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Storming the Beachhead: An Examination of Developed and Emerging Market Multinational Strategic Location Decisions in the U.S.

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Abstract: Entering a foreign market is challenging given the fierce competition posed by local incumbents. The literature suggests that when entering a foreign market, it is advantageous to locate where there are agglomeration benefits. Given the dynamic nature of regional development, foreign firms have multiple location options. While the literature has primarily focused on developed country multinationals' (DMNEs) location decisions, emerging market multinationals (EMNEs) are increasingly becoming influential in high-tech industries. Due to differences in DMNE and EMNE resource endowments, they may consider alternative options when locating abroad and, thus, we examine these nuances. Using multinomial logistic regression, we investigate domestic and foreign location patterns of firms within the U.S. biopharmaceutical industry as of 2018. We constructed a unique dataset of 19,962 U.S. locations and examined the location patterns of DMNEs and EMNEs from 61 countries and territories. Given the heterogeneity of regional development in the U.S., we developed a typology that stratifies regions into four categories (developed, growth, transitioning, and nascent). Counterintuitively, we find that foreign multinationals are more likely to be attracted to less developed regions than domestic firms and have different location patterns, not only compared to domestic firms, but also with respect to each other.

Keywords: multinationals; location decisions; regional resources; DMNE; EMNE; foreign direct investment; biopharmaceutical industry; resource-based view

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1. Introduction

Firms engage in foreign direct investment (FDI) to seek out new resources or strategic assets that their home country lacks and/or to exploit superior firm-specific capabilities (e.g., Dunning and Lundan 2008; Kuemmerle 1999; Paul and Singh 2017; Wu and Vahlne 2020). Where foreign multinationals choose to locate their overseas operations has been a topic of extensive debate in the international business (IB) literature as it involves many different considerations (e.g., culture, language, institutions, etc.) (e.g., Alcácer and Chung 2007, 2014; Bathelt and Li 2014; Dunning and Lundan 2008; Porter 1990). There is ample evidence supporting the benefits of being geographically concentrated in specific and highly developed locations (e.g., Silicon Valley) compared to others (Almeida and Kogut 1999; Elia et al. 2020; Porter 1990). Doing so allows firms to gain access to resources (e.g., specialized labor) (Zaheer and Nachum 2011), accrue agglomeration benefits (Lamin and Livanis 2013; Shaver and Flyer 2000), exploit knowledge spillovers (Almeida and Kogut 1999; Porter 1990; Vestal and Danneels 2018), and reduce the liability of foreignness (Zaheer 1995). Some benefits, such as knowledge spillovers, have been shown to be geographically bounded by country and by industry (Jaffe et al. 1993; Pavitt and Patel 1999).

Scholars have predominantly focused on the benefits/disadvantages of locating within/outside well-developed regions (Morosini 2004; Sturgeon 2003; Turkina and Assche 2018). Drawing upon the resource-based view and the international business literature, we

suggest that there is a larger story that has yet to be told about why locating outside of well-developed regions matters for foreign direct investment. We propose that under-developed regions may also have positive externalities to which foreign firms, in particular, may be attracted (e.g., growth potential, less competition, incentives, etc.) beyond mere cost considerations. Hence, the focus of our study is on examining where foreign firms, within a competitive and high-tech industry in the U.S., known for its relatively few, but regionally strong and well-developed hub locations (e.g., California, Massachusetts), choose to locate outside of these regions. These less-developed regions vary widely in their resource endowments, prompting the necessity to study their nuances and how they may present unique opportunities especially for foreign firms. In this regard, we seek to answer the following questions: Compared to domestic firms, do foreign multinationals follow similar location decision patterns within a country? Further, do these patterns differ among developed country multinationals (DMNEs) and emerging market multinationals (EMNEs)?

In our study, we investigate domestic versus foreign multinational location decisions in the biopharmaceutical industry. We built a unique dataset consisting of 19,962 U.S. locations as of 2018, including 3287 DMNE and EMNE locations from 61 countries and territories. Grounded in a new typology, we propose a different perspective that goes beyond dichotomous location choice models (i.e., developed versus other locations). We stratify regions into four types based on the characteristics of their regional development (i.e., developed, growth, transitioning, and nascent). Using multinomial regression and network analysis, we uncovered some interesting findings regarding foreign location decisions within the U.S.

Our study provides counterintuitive evidence that foreign multinationals are more likely to locate outside of developed regions than domestic firms. Furthermore, foreign multinationals are found to have different location patterns, not only compared to domestic firms, but also with respect to each other. Our research adds to the growing body of literature that recognizes the importance of studying not only DMNE location decisions, but also where EMNEs choose to locate when entering competitive high-tech industries where domestic incumbents are firmly rooted (e.g., Li et al. 2018). In addition, we add to the literature by examining domestic and foreign firms conjointly, which offers new insights and provides a more holistic picture of strategic location decisions.

