



Finding a Home away from Home: Effects of Immigrants on Firms' Foreign Location Choice and Performance

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Abstract

Using data from a sample of foreign subsidiaries established in the U.S. by firms from 27 countries between 1998 and 2003, this study examines the relationship between immigrants and the foreign expansion of organizations from their home countries. I propose that common country bonds to immigrants can become unique channels of knowledge, providing firms with idiosyncratic benefits in foreign places. Such connections to co-national immigrants should positively influence location choice and survival through processes of local learning and knowledge transfer. The results support these predictions. The probability of locating operations and surviving in a state increases with the concentration of same-nationality immigrants in that state, but not with the presence of immigrants of other nationalities. To highlight the knowledge-related mechanisms, I show that these relationships are particularly strong for firms lacking prior experience in the country, for locations in which immigrants can help firms capitalize on industry-specific knowledge spillovers, and for firms with highly knowledge-intensive operations.

Keywords: foreign expansion, immigrants, knowledge transfer, learning, knowledge spillover

In 1959, Honda decided to enter the United States with the goal of selling motorcycles to the broad American market. Given the vast size of the U.S., the choice of where to establish the first subsidiary was crucial to the future success of the enterprise. Ultimately, management selected Los Angeles, California as the most appropriate location. Economic considerations such as the suitability of the weather for motorcycle use, population growth, and customer purchasing power were important factors in the decision. But another, less obvious reason played a key role: managers explicitly selected Los

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Angeles because there was “a large . . . Japanese community” that they believed could be helpful in the process of expanding into a new market (Pascale and Christiansen, 1989). In hindsight, Honda’s performance in the U.S. suggests that it chose a suitable place to establish its first subsidiary. Yet how important was the presence of a Japanese immigrant community for the firm’s location choice and ultimate success?

The case of Honda suggests a connection between two of the most conspicuous signs of globalization: the international expansion of firms and cross-national immigration. While significant bodies of research have separately grown around each issue, we know surprisingly little about the relationship between the two (Rangan and Sengul, 2009; Iriyama, Li, and Madhavan, 2010; Foley and Kerr, 2013). What we do know is that knowledge plays a central role in the foreign expansion process, both because it is a key source of advantage that firms seek to exploit or obtain when growing internationally (Kogut and Zander, 1993) and because firms need to learn about foreign locations to make decisions about where to establish operations (Johanson and Vahlne, 1977). At the same time, however, research has demonstrated that obtaining and transferring knowledge across national boundaries is a non-trivial task. Challenges arise from two types of barriers: relational obstacles from lack of trust and difficulties stemming from the tacit nature of knowledge itself (Polanyi, 1961; Szulanski, 1996).

While the obstacles to successful knowledge exchange may partly be solved by getting information through market transactions such as contracting with local informants, research strongly suggests that purely arm’s-length knowledge exchanges lack the richness and effectiveness of those based on more primal relationships, particularly when tacit knowledge is involved (e.g., Granovetter, 1985; Kogut and Zander, 1992). In fact, Kogut and Zander’s seminal ideas about the importance of tacit knowledge are underpinned by the ability of firms to exploit some kind of “common code” (Arrow, 1974) to extract the full value of knowledge. In light of these considerations, the core idea of this paper is that the common nationality link between immigrants and firms can become a valuable source and conduit of knowledge that makes a location uniquely beneficial for an organization expanding abroad.

Immigrants of the same nationality as a firm can function as catalysts of knowledge that can help overcome the barriers to knowledge transfer and learning inherent in the process of internationalization (Saxenian, 2002; Kalnins and Chung, 2006). Local connections to immigrants are valuable because immigrants are involved in a transnational network of information that can be useful in reducing the distances (institutional, cultural, and others) that give rise to the liability of foreignness (Zaheer, 1995; Levitt, 2001a). Although the transnational network of immigrants may be valuable to all potential entrants into a location, shared nationality provides firms with preferential access to the knowledge of a specific group of immigrants. Common nationality is a type of affiliation tie that creates a preference for economic exchange—including knowledge—due to homophily (McPherson, Smith-Lovin, and Cook, 2001). This type of fundamental connection helps mitigate the two types of impediments to knowledge transfer. First, it creates a greater baseline of trust and predisposition to share information (Lin, 2001). Second, it gives rise to a common code, an understandable language and system of meaning that is particularly important when dealing with tacit knowledge (Nahapiet and Ghoshal, 1998).

