzed the positioning of R&D subsidiaries in relation to global value chains; and Feinberg & Gupta (2004) analyzed how the R&D subsidiary decisions would influence spillovers. Meanwhile, the sub-national level of research still warrants attentions, especially as institutional factors can be specific to sub-national regions (Dietz, 2004) and may influence location choice decisions.

The institutional differences between locations at a subnational level – or within the country – influence, and are a consequence, of such factors as innovation (Freeman, 2002), local government efficiency (Pearce & Ayres, 2009) and sub-national culture (Dietz, 2004). Even some developed countries have large differences in wages, labor force participation and employment across places in their territory (Winters, 2013). For instance, some places are historically and culturally more prone to entrepreneurship (Andersson & Henrekson, 2014) than others and thus sprawling a higher concentration of firms and consequently human capital. The differences in employment, labor force participation and wages are largely determined by the concentration of human capital, which acts as a positive externality because of intellectual spillovers (Winters, 2013).

Although broadly debated, the innovation system can be different depending on the region within the country, not being homogeneous in the whole territory (Cooke, Uranga, & Etxebarria, 1997). Countries that, for instance, have different state-laws can have laws that benefit innovation in one state (such as better enforcement of the intellectual property rights) that do not exist in other states. These evidences point out that the innovation system(s) is not uniquely determined by the borders of a country, but can interchange and differ inside the country and throughout economic industries.

We propose that firms observe the regional aspects just as national aspects when deciding the location of an international subsidiary. Regions have different institutional features regarding innovation, especially policymaking and normative procedures that can be different among regions from the same country supporting innovation initiatives, talent formation and attraction (Combes, Duranton & Gobillon, 2011). On the other hand, firms will avoid institutional environments that pose threats to their operations through high criminality, low rule of law and low protection of property rights, labeling these environments as “weak” institutional contexts (Khanna & Palepu, 2000). In essence, firms will choose subnational contexts that are more suitable for their operations (Beugelsdijk & Mudambi, 2013) and this is also observable at the sub-national level:

- P1. MNCs are likely to search for locations that have institutional environments that will support R&D and will not hinder their operations to locate their R&D subsidiaries.
- P2. The location of MNCs R&D subsidiaries varies across regions (states and cities) within a host country.

Albeit there is an obvious variation in the location choice at a subnational level of MNCs' R&D subsidiaries, there may be additional influences on the location choice in virtue of the

degree of development of the country's institutional environment. That is, it is reasonable to expect that the patterns of location choices vary between emerging and developed countries. We specifically argue that in emerging economies, the location choices vary less than in more developed countries. That is because the institutional development (economic, cultural, education, health, etc.) across the subnational space varies more in emerging economies than in developed countries. That way, there are limited sub-national regions suitable for being chosen in emerging economies in comparison to developed economies. In addition, in emerging economies, there is greater uncertainty regarding industrial policy and frequent changes in rules and regulations (Meyer & Nguyen, 2005; Falaster & Ferreira, 2018) that emerge from the pro-market reforms that are being implemented (Cuervo-Cazurra, & Dau, 2009). Often these reforms are unevenly distributed across subnational regions. Moreover, in some instances, there is some degree of decentralization to the state and regional governments that prioritize different policy objectives.

In sum, the wide institutional variations found in the less institutionally developed emerging economies is likely to lead MNCs to prefer locating in a few selected sites, possibly large cities and/or states that have made more substantial pro-market reforms. In contrast, the lower variations in more developed countries allows firms to be less influenced by subnational variations and thus be able to locate more dispersed across the subnational regions:

- P3. The location of MNCs' R&D subsidiaries is more concentrated at the subnational level in emerging economies than in developed countries.