2. Theory and Hypotheses

2.1. Resources and Competitive Advantage

The resource-based view (RBV) of the firm considers resources to be the source of a firm's sustained competitive advantage (Barney 1991). Resources that are valuable, rare, inimitable, and non-substitutable offer firms an advantage in highly competitive industries and markets (Barney 1991). A recent literature review noted the growing importance of using the RBV to study international business phenomena, especially in regard to multinational competitive behavior (e.g., FDI behavior, location choice, etc.) (Beamish and Chakravarty 2021). Foreign multinationals engage in FDI to gain access to unique resources that their home country lacks, and location choices are made to position the firm for the optimal exploitation of these resources (Beamish and Chakravarty 2021). Several studies have employed the RBV to examine multinationals in different contexts including the examination of how knowledge resources impact international diversification success (Fang et al. 2007), how superior resources can expose firms to risk (Dai et al. 2017), and how key resource attributes can influence the performance of international joint ventures (Ainuddin et al. 2007).

2.2. Regional Resource Endowments

Firms tend to locate in resource-rich regions where they can benefit from not only the resources themselves, but also from the exchange of knowledge that accompanies being in close proximity to others (Kuemmerle 1999; Porter 1990). In this context, the extant literature has long established the benefits of agglomeration (Ghemawat and Thomas 2008;

Lamin and Livanis 2013; Livanis and Lamin 2016; Stallkamp et al. 2018). The geographic, social, and cognitive proximity of firms that are located in highly developed regions can create a vibrant environment that enhances productivity and the development of complementarities (Porter 1990). Further, they are repositories of idiosyncratic resources (e.g., skilled labor) and knowledge (Alcácer 2006; Lamin and Livanis 2013; Porter 1990; Shaver and Flyer 2000), facilitate knowledge spillovers (Alcácer and Chung 2007; Grillitsch and Nilsson 2017; Jaffe et al. 1993), and stimulate innovation (Aharonson et al. 2008; Turkina and Assche 2018). The decision to locate within or outside of a developed region has been an important topic of conversation in the IB literature and has important strategic consequences for firm growth, innovation, and competitiveness.

While numerous country-level factors have been explored to explain why foreign multinationals choose one country over another (e.g., economic, institutional, etc.), research into how the bundle of regional-level resources can attract foreign firms to specific locations is underdeveloped, and even more so for EMNEs (Beamish and Chakravarty 2021; Elia et al. 2020; Li et al. 2018). The extant literature provides some guidance into those critical resources that are particularly influential in regional development and in attracting firms. These include having the ability to access a highly specialized workforce (Porter 1990; Shaver and Flyer 2000), the opportunity to establish proximity close to other innovative firms (Aharonson et al. 2008; Porter 1990; Turkina and Assche 2018), and the accessibility of nearby, knowledge-rich universities (Giuliani and Arza 2009; Laursen et al. 2011; Libaers and Dunlap 2018). These often desirable FDI locations (Dunning and Lundan 2008; Kuemmerle 1999) are also well-known for having access to venture capital (Kolympiris et al. 2011). Building on the RBV, we argue that these key resources will be particularly influential in the location decisions of high-tech firms. Remaining competitive requires that firms maintain access to a skilled labor force in terms of knowledge and expertise. Further, it is advantageous for firms to locate in regions that are innovative, that foster intra-industry collaborations, and are in close proximity to academic intellectual capital. These locations are further desirable since they also tend to consistently attract FDI and have a robust venture capital ecosystem in which firms are more easily able to secure financing. Taken together, while not all regions may possess equal representation of these resource endowments, they can collectively provide firms with positive externalities and may serve to hold tremendous opportunities for firms to sustain a competitive advantage in highly dynamic and global environments.

2.3. Domestic and Foreign Multinational Location Choices within a Country

Locations that are often characterized as developed tend to have well-established regional economies and advanced technological infrastructure. These resource-rich environments create an ideal setting for innovation as firms can draw upon intra-industry benefits, such as a sophisticated labor pool, highly specialized suppliers, and localized knowledge spillovers among competitors. These locations attract the best talent and are centers of the most current and best-in-class technological knowledge. Furthermore, these locations are built-up over time, largely by the efforts of domestic firms, and encompass "a country's overall science and technology policy environment, the mechanisms in place for supporting basic research and higher education, and the cumulative "stock" of technological knowledge upon which new ideas are developed and commercialized" (Furman et al. 2002, p. 900).