The knowledge firms can obtain from immigrants has an impact on performance because it helps lower operating costs or increase revenues within the host market. Moreover, immigrants of a given nationality are specific to a firm's country of origin and to the receiving location where immigrants have clustered. Because nationality is exogenous to both firms expanding abroad and to immigrants, and because immigrant clusters take time to develop, co-national ties are uniquely available only to some firms in certain places. This implies that links to immigrants can help make a specific foreign location—the one in which such immigrants happen to reside—uniquely advantageous for co-national firms. As such, the presence of same-country immigrants should be positively associated with the likelihood that firms will establish foreign operations in their particular receiving location and with the odds of success in that location.

At the same time, firms differ in how much they need knowledge from co-national immigrants in the process of internationalization. First, newer entrants into a foreign country are keenly in need of information and other resources but lack the connections or know-how necessary to obtain them (Stinchcombe, 1965). These inexperienced firms will seek for and benefit more from places with strong co-national immigrant concentrations than firms with substantial experience in the host location. Second, locations with high concentrations of co-national immigrants will be particularly attractive to firms when they enhance their ability to capture industry-specific knowledge spillovers (Marshall, 1920). Research has demonstrated that places with significant industry activity are attractive for foreign entrants because of the potential to benefit from spillovers (Chung and Alcacer, 2002), and the appeal of such benefits should be even stronger if immigrants increase the odds of capitalizing on locally bound knowledge. Finally, firms from high-technology industries should benefit more from places with high concentrations of co-national immigrants than firms in less technologically intensive industries because the former's activities are inherently more knowledge intensive. I tested these ideas on a sample of 288 foreign investments into the United States made by 194 firms from 27 countries between 1998 and 2003, matched with detailed state-level data on immigrants.

IMMIGRANTS AND FOREIGN EXPANSION

The opportunity to expand abroad represents one of the most significant avenues for organizational growth. Within this realm of activity, where to establish foreign operations is a crucial decision with profound performance consequences. Scholarship on the subject has centered on resources that firms exploit or obtain in a target location. Early research by economists emphasized immobile assets that reduced transportation costs or were unavailable elsewhere, such as natural resources, market size, or relative prices and wages (e.g., Harris, 1954; Davidson, 1980). Later work built on Marshall's (1920) theory of agglomeration economies and provided substantial empirical support for the idea that firms geographically cluster by industry to capitalize on pools of specialized workers and suppliers or to capture knowledge spillovers (e.g., Wheeler and Mody, 1992; Shaver and Flyer, 2000).

Although the original focus of research on internationalization was on resources broadly defined, organizational scholars in the past few decades have emphasized the preeminent role of knowledge. This view was most

clearly espoused in Kogut and Zander's (1992) seminal ideas positing that firms exist because they are more efficient than other forms of organization, particularly markets, in the creation and transfer of knowledge. To support this argument, these authors argued that tacit know-how was the most valuable for firms but also the most difficult to generate and transfer (cf. Polanyi, 1961) and that firms have an advantage because they are able to establish a common code for the transfer and recombination of tacit knowledge (Arrow, 1974). An important extension of this general notion was that multinational corporations (MNCs) exist—and internationalization is necessary—because exchanging knowledge across national boundaries is inherently difficult and thus requires the establishment of a foreign subsidiary to capitalize on the firm's efficiency in transferring knowledge internally (Kogut and Zander, 1993). Such reasoning fit well with pioneering explanations of foreign expansion arguing that foreign direct investment (FDI) occurred when a firm developed a home country asset, typically intangible, which it then proceeded to extend to foreign locations (e.g., Buckley and Casson, 1976; Hymer, 1976). Though the knowledge-of-the-firm view explains that firms engage in foreign investment to capitalize on their knowledge transfer advantages, its original formulation does not directly address the question of *where* firms will establish foreign operations. Subsequent research in this tradition, however, has explored the implication that firms should select locations where knowledge can be transferred most efficiently (e.g., Martin and Salomon, 2003a).

