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INTERNATIONALIZATION THROUGH EXAPTATION: THE ROLE OF DOMESTIC GEOGRAPHICAL DISPERSION IN THE INTERNATIONALIZATION PROCESS

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INTRODUCTION

Increasing attention is being paid to host country sub-national variation in relation to international expansion decisions, such as whether to enter and the mode of entry (Meyer & Nguyen, 2005; Nachum, 2000; Shaver & Flyer, 2000; Tan & Meyer, 2011). Recently, Beugelsdijk and Mudambi (2013) suggested that organizations expanding abroad unpack the host country space into various places in which to locate different organizational units (e.g., host country's headquarters and operating subsidiaries). They propose that, for each organization, international border-crossing should be considered jointly with the sub-national geography of the host country, and that distinctions should be made among different *places* within the host country *space*.

However, with regard to international expansion, we still lack an understanding of the role of the home-country space, which has thus far been viewed solely as the headquarters' (HQ) location. Thus, we explicitly unpack the home-country space into the different places in which different organizational units are located, and investigate the effect of home-country sub-national variation on the organization's international expansion. More specifically, we investigate *whether an organization's domestic geographical dispersion influences its initial and subsequent decisions to engage in FDI*.

National borders have been conceptualized as "qualitative discontinuities in space, that is, points at which spatial heterogeneity changes abruptly" (Beugelsdijk, McCann, & Mudambi, 2010). Hence, the knowledge of managing operations across national borders is critical for engaging in more complex internationalization forms, such as FDI (Bartlett & Ghoshal, 1989; Eriksson, Johanson, Majkgard, & Sharma, 1997; Kogut & Zander, 1993). However, how organizations acquire this knowledge is a source of major debate. The big step hypothesis stresses discontinuity and contends that the knowledge of managing operations across national borders is developed as a result of ad hoc investments to set up an architecture supporting international operations the first time organizations expand abroad (i.e., in the initial "big step"), which subsequent operations are able to leverage (Pedersen & Shaver, 2011). Instead, the incremental view stresses path dependency and argues that international expansion is the result of learning through experience in current operations (including network relations) that may ease the acquisition of general international knowledge of managing operations across national borders (Eriksson et al., 1997; Hymer, 1977; Johanson & Vahlne, 1977).

10.5465/AMBPP.2015.134

We seek to solve this tension, and draw on recent developments on organizational learning (Cattani, 2005; Dew, Sarasvathy, & Venkataraman, 2004; Marquis & Huang, 2010) and economic geography (Bathelt, Malmberg, & Maskell, 2004; D'Agostino, Laursen, & Santangelo, 2013; Lorenzen & Mudambi, 2013; Malmberg, 2003; Maskell, Eskelinen, Hannibalsson, Malmberg, & Vatne, 1998; Storper & Venables, 2004) to argue that organizations that run geographically dispersed businesses across domestic sub-national locations face lower spatial transaction costs (Beugelsdijk *et al.*, 2010) when engaging in FDI for the first time than those organizations more geographically concentrated across the home country-space. We explain this in terms of *exaptation* of management capabilities. In the exaptation process, which has been documented by evolutionary biologists and applied to management research (Marquis & Huang, 2010), features adapted for a particular purpose in a specific environment are used for another purpose in a different context (Gould, 1980; Gould, 1991). However, we suggest that the effect of exapting capabilities related to domestic geographical dispersion is limited over time and across space. Experience in international contexts can be adapted in subsequent FDI expansions as it provides superior first-hand knowledge, which serves as a substitute for domestically developed knowledge. In addition, the extent to which an organization can exapt the capabilities of managing geographically dispersed businesses acquired at home in an international context depends on the organization's portfolio of sub-national locations (i.e., more *versus* less urbanized areas).

We focus on FDI by Indian business groups from 2001 to 2010. Two factors motivate our empirical focus. First, the Indian context serves as an excellent laboratory for our analysis, as domestic organizations' initial and subsequent engagement in FDI can easily be tracked. In India, outward FDI is a relative recent phenomenon due to the institutional closure that characterized the country in the past (Fisman & Khanna, 2004). Second, business groups exist in a variety of countries around the world, and they play a critical role in both emerging and mature markets (Khanna & Yafeh, 2005; Pedersen & Thomsen, 1997; Pedersen & Stucchi, 2014). Hence, the implications of our analysis transcend the Indian context.