Although well-developed regions represent a potential windfall of knowledge and resources, their attractiveness also leads to direct competition with large local incumbents. In highly competitive environments, the RBV suggests that a sustained competitive advantage may be virtually impossible to secure (Fiol 2001), especially for new entrants. Thus, foreign multinationals may find that locating in well-developed regions actually exacerbates the liability of foreignness (Zaheer 1995), rather than alleviating it. Less developed regions, conversely, may be an attractive option because they are not as competitive, despite an underdeveloped system of resource commonalities and complementarities (Porter 2000),

which may encourage more frequent collaboration among firms or promote first-mover advantages (Bresnahan et al. 2001). This less competitive environment may be more welcoming to foreign multinationals and may help to alleviate the liability of foreignness (Zaheer 1995). Furthermore, less developed regions may also be sources of lower cost rent and labor, greater growth opportunities, and may be less competitive in terms of access to venture capital and research grants. While the availability of resources and competitive dynamics may result in differences in domestic and foreign multinational location decisions, the extant literature suggests that foreign multinationals bring capabilities with them (e.g., Ghemawat 2017; Hymer 1976; Paul and Singh 2017; Wu and Vahlne 2020) and, thus may not seek the same resources as domestic firms when choosing a location (Zaheer et al. 2009).

Domestic firms and foreign multinationals may not benefit to the same extent by locating in the same region (e.g., Li et al. 2018; Shaver and Flyer 2000). A firm's strategy will influence its location decisions (Zaheer et al. 2009). Some firms may choose to locate in less developed regions as a deliberate strategy, having considered the region's potential to grow in the future and where they may more easily become the dominant incumbent firm over time. Prior studies have shown that growth is driven by rivalries, which promotes coopetition and the development of resource complementarities (Harmancioglu and Tellis 2018). While a particular region may initially attract domestic firms, when a certain critical mass is achieved, it may then begin to attract foreign multinationals as well. However, higher concentrations of domestic firms have been found to be associated with reduced knowledge spillovers to foreign multinationals because they are considered to be outsiders (Cantwell and Mudambi 2011) and lack legitimacy. Unlike their domestic counterparts, foreign multinationals must also contend with the liability of foreignness (Zaheer 1995). Based on these arguments, we hypothesize that foreign multinationals, compared to domestic firms, will seek to explore resource advantages outside of highly developed regions.

Hypothesis 1. *Compared to domestic firms, foreign multinational firms are more likely to locate outside of highly developed regions.*

2.4. DMNE vs. EMNE Location Decisions

The geographic distribution of foreign multinational activities (e.g., R&D and manufacturing) around the world allows these firms to supersede local resource limitations by locating in resource-rich regions (Ketels 2008; Mudambi and Swift 2010), which can significantly enhance their competitive advantage (Dunning 2008; Porter 1990). Strategic location decisions are a crucial organizational consideration for these firms (Buckley and Ghauri 2004; Dunning 1998; Dunning and Lundan 2008; Kim and Aguilera 2016; Nielsen et al. 2017). The complex nature of these decisions is not to be taken lightly as they are costly, not easily reversible, and can influence a firm's long-term competitive advantage.

Recent studies have advocated for the application of the RBV to better understand the rapid expansion of EMNEs (Beamish and Chakravarty 2021). Scholars have observed that EMNEs engage in FDI to acquire strategic assets and technologies to improve their global competitiveness (e.g., Gammeltoft and Hobdari 2017). Li and colleagues (2018) were one of the first in the literature to elevate the importance of distinguishing between DMNE and EMNE location decisions. They found that sixty-four percent of the articles written about multinational location decisions were focused on DMNEs. While the extant literature has focused predominantly on DMNEs, in the last decade, EMNEs have substantially increased their overseas presence, led primarily by Chinese multinationals (Casanova and Miroux 2019). However, differences in cultures, institutions, economics, and resource endowments among DMNEs and EMNEs suggests that there must be different motivations behind where they decide to locate within a country.

Prior studies have shown that there are significant differences in the location decisions of DMNEs and EMNEs (Li et al. 2018). For example, research has found that DMNEs are

more likely to locate in close proximity to highly developed regions if the cultural distance between the home and host country is high (Ambos 2005). Conversely, Chinese EMNEs are not dissuaded from locating in culturally distant host countries (Kang and Jiang 2012; Quer et al. 2012). Furthermore, Jindra et al. (2016) found that EMNEs are more likely to locate in regions with a higher population density due to the liability of foreignness (Zaheer 1995) and in regions with a workforce specialized in science and technology and with highly localized R&D activities. Zhu and colleagues (2012) find that EMNEs tend to locate in regions within the U.S. that have a higher proportion of firms from their home-country and from the same industry. Taken together, these findings provide support for the examination of DMNE and EMNE location decisions separately, and also substantiate the need for additional research on EMNEs.