Centers and peripheries

The subnational location differences may be rather pronounced such as is the case when contrasting centers and peripheries in most countries. Economic centers are typically more populated, culturally more active and economically more vibrant (Krugman, 1991). For instance, Sao Paulo, in Brazil, and Mexico City, in Mexico, are two of the most populated cities in the world since the 1900s, and are economic, technological, cultural, social and political centers to their nations. These centers contrast sharply with other peripheries, such as the region of the Amazon rainforest and the Chihuahuan desert, that are for the most part, unpopulated and economically unexpressive.

Economic Centers are the result of the concentration of people, firms and resources (McCann, 1995). These centers are generally large cities that combine scale and urban benefits (as well as liabilities) that are characteristic to these cities (Combes, Duranton & Gobillon, 2011). Urban development is the main reason for locations to become centers or peripheries (Krugman, 1991). The population concentrates in cities because of the urban externalities and benefits. The urban centers tend to grow based on the consumption potential that they generate, thus attracting firms to explore the concentration (McCann, 1995; Glaeser, Kolko, & Saiz, 2001) but also because of the proximity to human resources, other firms and political agents.

As economic centers will have more vibrant and recurrent economic activities, firms located in these economic centers will have to develop institutions to reduce uncertainties in their interactions (North, 1990). We thus propose that the increased interactions that centers provide will develop institutional environments that have industrial standards of cognitive legitimacy (because of the amount of interactions that happen there) (Suchman, 1995). The development of a workforce in the location because of information spillovers and the development of specific skills (Krugman, 1991) will help establish high standards for the operations of firms. These industrial standards will likely also become regulations either government or industry regulatory powers, which will increase normative and/or coercive

pressures (DiMaggio & Powell, 1983) into the firms operating in these centers to obtain legitimacy (Suchman, 1995). Hence, suppliers will abide by higher industry standards and universities will form professionals that can work in these higher standard industries. Higher standards of quality in operation of R&D will positively influence regional innovativeness, which will contribute to the operations of R&D subsidiaries:

- P4.* MNCs are likely to search for locations that are centers or close to centers – political and economic centers – to locate their R&D subsidiaries.

Under conditions of greater institutional inefficiencies, firms may need to develop distinct courses of action. For instance, firms may need to develop business groups to overcome local institutional voids (Khanna & Palepu, 2000), or nurture ties to the government and governmental agencies (Pinto *et al.*, 2017). Ties to the host location government help secure resources (Ma & Delios, 2010) or discretionary government intervention, for instance, regarding foreign ownership (Ma *et al.*, 2013).

The extent of political intervention may vary across locations. For instance, Ma *et al.* (2013) noted how the location of central government agencies and the political apparatus in Beijing, compared to Shanghai, made Beijing more likely to have higher levels of political intervention requiring firms to be better politically connected. Similar situation may be observed, for instance, in Brazil, where the central government is located in Brasilia albeit Sao Paulo is economically more active, and the northeastern states being much less developed, and having less effective state and municipal level interference and control.

A political center will concentrate political power in a country. At the same time, firms may resort to political connections to reduce institutional inefficiencies found especially in emerging markets. R&D subsidiaries may benefit, even more than other types of subsidiaries, from political connections reducing institutional inefficiencies because of their need for safeguarding intellectual property rights (Maurer & Zugelder, 2000). Hence, firms will locate their R&D subsidiaries closer to political centers to ease the access to political connections and hence use them to safeguard their intellectual property against misappropriation:

- P5.* In emerging economies, MNCs are likely to search for locations that are politically connected centers to locate their R&D subsidiaries.

The microfoundations of economic differences between locations can be traced to historical antecedents. The rate of entrepreneurship in a location is path-dependent and can be rooted to a random historical event or a natural asset (Andersson & Larsson, 2016). Firms will prefer to co-locate because of information spillovers and the supply of industry-specific skilled workers (Krugman, 1991), which will generate specialized human capital because of the development of the agglomeration (Winters, 2013). Human capital will attract firms and the agglomeration will grow until the costs of agglomeration overcome the benefits (Combes, Duranton & Gobillon, 2011). Public policy also plays a role in the creation of agglomerations, as policymakers develop incentives to attract “talents” and lure industrial facilities (Combes, Duranton & Gobillon, 2011).