In addition to know-how about technologies, processes, and other organization-specific issues, knowledge about the potential target location itself is essential in the process of foreign expansion. In this regard, Johanson and Vahlne's (1977) model of internationalization also provides a knowledge-based explanation. They argued that foreign firms suffer a disadvantage relative to domestic ones because they lack knowledge about a target market, which creates a "psychic distance" between the existing locations in which the firm operates and those which it can potentially enter. Such distance can arise due to dissimilarities between locations along many dimensions—e.g., culture, institutions, or technology—and creates uncertainty that diminishes the prospect of market entry. One of the key propositions of this view is that firms are most likely to enter markets that are less distant from those in which they currently operate. Knowledge enters the picture because learning about foreign markets is the key mechanism by which the distance is reduced. In the original formulation, learning was argued to arise from firms' prior experience, but later additions highlight the role of sources of learning from outside the firm (Johanson and Vahlne, 2009). Research has mostly shown support for the learning hypothesis by showing that prior experience in locations with similar characteristics predicts location choice (e.g., Delios and Henisz, 2003; Holburn and Zelner, 2010).

Given the role of knowledge in explaining internationalization, an important body of work has focused on the determinants and impediments of such knowledge transfer. Though MNCs can be efficient at transferring knowledge internally, the costs of transfer are non-trivial and firms differ in their efficiency. Teece's (1977) analysis of U.S. multinationals, for example, reported that transfer costs represented up to 59 percent of the total costs of a sample of projects. Other research has reported similar meaningful costs (e.g., Mansfield and Romeo, 1980; Teece, 1981). Management research subsequently shed light on

what gave rise to such knowledge transfer barriers, which can be categorized into essentially two types. First, relational or motivational costs of knowledge transfer arise when individuals or groups lack the “motivational disposition to share knowledge” (Gupta and Govindarajan, 2000: 473) or because there is “an arduous relationship between the source and the recipient” (Szulanski, 1996: 27). Second, characteristics of the knowledge itself often make its exchange difficult, particularly when the knowledge is tacit instead of codifiable (e.g., Szulanski, 1996; Martin and Salomon, 2003b).

Frictions arise both when the firm is attempting to transfer organization-specific knowledge and when it is trying to learn about conditions in the target location. Research has demonstrated that firms may learn about opportunities in foreign markets from external parties through formal mechanisms such as joint ventures, supplier relationships, or business group ties (e.g., Martin, Swaminathan, and Mitchell, 1998; Guillen, 2002). Yet increasingly scholars suggest that arm’s-length relationships alone may be insufficient to ensure deep learning of non-codified knowledge (cf. Granovetter, 1985). One other, less formal but important potential knowledge source for foreign firms is a population of immigrants in a target location.