Different regions convey different signals about the resources and quality of the firms located there. By locating in a well-developed region, firms not only gain access to valuable resources and knowledge that they lack, but also convey a stronger signal about their capabilities, the quality of their talent, and legitimacy to potential investors, partners, and competitors (Porter 1990, 2000). We argue that since EMNEs may lack legitimacy to a greater extent than DMNEs and are often considered to be technological laggards (e.g., Awate et al. 2012; Dunlap and Klueter 2018; Li and Kozhikode 2008), they may be more likely to locate in regions that are highly developed. Prior studies have found that locating in less developed regions carries additional costs, particularly in the form of information disadvantages (Tallman and Phene 2007) and exacerbating the liability of foreignness (Zaheer 1995). Furthermore, studies have shown that technology laggards are deterred from locating in regions with higher concentrations of firms because they are unable to form local connections to benefit from local knowledge stocks (e.g., Cantwell and Mudambi 2011). Based upon the aforementioned rationale, we hypothesize that EMNEs will be less inclined to locate outside of developed regions than DMNEs.

Hypothesis 2. *Compared to DMNEs, EMNEs are less likely to locate in less developed regions.*

3. Materials and Methods

3.1. Sample and Procedure

As the largest global biopharmaceutical market, the United States is a unique setting for this study as its regional development varies widely among the states. Furthermore, data on this industry that covers worldwide locations are difficult to obtain. We constructed a unique dataset comprised of a total of 19,962 U.S. locations as of 2018. Our dataset includes 3287 DMNE and EMNE locations. These firms represented 61 countries and territories. We also gathered data on the type of facility for each location (e.g., R&D or manufacturing). We collected our data primarily from the Medtrack database. Additional data on U.S. regional economic and performance characteristics were obtained from the U.S. Cluster Mapping Project database, U.S. Census Bureau, Bureau of Economic Analysis, VentureDeal, and the United States Patent and Trademark Office.

We employ multinomial logistic regression to examine (1) the likelihood of a foreign multinational locating in one region over another compared to domestic firms and (2) the important differences between DMNEs and EMNEs. We also employ network analysis to explore the relationships between DMNEs and EMNEs and the U.S. regions in which they locate to better understand the complexity of these relationships.

3.2. Measures

3.2.1. Dependent Variable

For our dependent variable, *Region*, we created a new typology that classified U.S. states according to their degree of regional development: developed, growth, transitioning, and nascent. We ranked each U.S. state according to the key regional development resource characteristics. The top five states accounted for nearly 50% of the data (47.1%) and

represented developed regions. We then partitioned the next ten states in a similar fashion to represent the growth and transitioning regions, each comprising five states. Taken together, the developed, growth, and transitioning regions represented 77.8% of the data (i.e., the top fifteen states). The remaining states, collectively, had little representation and did not present a clear demarcation of the next top five states given their similarity and, thus, we grouped them into the nascent region (representing 22.2% of the data). We verified the differences between these groups with a series of t-tests (developed vs. growth, $t = 49.35$, $p < 0.01$; growth vs. transitioning, $t = 24.57$, $p < 0.01$; transitioning vs. nascent, $t = -29.38$, $p < 0.01$).

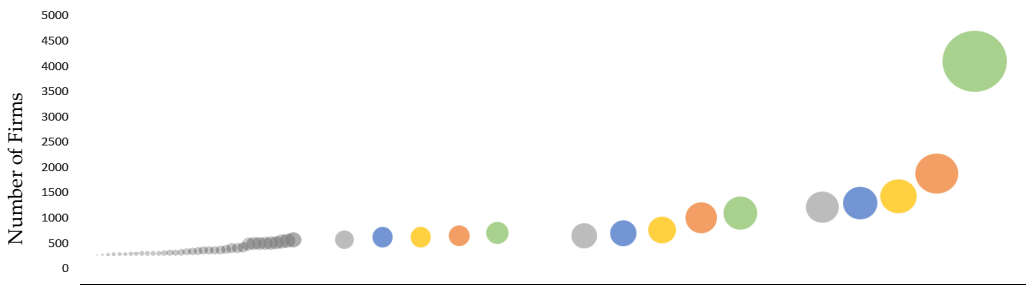
Table 1 illustrates the average values for each resource characteristic used in our typology. On average, developed regions have greater resource endowments than growth, transitioning, or nascent regions, especially in terms of workforce specialization, universities, FDI, and venture capital. Growth regions are characterized by strong innovation and establishment growth that outperforms that of developed regions, but still lag behind in terms of universities and venture capital. Transitioning regions are building their venture capital ecosystems, which attracts increased FDI. Nascent regions lag behind other regions in many respects, but do have something to offer, especially in terms of a skilled workforce (mostly in manufacturing) and increasing innovation and establishment growth. Table 2 illustrates the states that belong to each of these regions as well as the number of firms from each state.