The agglomeration of firms holds some advantages (Porter, 1998), and these advantages make some agglomerations better for the location of MNCs’ subsidiaries choice than others. Previous research has proven that agglomerations can reduce liabilities of foreignness and also bring potential knowledge spillovers (Lamin & Livanis, 2013). The concentration of firms from the same industry in a location offers more employment possibilities to workers with industry-specific skills; this concentration can also support the production of specialized inputs that are not tradable, and the possible information spillovers in the

location can increase the performance of co-located firms (Krugman, 1991). The concentration of firms will produce an environment that leverages the human capital because of intellectual spillovers (Winters, 2013).

Because of the potential advantages of agglomerating, agglomerations may seem a natural choice for R&D subsidiary location [although Pouders & John (1996) have argued that only some kinds of firms prefer agglomerations]. R&D subsidiaries will choose to locate in regions where they can have access to human resources that meet their standards. Locating in agglomerations could help R&D subsidiaries to benefit from local technology spillovers and qualified human resources:

- P6. MNCs are likely to search for locations that have agglomerations of firms to locate their R&D subsidiaries.

Culture

The local culture and how local and corporate cultures differ are major influencers of knowledge flows across and within firms. Larger cultural differences increase the uncertainty and complexity faced by managers that need to coordinate and integrate business practices and knowledge transfers (Ma *et al.*, 2013). Local cultural idiosyncrasies are also likely to influence location decisions. For example, Ma *et al.* (2013, p. 956) noted that foreign MNCs may seek to avoid locations in China where “China’s administrative styles or cultural values” are more prominent. Ma *et al.* (2013) further noted how cities in China may differ. For instance, Beijing is considered as an administrative-cultural city with a dominant literati and bureaucrats given the concentration of the political systems of the country. In comparison, Shanghai has more of an entrepreneurial and managerial class. Similar comparisons may be made in other countries (Fujita & Hu, 2001). In Brazil, for instance, the entrepreneurial and economic activity of Sao Paulo contrasts sharply with the political-bureaucrats of Brasilia (the capital), where the central government and a large array of governmental agencies reside. While in Rio de Janeiro the entertainment and tourism industries are largely significant, Florianopolis has a similar landscape but presents a far more innovation and creativity-driven economic activity (Vasconcellos, Garrido, & Parente, 2019).

The innovativeness of a location is influenced by its culture. Mueller & Thomas (2001), for instance, have suggested that countries with low uncertainty avoidance (Hofstede, 1984) tend to have more innovative entrepreneurs than countries ranking high in uncertainty avoidance. Lower uncertainty avoidance may help flourish innovative behavior, acceptance and creativity. Hence, locations that have cultures more prone to innovation will nourish an environment that may foster innovation, through the development of government incentives, innovation-driven human resources and acceptance of novel ideas. We thus propose that firms will choose locations within a country to locate their R&D subsidiaries where there is a culture that values and supports innovation:

- P7. MNCs are likely to search for locations that have cultural traits that support and value innovation to locate their R&D subsidiaries.

Locations within a country differ in terms of institutional structure, language, religion, education and culture. These differences are clearly observable between the more urban and the more rural areas, but they are also visible across urbanized areas in large countries such as Mexico or India, for instance. In fact, the urban locations in the emerging countries tend to resemble those in the developed countries with a more affluent and internationally mobile class (Fujita & Hu, 2001).

The subnational variation in emerging countries also tends to be more diverse than in developed countries. [Chan et al. \(2010\)](#) have noted the cultural and ethnical diversity across China and Russia, but similar evidence may be found in other emerging economies such as in Brazil or India. In Brazil, for instance, the northeastern states have a deep influence of African religions in their culture. This is because of the large incidence of slavery in the northeastern states of Brazil throughout its history, resulting in an idiosyncratic mixture of cultures in those states. Meanwhile, the southern-most states have heavy protestant influences brought by German immigration. In contrast, the more developed countries of Europe, or Eastern Europe, tend to have lower ethnical diversity because of their older history and geographical proximity.