Immigrants, Knowledge Exchange, and Firm Internationalization

Cross-national immigration represents one of the fastest growing global trends, going from 81.5 million immigrants in 1970, to 154 million in 1990, and reaching over 200 million by 2009 (United Nations, 2009). The socioeconomic consequences of immigration have long aroused the interest of scholars (e.g., Reder, 1963; Portes and Sensenbrenner, 1993; Simon, 1999). Yet only recently has research begun to explore the effects of immigration on the foreign activities of firms. A small body of work has documented a positive relationship between immigrant clusters in a receiving country and trade or investment at the country level (e.g., Gould, 1994; Bandelj, 2002; Buch, Kleinert, and Toubal, 2006; Javorcik et al., 2011). This work has important implications for organizational research because firms are the primary vehicles of foreign exchange in goods and services, yet it focuses only on country-level effects. Only three recent firm-level studies touch on the subject. Rangan and Sengul (2009) demonstrated that foreign subsidiaries have higher sales if the home and host country have strong historical immigration ties. Iriyama, Li, and Madhavan (2010) found that foreign venture capital firms in the U.S. are more likely to locate in states with higher immigrant concentrations. Foley and Kerr (2013) showed that U.S. multinationals that employ scientists of a certain ethnicity (not necessarily immigrants) have more foreign affiliate activity in the countries related to that ethnicity. These studies are valuable precedents but focus only on the main effects of immigration and do not explore the knowledge implications of their findings. Thus extant work does not provide clear evidence as to why immigrants might attract investment from co-national firms or what the mechanisms behind this relationship might be.

The concept of immigrant transnationalism provides the micro foundation from which the influence of immigration on firms’ foreign expansion arises. Until recently, scholars understood cross-national migration as a phenomenon confined to the receiving country and focused on issues such as immigrants’ assimilation or the effects of immigrants on the host culture or labor market

(Levitt and Jaworsky, 2007). Researchers have now reconceptualized immigration as a transnational process in which migrants maintain ties across the sending and the receiving locations. As Levitt (2001b:197) stated, "Those who live within transnational social fields are exposed to a set of social expectations, cultural values, and patterns of human interaction that are shaped by more than one social, economic, and political system."

Transnationalism gives rise to a network of international knowledge and information exchange. In fact, management research focusing on individual immigrants such as expatriates (Black, 1988) or entrepreneurs (Saxenian, 1999, 2002; Kalnins and Chung, 2006; Kerr, 2008; Nanda and Khanna, 2010) provides a key starting point for this paper because it emphasizes the role of immigrants as knowledge sources, though such work does not focus on firm internationalization. As parties in the transnational network, immigrants bridge the cultural, economic, and institutional distances that inherently make new market entry challenging for firms. As such, they have information about specific resources or places that is particularly attractive to firms seeking to expand from the sending to the receiving location (Gould, 1994). Firms that are able to tap into the knowledge networks of immigrants should be more motivated and able to expand into locations with a critical mass of immigrants. Co-national firms are particularly well positioned to connect with immigrants by virtue of past interactions in the homeland and a shared history and context of exchange. Such co-nationality leads to preferential and more efficient knowledge exchanges.

The presence of immigrants of the same nationality in a given target location is instrumental in resolving the two main impediments to knowledge exchange, motivation and tacitness. Co-nationality increases the preference of parties to exchange or work together because it is a source of homophily—a foundational concept in theories of learning and knowledge transfer (McPherson, Smith-Lovin, and Cook, 2001). For example, experiments show that artificially eliciting homophily increases individuals' loyalty and willingness to share knowledge (Kane, Argote, and Levine, 2005; Kane, 2010). This effect should be even stronger for a fundamental characteristic such as nationality, which is based on common history, experiences, and language. Moreover, common nationality is a clearer source of homophily than other boundaries such as only common language or region. While these alternative sources of similarity might be relevant, there are often historical, racial, political, and other hostilities between countries that share a language or region. Such hostilities can create impediments to knowledge transfer or learning.

Co-nationality also increases the efficiency of transfer by being a basis for the common code so essential to the process of communicating tacit knowledge (Arrow, 1974; Kogut and Zander, 1992). This occurs because nationality gives rise to cognitive social capital, which refers to "resources providing shared representations, interpretations, and systems of meaning among parties" (Nahapiet and Ghoshal, 1998: 244). Parties with common backgrounds, experiences, or language are more likely to develop this kind of cognitive compatibility. As immigrants exchange knowledge through the transnational network, they have information about the host country and at least some knowledge about the home country. This gives them the ability to "translate" how constraints and opportunities in one location fit with those in the other. Such information is fine grained because it stems from firsthand experience, which is more influential than second-hand observation (Nisbett and Ross,

1980). Co-national firms are more able to learn from this information than those of other nationalities because the common frame of reference, language, and culture facilitate the operation of cognitive social capital and increases information transfer (Koka and Prescott, 2002). In this regard, studies show that ethnic links increase technological knowledge flows across countries (Kerr, 2008; Oettl and Agrawal, 2008).