Table 1. Regional development typology and resource characteristics[1].

Region Type / Characteristic	Nascent Region	Transitioning Region	Growth Region	Developed Region
Workforce Specialization (Location Quotient)	0.86	0.59	1.10	1.62
Innovation Growth (%)	29.76	22.31	33.91	23.85
Establishment Growth (%)	19.23	8.34	16.36	13.75
Universities (Qty.)	1.21	2.28	4.15	12.24
FDI (No. Jobs/10,000 GDP)	9.56	16.81	34.68	48.33
Venture Capital ($/10,000 GDP)	8.18	10.80	7.65	55.41

Increasing Region Development

Table 2. Regional Development Composition by U.S. State.



Nascent Region	Transitioning Region	Growth Region	Developed Region
All Other States	Ohio	Texas	California
	Minnesota	Florida	Massachusetts
	Georgia	North Carolina	New Jersey
	Washington	Maryland	New York
	Michigan	Illinois	Pennsylvania

3.2.2. Independent Variable

We created a categorical independent variable that captures whether the parent firm is headquartered in the U.S., or whether it is a DMNE or EMNE. We established the differences between DMNEs and EMNEs by using the World Economic Situation and Prospects (WESP) report (United Nations 2018), which classifies countries of the world into one of three broad categories: developed economies, economies in transition, and developing countries. We use the developed economies category for DMNEs and the remaining countries are categorized as EMNEs.

3.2.3. Control Variables

To minimize the possibility of omitted variable bias, we control for certain observable variables that could affect foreign multinationals' decision to locate in a particular region. We create the variable *Public* that captures whether the firm is publicly traded on a U.S. or foreign stock exchange (treated as a binary variable), *Workforce Specialization* as measured by the Location Quotient (i.e., the ratio of an industry's share of total state employment in a location relative to its share of total national employment) (Delgado et al. 2010, 2014), *Innovation Growth* as measured by the percentage change in biopharmaceutical utility patent grants within each U.S. state (Delgado et al. 2010, 2014), *Establishment Growth* as measured by the percentage increase or decrease in the number of physical biopharmaceutical locations within each U.S. state (Delgado et al. 2010, 2014), *Universities* as measured by the number of 4-year universities in the state, *FDI* as measured by the number of jobs created per $10,000 of FDI (Delgado et al. 2010, 2014), *Venture Capital* as measured by the dollar amount of venture capital available per $10,000 GDP by state (Delgado et al. 2010, 2014), and whether the facility in the focal state represents an *R&D Location* or *Manufacturing Location* (both measured as binary variables).

4. Results

We report descriptive statistics and pairwise correlations between variables in Table 3 and the results of the multinomial logistic regression models in Table 4.

In Model 1, we examine whether foreign multinationals are more likely to locate outside of developed regions compared to domestic firms. We find that the coefficient for DMNE is positive and significant for growth (b = 1.313, $p < 0.01$), transitioning (b = 1.077, $p < 0.01$), and nascent (b = 1.651, $p < 0.01$) regions. Exponentiating these results suggests that, compared to U.S. firms, the odds of a DMNE locating in a growth region is 272% higher, locating in a transitioning region is 194% higher, and locating in a nascent region is 421% higher than locating in a developed region. We find that for EMNE, the coefficient for growth regions (b = 0.747, $p < 0.01$) and transitioning regions (b = 0.672, $p < 0.05$) is positive and significant. For nascent regions, the coefficient for EMNE (b = 0.524, n.s.) is negative and insignificant. Exponentiating these results suggests that, compared to U.S. firms, the odds of an EMNE locating in a growth region is 111% higher, locating in a transitioning region is 96% higher, and locating in a nascent region is not significantly different than locating in a developed region. Hypothesis 1 predicts that compared to domestic firms, foreign multinationals are more likely to locate outside of highly developed regions. Thus, we find that Hypothesis 1 is largely supported. Furthermore, Hypothesis 2 predicts that compared to DMNEs, EMNEs are less likely to locate in less developed regions. As none of the coefficients on EMNE were greater than those of DMNE across the different regions, we find support for Hypothesis 2.

Table 3. Descriptive statistics and correlations.