These subnational differences are likely to influence the location of MNCs' R&D subsidiaries insofar as they affect a myriad of aspects relating to work, work ethics, interpersonal ties and organization. In some respects, some locations may even require the MNCs to rethink their operating model. For instance, the cultural and infrastructural features of a location may render that different models of distribution are more effective. For instance, when T-Systems, a branch of the German Deutsche Telekom, located an R&D subsidiary in Brazil, they chose Blumenau, a city founded by German immigrants that has received cultural influences from many different ethnicities through immigration. This decision resulted in a more globally oriented mindset in the subsidiary, with German cultural influences that make it more adapted to the corporative culture than their other subsidiaries located in countries like India. That is, firms need to adjust their location strategies according to the specificities of the locations, as replicating successful models abroad may not suffice. Embeddedness in the social fabric may be essential to learn in such environments. In sum, the cultural, social, ethnic and religious diversity found in less institutionally developed emerging economies drives MNCs to concentrate in a few selected locations, while the greater homogeneity found in the more developed countries allows for greater dispersion of where the subsidiaries are located at the subnational level:

- P8. The location of MNCs' R&D subsidiaries is more concentrated in the culturally diverse subnational level in emerging economies than in developed countries.

Mimicking competitors

Firms seek local institutional legitimacy in their international operations ([Meyer et al., 2014](#)). Hence, they need to abide to the actions expected by the social actors to achieve legitimacy ([Suchman, 1995](#)). One of the major alternatives for firms to achieve legitimacy is to engage in isomorphic behavior ([DiMaggio & Powell, 1983](#); [Deephouse, 1996](#)).

Researchers have pointed some strategic choices that contribute to firm legitimacy. Firms engage in isomorphic behavior looking to become more legitimate ([Deephouse, 1996](#)), and will have strategic responses to institutional change, seeking legitimacy. Hence, firms will mimic their more legitimate competitors or engage in strategic alliances to secure legitimacy by associating with firms that are considered more legitimate ([Deephouse, 1996](#)).

All firms are susceptible to the institutional pressures that may arise from their environment, which may lead to three kinds of isomorphism: mimetic (mimicking, or imitating successful firms in search of success and legitimacy), coercive (bending through legislation pressures) and normative (professional norms and lore of doing things) ([DiMaggio & Powell, 1983](#)). Firms need to cope with these pressures to deal with their environment and operate properly, often engaging in isomorphic behavior ([Hillman & Wan, 2005](#)). This isomorphic behavior is higher in contexts where the institutional environment is very different from the one in the home-country, and lower where the environment is more similar with the home-

country (Salomon & Wu, 2012). Evidences suggest that isomorphism can take decisive roles in the behavior of firms engaging in international business, commanding entry modes (Lu, 2002), financial decisions (Henisz, 2003) and legitimacy-seeking behavior (Meyer *et al.*, 2014).

We thus propose that the isomorphic pressures that firms experience when internationalizing have an effect over the location choice of the R&D subsidiaries. For instance, a new technology firm entering the USA will probably prefer locating its R&D subsidiary in the Silicon Valley area. By selecting this location, the subsidiary benefits from the spillovers of technology and human capital, but also gains added status and legitimacy because of the region being a common location choice for R&D firms. That is because the Silicon Valley will be perceived as more legitimate in their industry than in other locations in the country. That is, our argument is that MNCs' R&D subsidiaries will tend to co-locate because of mimetic and normative isomorphism, in search of legitimacy:

- P9. MNCs are likely to search for locations that that are common to firms in their industries because of isomorphic pressures to locate their R&D subsidiaries.