THEORETICAL BACKGROUND

The advocates of the incremental view of internationalization and those of the big step hypothesis diverge on how organizations develop such more relevant knowledge (Eriksson et al., 1997; Johanson & Vahlne, 2009; Pedersen & Shaver, 2011).

The incremental view of internationalization emphasizes the critical role of experiential learning (Eriksson et al., 1997; Hutzschenreuter, Pedersen, & Volberda, 2007; Johanson & Vahlne, 1977). In this perspective, internationalization is the outcome of a learning process in which knowledge and routines developed in current operations are adapted in subsequent operations. In particular, experiential learning enables the acquisition of knowledge about how to manage geographically dispersed businesses abroad in order to limit spatial transaction costs (Beugelsdijk *et al.*, 2010). These are costs that increase as the degree of geographical dispersion among an organization's units rises (Jones & Hill, 1988) due to coordination difficulties, information asymmetries, and incentive misalignments (Chakrabarti, Singh, & Mahmood, 2007; Szulanski, 1997). The advocates of the big step hypothesis oppose to this view the evidence that first time international expansion requires an initial long time period as organizations need to accumulate sufficient knowledge, before they can expand abroad (Pedersen & Shaver, 2011). In this perspective, internationalization is a discontinuous process. First time internationalization is

10.5465/AMBPP.2015.134

drastically different from subsequent internationalization. An initial international expansion forces organizations to develop the required architecture. Having taken the first step in developing this architecture, organizations adopt it in additional foreign activities.

We endorse the big step hypothesis argument of the discontinuous nature of internationalization, but we argue that the main driver of internationalization is still a learning mechanism as in the incremental view, which, however, we claim, differs from adaptation-based experiential learning. In particular, the learning mechanism we suggest can be illustrated using the concept of exaptation, which originates from evolutionary biology (Gould, 1980; Gould, 1991). Evolutionary biologists distinguish adaptation, which relates to features built by selection for current use, and exaptation, which relates to features adopted for a particular purpose in a specific environment that are then used for a different purpose in a different environment (Gould & Vrba, 1982, 4).

The concept of exaptation has been applied in organizational learning research, which traditionally has regarded learning as adaptation though experience (Cohen & Levinthal, 1990; Levitt & March, 1988). Instead, exaptation refers to a situation in which the historical origin of a capability differs from its current applicability; this is distinct from replication of capabilities, which involves the repeated application of specific "templates" to similar operations (Winter & Szulanski, 2001).

HYPOTHESES DEVELOPMENT

The Effect of Domestic Geographical Dispersion

When organizations cross national borders, spatial heterogeneity changes abruptly as spatial transaction costs increase in a discontinuous manner, as a result of large communication costs (cultural differences, cognitive distance), lack of customer fit (cultural differences), coordination across time zones (geographic distance), contracting complexities (institutional distance) and consumer purchasing power (economic distance) (Beugelsdijk & Mudambi, 2013). FDI expansion indeed requires specific routines and capabilities, if spatially dispersed units are to be effectively coordinated within an organization across borders (Kogut & Zander, 1995); such requirement is even more stringent when organizations engage in FDI for the first time (Pedersen & Shaver, 2011). However, organizations that are geographically dispersed at home can exapt the capabilities developed to manage at distance in the domestic context to the international context. For these organizations, managing operations across national borders is not a replication of "acting at a distance" domestically, as the international and subnational domestic contexts are substantially different (Cantwell, 2009).