The processes by which firms obtain knowledge about a place from co-national immigrants can be split between immigrant- and firm-initiated exchanges. The firm may directly contact co-nationals to assess the viability of the market or the availability of resources. One example comes from a former Swedish executive who retired in Argentina after many years of working there for a Swedish firm. This person periodically receives calls for advice from Swedish companies seeking opportunities in Argentina. Immigrants may themselves contact the firm to promote activity in the host location. For example, the Spanish firm Freixenet ventured into Australia through the initiative of a Spanish immigrant who provided information on the market's viability and helped connect the firm to a large distributor (Simonin and Rialp, 2002).

Thus co-national immigrants can function as catalysts of knowledge transfer for firms seeking foreign investment opportunities. This steers the attention of the firm toward the host location, bringing it within the confines of the search space in the pre-entry phase. Even after a firm has entered a location immigrants can be an important source of information about local resources and opportunities or on how to solve problems that arise throughout the expansion process. Given the central role played by knowledge as a driver of foreign location choice, I hypothesize:

Hypothesis 1: There is a positive relationship between the level of immigrant concentration in a foreign location and the likelihood of co-national firms having a subsidiary in that location.

If immigrants truly bring preferential access to knowledge, it is important to demonstrate the performance outcomes of co-locating with immigrants, in part because knowledge is argued to be a key source of advantage for foreign firms (Kogut and Zander, 1993). These performance benefits will arise due to demand or supply-side effects. At a baseline level, the immigrant population is probably familiar with the firm or its products based on prior interactions in the home country, because firms with the capability to expand into foreign markets have typically been successful and garner recognition in the home country (Vernon, 1966). Immigrants thus form a natural target for the firm to expand its operations, and they can provide the firm with knowledge about this potential market. In addition, a significant immigrant presence can help increase demand among the native population in the host market by spreading information about home-country products and by allowing firms to learn about the preferences of native potential buyers. Underlying these effects is a process of assimilation by which immigrants bring new tastes, preferences, and ideas that locals incorporate and by which they adopt local consumption habits (Waters and Jiménez, 2005). Consequently, both the immigrant and native populations are likely to purchase the firm's products in locations with a strong immigrant presence.

Supply-side benefits stem directly from the availability of knowledge explained above, which allows the firm to operate at lower costs relative to

foreign entrants without access to an immigrant population and to develop local capabilities faster if the speed of knowledge transfer is an important source of competition in the local industry (Salomon and Martin, 2008). The presence of these demand or supply benefits will increase the prospects of survival for a foreign subsidiary by increasing revenues or reducing costs. Because a key outcome for firms expanding abroad is the ability to survive in the face of inherent disadvantages of newness and foreignness (Stinchcombe, 1965; Zaheer, 1995), I hypothesize:

Hypothesis 2: Conditional on the firm's decision to establish a foreign subsidiary, there is a positive relationship between the level of immigrant concentration where the subsidiary was established and the probability of a subsidiary's survival.

Country-specific Learning

Learning about a foreign location is a key driver of the choice to establish operations and of subsequent survival in a place (Johanson and Vahlne, 1977). Prior research provides evidence that the factors influencing foreign activity are substantively different depending on the firm's experience in the host country. As organizations gain experience within a foreign country, subsequent geographic expansion choices are more influenced by host-country features than by home-country factors (Guillén, 2002; Delios and Henisz, 2003). Accumulated experience helps the firm develop country-specific knowledge and operational routines that alter the benefits of obtaining these from external sources—such as immigrants—because the firm develops an internal repository of local know-how (Shaver, Mitchell, and Yeung, 1997). Such logic suggests that the influence of immigrants on location choice and survival should differ across firms with varying levels of country-specific experience.