Multinational corporations' strategies

In addition to the MNCs' ability to manage the location's institutional idiosyncrasies, the location choice for the subsidiaries is likely to be influenced by the strategy pursued and the role of the subsidiary in the MNCs network. That is, MNCs that follow a global strategy are likely to be driven more by location choices that favor lower costs and greater standardization. MNCs that pursue a learning strategy in a given market are likely to select locations that are richer in knowledge (Luo & Tung, 2007), and where the institutional milieu favors the learning and transfer of novel knowledge. Hence, the location choice for the R&D subsidiaries is likely the outcome of the interplay between the institutional characteristics of the location and the strategy pursued, or the strategic role sought for the subsidiary (Ma *et al.*, 2013).

Firms will choose locations that favor knowledge transfer when engaging in knowledge-seeking strategies (Kedia, Gaffney, & Clampit, 2012). Meanwhile, they will avoid locations that may induce knowledge transfer and spillovers when they do not see benefits that may come from sharing knowledge. Benefits of spillovers may be small for firms that already possess knowledge advantages and spillovers may even be detrimental if competitors could benefit from spillovers of the firms' knowledge (Pouder & John, 1996). Hence, if a firm pursues a knowledge-seeking strategy, it will more likely choose locations where the institutional environment will nourish knowledge transfer, while if a firm pursues a global strategy, it may choose locations that protect their knowledge and reduce their costs. We propose:

- P10. MNCs are likely to search for locations that allow knowledge transfer when pursuing a knowledge-seeking strategy, and will avoid these locations if pursuing global strategies.

Discussion and concluding remarks

In this article, we discussed several factors to illustrate how we may examine subnational, or intra-country, location choices. Specifically, we have delved into the location of R&D subsidiaries albeit similar reasoning could be used to enquire into the location of other types of subsidiaries. By analyzing the aspects that MNCs seek when locating their R&D subsidiaries, we develop knowledge regarding regional institutional environment, regional

innovation environment and economic geography, linking these issues to propose an integrated logic regarding location-choice.

We have advanced ten propositions to explain how locational institutional differences will determine international R&D subsidiary location choice at a subnational level. The main motivation for this study is the call from [Beugelsdijk & Mudambi \(2013\)](#) for a more detailed explanation of the differences between locations of the same country and their impact on location choice. Most studies, for instance [Dow et al. \(2016\)](#), [Brannen et al. \(2014\)](#) and [Lu et al. \(2014\)](#), have observed the effects of country-level factors in performance and location choice of firms. We contribute to international business theory by providing a series of explanations that together may explain why firms will pick one location over the other for their R&D subsidiaries.

Our study brings a perspective for researchers to interpret factors that make firms decide for one location over the other. Past research has greatly debated the cluster effects over international subsidiaries ([Lamin & Livanis, 2013](#)). However, differences in geographic centrality, institutional factors and innovativeness of the location are still very understudied topics. Our study suggests that firms will not only choose a location based on one factor or another but on a construct of four factors, i.e. geographic, economic, institutional and innovational. Hence, we expect this paper to assist researchers to observe inner-country location choice in an integrative perspective rather than an isolationist one.

Our main contribution is the use of institutional theory in a sense of locational analysis. Although not completely novel, the locational perspective of institutional environment is an understudied topic in IB theory. Our paper contributes by proposing that local institutions do matter because they will shape the innovativeness of the location, along with locational norms and regulations that will make them more suitable to international R&D subsidiaries. Our propositions call for a more nuanced approach when analyzing location-choice decisions, by allowing an analysis that goes beyond the usual country–border approach and considers regional characteristics. In a broader sense, our paper indicates that firms take into consideration country-level characteristics when deciding location; however, the specific regional characteristics may be more important in this decision, especially in the case of R&D subsidiaries.

The second contribution of this paper is, in some extent, an explanation of why some locations are much more prone to receive innovation subsidiaries than others. For instance, locations such as the region of Guangdong in China, Grenoble-Isère in France and the Silicon Valley in the USA, are reference in regard to innovative ability. We propose that these regions are innovative largely because of an array of institutional setting and cultural antecedents that sparked regulations and universities that fostered innovation, becoming centers and attracting additional firms.