Instead, organizations that are geographically concentrated in their home country lack an opportunity to learn how to manage geographically dispersed businesses. Therefore, they face greater difficulties to cope with the higher spatial transaction costs associated to the management of operations across national borders, which makes their initial engagement in FDI less likely. The "easier to manage" conditions of geographically concentrated organizations obviate the need to develop the flexible management capabilities needed to run complex organizational structures across space. Hence, our first hypothesis is:

> *Hypothesis 1: Domestic geographical dispersion is positively associated with the probability of engaging in FDI for the first time.*

10.5465/AMBPP.2015.134

The Limits of the Effect of Domestic Geographical Dispersion

Does the effect of organization's domestic geographical dispersion on its FDI expansion last over time? FDI-based experience in international contexts eases the acquisition of knowledge in managing cross-border operations (Eriksson *et al.*, 1997). FDI operations ease the development of routines specifically related to the international context, which include organizational rules, procedures, and conventions, as well as underlying knowledge and belief structures, and, as a result, enable organizations to function by relying on ad hoc codified scripts (Cyert & March, 1963; Nelson & Winter, 1982). Therefore, experience accumulated through FDI is superior to the exaptation of capabilities used in the domestic context, and critical for subsequent FDI expansion (Eriksson et al. 1997).

Hence, experience gained through FDI activities can serve as a substitute for exapted capabilities of managing geographically dispersed businesses developed at home. In other words, the capabilities associated to domestic geographical dispersion are essential when organizations engage in FDI for the first time, but lose relevance for subsequent FDI expansion when complex international experience has become available. This leads to our next hypothesis:

Hypothesis 2: Accumulated FDI experience serves as a substitute for domestic geographical dispersion in the extent of subsequent FDI expansion.

Does the effect of organization's domestic geographical dispersion on its initial FDI expansion depend on the type of domestic locations in the organization's portfolio? Disparities in economic development, resource availability, and institutional quality between urban and non-urban areas within a country's borders are often substantial (Henderson, 2002; The World Bank, 2013). The origin of these disparities is Jacobs (diversification) externalities in urbanized areas (Jacobs 1969), which arise from a diversified local production structure, a well-functioning infrastructure of transportation and communication, proximate markets, and better access to specialized services (Beaudry & Schiffauerova, 2009). Hence, an organization's dispersion in highly or less urbanized domestic areas influences the costs and benefits of managing businesses across space.

Organizations dispersed in highly urbanized domestic areas can enjoy Jacobs externalities. These externalities eventually lower spatial transaction costs, and make it easier to learn about managing businesses across space, because they offer a well-functioning transportation and communication infrastructure and access to specialized services. In addition, the diversified local production structure of more urbanized domestic areas is conducive to the exchange of skills, knowledge, and information (Harrison, Kelley, & Gant, 1996), which organizations can expt to the international context, as FDI flows connect urban areas around the globe (Beaverstock, Smith, & Taylor, 1999; Goerzen, Asmussen, & Nielsen, 2013; Nachum & Wimbs, 2005).

Instead, for organizations that are mainly geographically dispersed in less urbanized domestic areas, the lack of Jacobs externalities makes learning to manage businesses across space harder. In addition, these organizations develop experience in coping with the shortage associated with less urbanized areas that cannot be easily exapted in the international context (Beaverstock et al., 1999; Goerzen et al., 2013; Nachum & Wimbs, 2005). The lack of a

10.5465/AMBPP.2015.134

supporting local context requires organizations to make specific commitments of resources, which might otherwise have been allocated to other activities, such as investments abroad.

This discussion suggests that the organization's portfolio of sub-national domestic locations limits the positive effect of exaptation on the probability of engaging in FDI for the first time when domestic businesses are mainly dispersed across less urbanized areas. Hence, our third hypothesis is:

> *Hypothesis 3: Domestic geographical dispersion in highly urbanized sub-national areas has a greater positive effect on the probability of engaging in FDI for the first time than domestic geographical dispersion in less urbanized areas.*

METHODOLOGY

Our sample covers 641 Indian business groups, which we observe over a ten-year period (from 2001 through 2010), giving a total of 5,824 business group-year observations. For each of these business groups we collect annual financial data from the Prowess database (2011), provided by the Centre for Monitoring of the Indian Economy (CMIE). To identify Indian business groups investing abroad, we use the Zephyr database from Bureau van Dijk, which collects information on cross-border deals. Data concerning the level of urbanization in Indian states are drawn from the Indian Census 2001 and 2011.