For experienced firms, a significant portion of the knowledge provided by immigrants will be redundant with what they have already gained from past interactions with the immigrant group or from firsthand experience. This will be especially true for information that is fungible across multiple entries within the same country. Although there may be a component of learning that is specific to each entry (e.g., entering Missouri versus Massachusetts), there is a portion of learning about national-level institutions, culture, and other factors that becomes redundant. In fact, expansion within the receiving country is an indication that a firm has overcome some of the early liabilities of being foreign stemming from lack of knowledge (Kostova and Zaheer, 1999). Thus country-specific experience should become a source of experiential learning that can substitute for the vicarious learning obtained from immigrants in earlier phases of expanding into a foreign country.

Hypothesis 3: The positive relationship between the level of immigrant concentration and (a) location choice and (b) survival is weaker for firms with high levels of experience in the host country than for firms with low levels of experience in the host country.

Knowledge Spillovers

Immigrants can play an enabling role in helping firms benefit from industry-specific knowledge spillovers in the host location. The notion that the

geographic clustering of industries has certain advantages has become generally accepted (Marshall, 1920; Glaeser et al., 1992). The presence of firms from the same industry has the benefit of creating a pool of specialized workers with skills suited to the needs of the industry as well as suppliers with technological know-how and experience in providing for the needs of firms producing particular products. Importantly, the interactions among these specialized firms, workers, and suppliers leads to a proliferation of ideas that gives rise to knowledge spillovers. These spillovers enhance the learning of all participants in the region and are crucial sources of growth and innovation. Consistent with this idea, research has demonstrated that industry concentration plays an important role in foreign location choice as foreign firms seek to capitalize on spillovers (e.g., Wheeler and Mody 1992; Chung and Alcacer, 2002). Population ecologists criticize this view by pointing out that industrial co-location might have the potential to provide these benefits, but spatial competition for scarce resources significantly diminishes the prospects of actually obtaining them (Sorenson and Baum, 2003).

This brief outline of work on industry concentration raises the key issue of how firms uniquely benefit from these knowledge spillovers because they are in principle available to all firms within the location and there is competition for them. Alcacer and Chung (2007) address this issue by showing that absorptive capacity increases firms' ability to capture spillovers. But immigrants may also be important catalysts when it comes to knowledge spillovers in areas characterized by high degrees of industry concentration. Because of their embeddedness in the transnational knowledge network, immigrants have host-location contacts and knowledge as well as the ability to efficiently help transfer that knowledge to co-national firms. Immigrants can thus serve as third-party mediators that help co-national firms extract knowledge spillovers arising from industry concentration in favorable ways, reducing the frictions involved in accessing such spillovers. If so, the attractiveness of places with a strong co-national immigrant presence should increase as industry concentration increases.

Hypothesis 4: The positive relationship between the level of immigrant concentration and (a) location choice and (b) survival is stronger in locations with high levels of activity in the same industry as the subsidiary than in places with low levels of activity in the same industry as the subsidiary.

Knowledge-intensive Operations

If immigrants play an important role in the transfer of knowledge, then firms with highly knowledge-intensive operations should receive a greater benefit from co-locating with immigrants than firms with less knowledge-intensive operations.¹ As mentioned above, one of the key reasons for expansion to a foreign location is to transfer or develop some unique or proprietary intangible resource. Scholars have long agreed that knowledge-intensive resources are particularly germane to this argument, based on the well-established empirical observation that firms with high levels of R&D are particularly prone to foreign investment (e.g., Buckley and Casson, 1976; Penner-Hahn and Shaver, 2005).

¹ I am indebted to an anonymous reviewer for suggesting this point.