Future research avenues

Certainly, the various institutional facets that characterize sub-national locations (regions or even cities) are prone to be highly intertwined. For instance, geographic determinants will influence economic factors ([Krugman, 1991](#)). These economic factors will determine if the industries in that region are abundant and developed ([Winters, 2013](#)). Regions with an abundance of firms in an industry will have industry standards developed by the industry itself, as well as government regulations developed by governments concerned with these firms. Hence, the institutional environments will be different. Therefore, to gain an even clearer grasp on how each specific and individual institutional facet may drive location selection decision, more research is warranted to isolate each institutional dimension. For instance, firms may locate to some regions because they have specific laws fostering their

activity or may even avoid some regions because of high industry standards they cannot (or rather do not want to) abide to.

By analyzing R&D location choice in a sub-national level, it is possible to develop an understanding of how the distribution of knowledge assets can influence the economy, especially in emerging markets. If a country is mostly underdeveloped, it should not be an inviting destination for R&D subsidiaries; however, a country that is mostly underdeveloped but manages to develop a single location where the conditions are prone to investments (as a regional R&D cluster) could become an inviting destination in that region. Hence, governments can put up public policies that seek to develop some specific locations in their territory to foster innovation initiatives and attract this kind of FDI, increasing economic benefits and technological spillovers that may be beneficial for the whole country.

Studies can use quantitative methods to analyze the impacts of clusters and degrees of institutional characteristics in phenomena as FDI and location choice in a subnational level. Meanwhile, the topic warrants attention in a qualitative sense as the process for decision-making on the subnational location choice could benefit greatly from additional works using our framework.

Location choice is an issue that has lined international business studies for the past decades (Kim & Aguilera, 2016). Although highly important, location had been an underdeveloped area in IB (Dunning, 1998). We follow Beugelsdijk & Mudambi (2013) and highlight the importance of not looking only at border factors, but also inner-border factors. This is a bridge from economic geography to international business that is highly understudied and deserves attention from both areas. Future research could contribute to both theories by analyzing how specific factors in geography determine location choice. For instance, firms that choose to locate to a region previously not common to firms in that industry probably resorted to geographic factors to choose that region. Issues such as travel time (Boeh & Beamish, 2012), centrality (Krugman, 1991), historical (Combes, Duranton & Gobillon, 2011) and even cultural ties to the home country may be roots to explanations that could make within-country location choice clearer.

Strategies drive firms to locations (Lamin & Livanis, 2013). Although most research treat location choice as a matter of strategic decision (Alcácer, Dezsó, & Zhao, 2013), the characteristics of firm or subsidiary also have influences on location choice. For instance, Doh, Bunyaratavej, & Hahn (2009) proposed that location choice will be different for different types of offshoring services (interactive, repetitive or innovative). Location choice not only acts as strategy but also has consequences for firms, as depending on the location and firm characteristics, firms may use different entry modes (Agarwal & Ramaswami, 1992).

One of the most important aspects for future research in subnational differences could be linked to the analysis of the inter-relationships of the subnational characteristics. Research could benefit greatly from empirical tests that show how firms would behave when facing possibilities regarding regions that have associations of characteristics. More specifically, the questions of how these interactions between characteristics would influence firms could help researchers to better understand interactions between institutional characteristics and strategy (as proposed by Jackson & Deeg, 2019) at a subnational level. Moreover, research on tradeoffs between characteristics in location choice could benefit from our model.

Within-country location choice is a topic that is still understudied in international business and should receive more attention. Differences among regions are because of several factors and all these factors contribute to a different outcome in location choice. It is

important for researchers to not only consider border effects when studying location choice, but also the regional effects, as these seem to be highly neglected in literature. Country and border effects are very important, but we suggest that regional effects must also be taken on account. The use of region-level data could bring some important contributions to international business both in theory and in empirical tests, as independent and control variables.

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