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Region	1.000										
2. U.S./DMNE/EMNE	**−0.053**	1.000									
3. Public	−0.003	**−0.190**	1.000								
4. Workforce Specialization	**−0.520**	**−0.082**	−0.001	1.000							
5. Innovation Growth	**−0.094**	**−0.019**	−0.002	**−0.154**	1.000						
6. Establishment Growth	**−0.118**	**−0.040**	**−0.028**	**−0.162**	**−0.394**	1.000					
7. Universities	**−0.744**	0.012	−0.010	**−0.335**	**−0.068**	**−0.039**	1.000				
8. FDI	**−0.690**	0.009	−0.006	**−0.225**	**−0.055**	**−0.067**	**0.796**	1.000			
9. Venture Capital	**−0.596**	−0.005	−0.013	**−0.332**	**−0.137**	**−0.199**	**0.677**	**0.585**	1.000		
10. R&D Location	−0.012	**0.065**	**0.061**	0.011	−0.011	**−0.020**	−0.009	−0.009	−0.006	1.000	
11. Manufacturing Location	**0.070**	**0.076**	**0.148**	**−0.040**	0.009	**−0.016**	**−0.064**	**−0.051**	**−0.074**	**−0.042**	1.000
Mean	2.079	1.200	0.173	1.240	27.020	14.932	7.113	33.641	30.613	0.030	0.058
S.D.	1.208	0.478	0.378	0.667	19.421	12.548	6.173	23.266	33.005	0.170	0.234

Correlations in bold are significant at the $p < 0.05$ level.

Table 4. Multinomial logistic regression results.

	Model 1			Model 2		
Variable	**Growth Region**	**Transitioning Region**	**Nascent Region**	**Growth Region**	**Transitioning Region**	**Nascent Region**
DMNE	**1.313** ***	1.077 ***	1.651 ***	1.310 ***	1.068 ***	1.647 ***
	(0.264)	(0.305)	(0.328)	(0.256)	(0.300)	(0.323)
EMNE	0.747 ***	0.672 **	0.524	0.671 ***	0.585 **	0.449
	(0.205)	(0.315)	(0.408)	(0.127)	(0.273)	(0.378)
Public	1.079 ***	1.573 ***	1.401 ***	−10.675	−12.830	−11.642
	(0.260)	(0.271)	(0.310)	(11.366)	(11.271)	(11.767)
Workforce Specialization	−12.592 ***	−44.069 ***	−38.465 ***	−16.432 ***	−48.701 ***	−42.692 ***
	(1.652)	(7.640)	(7.350)	(3.915)	(6.773)	(6.516)
Innovation Growth	0.731 ***	0.654 ***	0.399 ***	0.726 ***	0.647 ***	0.393 ***
	(0.112)	(0.088)	(0.088)	(0.104)	(0.075)	(0.075)
Establishment Growth	0.158	0.456 **	1.796 ***	0.160	0.464 **	1.802 ***
	(0.230)	(0.247)	(0.268)	(0.210)	(0.232)	(0.256)
Universities	−2.666	−16.160 ***	−21.543 ***	−2.546	−16.056 ***	−21.435 ***
	(2.402)	(4.813)	(4.948)	(1.925)	(4.745)	(4.890)
FDI	−0.623 ***	−2.210 ***	−4.198 ***	−0.635 ***	−2.219 ***	−4.210 ***
	(0.200)	(0.480)	(0.529)	(0.156)	(0.447)	(0.498)
Venture Capital	−1.970 ***	−3.814 ***	−8.075 ***	−1.958 ***	−3.797 ***	−8.065 ***
	(0.193)	(0.489)	(0.633)	(0.412)	(0.485)	(0.633)
R&D Location	1.193 ***	0.964 **	0.655	−5.831	−7.617	−7.118
	(0.329)	(0.420)	(0.429)	(6.656)	(6.601)	(6.899)
Manufacturing Location	1.120 ***	1.054 ***	1.040 ***	−4.610	−5.976	−5.321
	(0.232)	(0.305)	(0.288)	(5.478)	(5.420)	(5.669)
Inverse Mills Ratio				−23.729	−28.874	−26.240
				(23.526)	(23.243)	(24.200)
Intercept	58.372 ***	165.596 ***	238.159 ***	102.200 **	218.725 ***	286.607 ***
	(13.683)	(27.902)	(29.920)	(49.296)	(41.062)	(43.034)
N		19,962			19,962	
Pseudo R^2		0.930			0.930	
Log Pseudolikelihood		−1744.1			−1743.7	

** $p < 0.05$; *** $p < 0.01$ Robust clustered standard errors reported in parentheses.

4.1. Robustness Check

In Model 2, we account for the possibility of selection bias associated with location decisions. We follow the Heckman (1979) method of correcting for sample selection using a two-stage model. In a first stage, we estimate a probit model to estimate the probability of a foreign multinational locating in the U.S. and calculate the inverse Mills ratio using an additional regressor that captures whether the firm had previously established a presence in the given state. Then, we incorporate the inverse Mills ratio as an additional regressor in the second stage models. The results of Model 2 were consistent with those of Model 1 in terms of sign and magnitude. Furthermore, the inverse Mills ratio was found to be insignificant, which suggests that there is no evidence of selection bias.