The skills and knowledge required for initial internationalization differ from those required for subsequent internationalization (Johanson & Vahlne, 1977). To model these separate processes, we rely on the hurdle model, which reflects a two-stage decision-making process (Polhmeier & Ulrich, 1995). The model first estimates whether an organization is able to jump the first internationalization hurdle given that it has not done so before. The dependent variable for the first step is therefore a dummy (*first time FDI*) that takes a value of 1 if the firm internationalizes for the first time and 0 otherwise. In the second step, the model estimates the extent of further internationalization given that the firm has already internationalized for the first time. The dependent variable for the second step is therefore a count variable (*subsequent FDI*) that counts how many times the organization has engaged in FDI (with all values strictly greater than 0).

To operationalize business groups' domestic geographical dispersion and test H1, we rely on the postal index numbers of the plants of the business groups' affiliates (see Fisman & Khanna, 2004, for a similar approach). To measure *domestic geographical dispersion*, we use the one-year lag of an inverse Herfindahl index (see, e.g., Allayannis, Ihrig, & Weston, 2001). To test the limits of the effect of domestic geographical dispersion over time (H2), we calculate *FDI experience*, which we measure as the one-year lag of the natural logarithm of the cumulative number of FDI activities undertaken by the business group since the year 2000. To test the limit of the effect of domestic geographical dispersion across space (H3), we first classify the Indian states as highly (*HU*) or less urbanized (*LU*) based on the level of urbanization. We then define the dummy variable, *BGs in LU*, which takes a value 1 if business groups are mainly dispersed in less urbanized states and 0 otherwise. In order to test H3, we use this variable to split our sample and then run an inter-model test that looks for a statistically significant difference between the two coefficients. In all models we control for business group export experience, JV experience, industrial diversification, profitability, intangibles, age, size and industry

10.5465/AMBPP.2015.134

As no hurdle model is available for panel data, we use a pooled cross-section of all observations available in the period from 2001 through 2010 corrected for robust variance estimate that adjusts for within-business group correlation, and we account for the time dimension by using year dummies. We limit endogeneity concerns by including the lag of the independent variable.

We find support for all our hypotheses. *Domestic geographical dispersion* is positively ($p < 0.01$) associated with first time internationalization. *FDI experience* is positively ($p < 0.01$) associated with *subsequent FDI,* while *domestic geographical dispersion* is not significantly associated with subsequent FDI. *Domestic geographical dispersion* for *BGs in HU* is significantly larger than the coefficient of *domestic geographical dispersion* for *BGs in LU* (chi2(1) = 4.67, $p < 0.05$).

CONCLUSIONS

Our study seeks to advance research on international business related to the role of discontinuities in geographical space when organizations internationalize (Beugelsdijk & Mudambi, 2013). We focus on the domestic geography of organizations and unpack the home-country space into the different places in which organizational units are located in order to investigate the effects of geographical dispersion at home on internationalization. We frame our study within the debate between the big step hypothesis and the incremental view of internationalization, and draw on recent developments on organizational learning and economic geography to argue and empirically show that accounting for domestic geography in the internationalization process enables us to identify a specific type of learning, which we refer to as exaptation, a term drawn from evolutionary biology. Knowledge about how to manage organizational units across space can be acquired through domestic geographical dispersion and then exapted to international contexts. In addition, we speculate about and find empirical evidence of the limits of learning through exaptation over time and across space. Over time, this type of learning is substituted with first-hand experiential learning in the international context. Moreover, learning through exaptation critically depends on the organization's portfolio of domestic sub-national areas. Exaptation opportunities arise in sub-national areas that are similar to the foreign locations that organizations typically target when going abroad.

Our study advances recent research aimed at enhancing our understanding of the geographical aspects of multinational organizations' behavior. In particular, we add to this stream of research by unpacking the home-country space into different places, by looking at spatial heterogeneity at the domestic sub-national level and relating it to internationalization. In this regard, we highlight the relevance of the sub-national dimension in relation to outward FDI. Our study also paints a more nuanced picture of the role of sub-national variation in internationalization, as we identify specific time and space constraints.

In addition, our study offers conceptual arguments and empirical evidence on the discontinuous nature of this process, which in the initial step is driven by a learning mechanism based on the exaptation of capabilities developed to manage geographically dispersed units at home to the international context. However, in subsequent steps such a mechanism is replaced by learning through experience in the international context. In addition we offer theoretical arguments for the time and space constraints of learning though exaptation.

REFERENCES AVAILABLE FROM THE AUTHORS