These attributes are common to high-technology industries, which are known to be knowledge intensive because the underlying assets most important to success are the proprietary know-how embodied in patents, trade secrets, or trademarks and—even more importantly—in tacit knowledge residing in employees' minds or in intangible organizational routines (Nelson and Winter, 1982; Kogut and Zander, 1992). Yet for these very same reasons, high-technology firms also face greater challenges than other firms in transferring knowledge assets into the receiving location or developing new ones in the host location (Teece, 1977; Zaheer, Hernandez, and Banerjee, 2010). In light of the arguments presented in this paper so far, firms from high-technology industries should be the most likely to benefit from the role immigrants play as knowledge facilitators.

These reasons are consistent with another stream of literature in the field of economic geography, elaborated most directly in Florida's (2002) "creative class" ideas but also implied by other scholars such as Jacobs (1961) or Saxenian (1999). A key finding from this body of work is that places that are more open to diversity (broadly defined) are associated with aggregate levels of high-technology activity (Florida, 2002). Inasmuch as immigration is one indicator of diversity, this study extends these ideas by adding that a portion of the overall high-technology activity in a location will be driven by foreign firms seeking to benefit from the knowledge related role played by co-national immigrants residing in that location. Thus I hypothesize:

Hypothesis 5: The positive relationship between the level of immigrant concentration and (a) location choice and (b) survival is stronger for firms in high-technology industries than for firms in low-technology industries.

METHOD

The United States has several desirable characteristics as a setting in which to test these hypotheses because it presents significant variation in immigration, incoming foreign investment, and location options. The U.S. is among the top receivers of immigration (Portes and Rumbaut, 2006) and foreign capital (UNCTAD, 2006) in both volume and variety. I considered each U.S. state as a potential investment location and measured state and firm-level variables of interest as determinants of location choice and survival. Given the size and diversity of markets within the U.S., as well as the economic and legal differences across states, considering each state as a distinct geographical area that firms take into account when expanding abroad is appropriate and consistent with past research (e.g., Coughlin, Terza, and Arromdee, 1991). Moreover, immigration decisions are also made at the state level due to differences in ethnic composition, geography, and other historical reasons that connect sending countries to receiving states (Massey and Zenteno, 1999; Portes and Rumbaut, 2006).²

² Recent work suggests that state boundaries may not always overlap with the flow of economic activity and has used finer geographic measurement at the city level (e.g., Alcacer and Chung, 2007). The section on robustness tests contains a description of a secondary analysis at the city level and a detailed explanation of why using states has several data-related advantages for this particular study.

I obtained a sample of foreign subsidiaries operating within the U.S. from the *Directory of Corporate Affiliations*, the most comprehensive publicly available source of data on the subunits of firms. I identified new entries into the U.S. based on the 2003 edition of the directory. I chose that year to allow for a sufficiently long window of time to observe survival (until the end of 2011) and used a single directory year to reduce potential biases from changes in the methodology and budget of Lexis Nexis, the directory's owner.³ I identified all companies headquartered outside the U.S. with at least one subsidiary inside the U.S. I initially found 731 subunits listed for the first time in the 2003 directory, which I flagged as potential new entries. Because *Corporate Affiliations* does not list the entry date or explain why an addition was made to the directory, I verified the date and circumstances surrounding each case. I conducted a thorough search of news about each investment, complemented by information from company websites, corporate directories, and phone calls. This procedure helped me verify that each entry was into the state of operations and not just the state of incorporation. I also gathered information on whether the subsidiary continued to be operated by the same parent firm and, if not, when and why the firm ceased to operate the business.

Through this process, I identified 288 new entries made by 194 parent firms between 1998 and 2003 that were usable in all the analyses. Of the original 731 potential new entries, 352 were eliminated because the entry occurred before 1998. Because, as explained in more detail below, the immigration data come from the 2000 decennial U.S. census and do not change yearly, I opted to keep only entries that occurred within a relatively short time window surrounding the immigration data. The remaining cases were dropped for various reasons: the listing was not a new entry but simply a legal reorganization, the firm intended to close the business at the time of investment (which would bias the survival data), or the parent firm was based in the U.S. but legally organized in a tax haven.