4.2. Post hoc Network Analysis

Given that there are differences in DMNE and EMNE location choices, this prompted us to map the network relationships between DMNEs and EMNEs and the U.S. states in which they locate. Referring to Figure 1, we find that firms from developed economies are clustered near the center of the network and those firms from emerging markets tend to be located on the periphery. The same pattern is found with respect to our categorization of regions. States that represent developed regions tend to be located towards the center of the network, followed by states located in growth, transitioning, and nascent regions as you move outwards from the center. The size of the circles represents the number of firms from a given country/number of foreign firms located in a given state. The thickness of the arrows represents the strength of the relationship between the foreign country and the state. The thicker the arrow, the greater the number of firms from that country that are located in the given state.

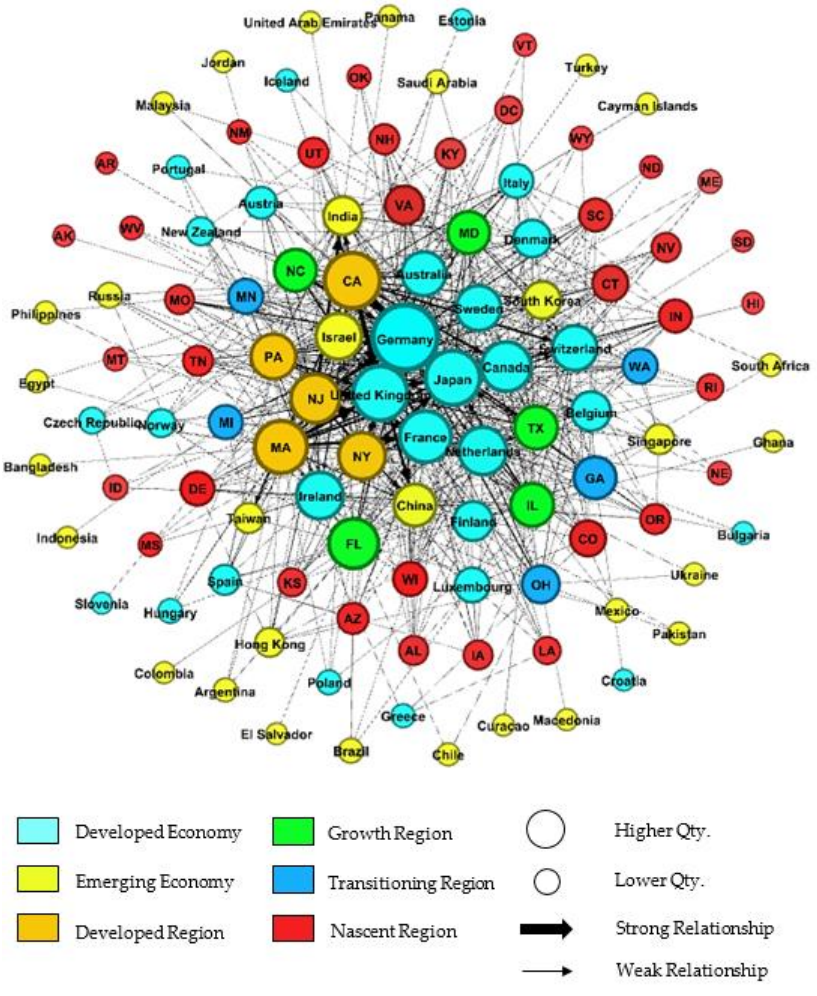


Figure 1. Analysis of DMNE and EMNE location relationships.

We find that firms from the Triad (i.e., North America, Western Europe, and Japan) largely occupy a more central position within the network, which means that firms from developed countries such as Germany, France, United Kingdom, Japan, and Canada have established more locations in the U.S. than other countries. Furthermore, we see from the thickness of the arrows that these countries have strong relationships with developed regions (the states of California, Massachusetts, New York, New Jersey, and Pennsylvania). Interestingly, we find that EMNEs from India, Israel, China, and South Korea have migrated from the periphery of the network towards the center, which enhances their legitimacy and puts them on a path to become influential players. This is insightful as EMNEs are often perceived as laggards in high-tech industries (e.g., Awate et al. 2012; Li and Kozhikode 2008), such as the biopharmaceutical industry (e.g., Dunlap and Klueter 2018).

5. Discussion

5.1. General Discussion

This study departs from the majority of studies that focus on FDI at the country-level in two major respects: (1) it examines where foreign firms locate within a country based on a regional typology and (2) it tests foreign location decisions conjointly with where domestic firms locate. Our results provide counterintuitive evidence that, compared to domestic firms, foreign multinationals are more likely to be attracted to less-developed regions. This result is particularly surprising, given our context of the biopharmaceutical industry, which tends to be predominantly located in a few well-developed regions, such as California and Massachusetts. Overall, our study suggests that there may also be some underexplored market entry advantages to locating outside of well-developed regions.

Our research suggests that when locating outside of well-developed regions, there are various options available to foreign multinationals (i.e., growth, transitioning, and nascent). Given the dynamic and slow-evolving nature of regions, foreign firms that choose to locate in less developed regions may find themselves at an advantage in terms of access to resources and first-mover advantages, for example. Foreign firms that locate in less developed regions may be afforded the opportunity to play a more dominant role in the growth of the region, which enhances their legitimacy in the industry and with other firms in the region. For instance, foreign firms in other industries have also reaped the benefits of locating in less developed regions (e.g., German automaker BMW's and Chinese appliance manufacturer Haier's decision to locate in South Carolina).

Recognizing that there are also differences between the resource endowments, knowledge stocks, and capabilities between DMNEs and EMNEs, we find that firms from emerging markets are less likely to be attracted to less developed regions than firms from developed economies. Coming from countries where resources and technological know-how are often limited, EMNEs may have a stronger incentive to locate in regions that offer the potential to have greater access to resources. Moreover, establishing a presence in a developed region conveys a stronger signal of their legitimacy in the industry.

5.2. Practical Implications

This study has important implications for business leaders and policy makers alike. For business leaders, this study's findings debunk the misconception that foreign firms should only locate in developed regions. On the contrary, this study's findings suggest that locating in less developed regions does not necessarily represent a disadvantage. Indeed, firms at different stages of their development or with different resource endowments may be attracted to regions based on the availability of specific resources or knowledge that they lack. Thus, when deciding where to locate, managers have many more options and should not discount less developed regions.

From a policy perspective, since most countries have a strategy geared towards developing their regional economies, knowing what levers can be manipulated to attract foreign multinationals is important. In particular, since many state governments only provide incentives (e.g., research grants, low-cost business loans, etc.) to firms that relocate

to their state, this may actually serve as a deterrent to attracting foreign direct investment. However, federal programs can help overcome these state-level barriers by alleviating the need to relocate to a particular state. An example of such a program is the Center for Advancing Point of Care Technologies (CAPCaT), which is funded by the National Institutes of Health (NIH).

The CAPCaT initiative solicits healthcare research ideas from companies around the globe, including emerging markets (e.g., India, Angola, Nigeria, etc.). While the program advocates for research to be conducted in the U.S., this is not a strict limitation. To ensure that firms adhere to the strictest healthcare regulations, foreign firms are advised to either establish a U.S. presence or form a partnership with a local company. While this program is located in Massachusetts, a developed region, it provides opportunities and resources to firms working on novel technologies located not only in developed regions, but also in less developed regions, including growth (e.g., Texas, Maryland, Illinois, and North Carolina), transitioning (e.g., Ohio, Michigan, and Georgia), and nascent (e.g., Kentucky, Louisiana, South Carolina, and Minnesota) regions. In doing so, this program stimulates innovation by allowing firms to reap the cost benefits of locating in less developed regions while accessing resources that are only available in developed regions. For policy makers, replicating programs such as CAPCaT can enhance regional development and make less developed regions more attractive to firms.

5.3. Limitations

The generalizability of our findings also deserves discussion. While this study focused on foreign multinational location decisions relative to the U.S., future studies can explore the generalizability of our typology in other developed countries, such as Germany and Japan, as well as in emerging markets, such as China and India. Furthermore, future studies can also apply our typology to other industries, such as software, e-retail, automobile, and finance as well as emerging technologies such as artificial intelligence (e.g., Santos and Qin 2019). Since our dataset is cross-sectional, this precludes a detailed examination of temporal changes associated with DMNE and EMNE location decisions. Future studies can examine how multinational locations decisions may vary over time.

6. Conclusions

While much of the extant international business literature focuses on FDI at the country-level, this study takes a different approach to unpack the key resources that influence where they locate within a particular country. Drawing upon the RBV, we go beyond many existing studies to explore less developed regions. This study's findings challenge common perceptions and offer confirmation that there are differences between DMNEs and EMNEs related to regional location decisions. Our hope is that this study will prompt a new conversation about multinational location decisions beyond the country-level because, as our results imply, location within the country matters.

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Notes

[1] Average values reported from authors' data.

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