Table 1 provides a list of the receiving states and sending countries for the 288 entries. Though I was not able to obtain a random sample, I verified the representativeness of the data by comparing them with information from the Bureau of Economic Analysis (BEA) on all foreign investments into the U.S. during the period surrounding the observations. I found a correlation of 0.78 between the distribution of sending countries in table 1 and the number of employees in the U.S. working for firms from the countries in the sample during 2000. The correlation between the distribution of receiving states in table 1 and employment by foreign subsidiaries by state in 2000 was 0.87. Thus the data mirror the overall distribution of U.S. incoming foreign investment during the same time period.

One important limitation of the sample is worth noting. Data on immigrants came from the 2000 decennial census, which provides the most comprehensive, detailed measure of the stock of immigrants and their characteristics.⁴ Although the census clearly provides the best data, it becomes available only

³ I learned of the data gathering policies from a manager from Lexis Nexis during a personal conversation on February 22, 2010. The budget and data gathering rules for each database owned by Lexis Nexis change yearly depending on customer demand and for other reasons.

⁴ At the time I completed this study, the results of the 2010 Census were in the process of being released to the public. Though the findings of this paper can eventually be updated with fresh data, it will be several years before the survival of subsidiaries established in 2010 can be observed.

Table 1. Receiving States and Sending Countries

Receiving States		Sending Countries			
State	Entries	State	Entries	Country	Entries
California	29	Delaware	3	United Kingdom	55
New Jersey	22	Louisiana	3	France	46
Texas	21	New Hampshire	3	Germany	37
New York	19	West Virginia	3	Canada	36
Georgia	17	Iowa	2	Italy	14
Illinois	16	Kansas	2	Netherlands	13
Massachusetts	12	Mississippi	2	Switzerland	11
Connecticut	11	Nebraska	2	Australia	9
Colorado	9	New Mexico	2	Finland	7
Maryland	9	Rhode Island	2	Austria	6
Ohio	9	Wisconsin	2	India	6
Washington	9	Alabama	1	Japan	6
Michigan	8	Hawaii	1	Norway	6
Minnesota	8	Maine	1	Israel	5
Arizona	7	Montana	1	Mexico	5
Missouri	7	North Dakota	1	Belgium	4
North Carolina	7	Oklahoma	1	China	4
Kentucky	6	Wyoming	1	Denmark	4
South Carolina	6	Alaska	0	Ireland	4
Virginia	6	Arkansas	0	Korea (South)	4
Florida	5	Idaho	0	Sweden	4
Pennsylvania	5	Nevada	0	Peru	3
Tennessee	5	South Dakota	0	Brazil	1
Indiana	4	Utah	0	Russia	1
Oregon	4	Vermont	0	South Africa	1
				Spain	1
				Taiwan	1

every ten years, making it impossible to obtain measures at shorter intervals appropriate for a longitudinal sample.⁵ Thus the analysis is of necessity cross-sectional, with the inherent limitations of that type of research design. In particular, the inability to specify fixed effects for immigrants of a particular nationality residing in a given state leaves open the possibility that certain characteristics of places that immigrants and firms choose simultaneously might create confounding effects. Within these constraints, however, I have taken as many steps as possible to rule out the most troublesome sources of endogeneity.

Variables

Location choice. The dependent variable $entry_{psi}$ is coded as 1 if an entry by parent company p occurred within state s in industry i , and 0 otherwise. There were 194 parent firms (p). Each firm had a choice set of up to 50 states (s). I do not account for repeated investments in the same state to rule out reverse causality, and because the immigration data are time invariant, I cannot

⁵ One could, in principle, create a panel by assessing changes in immigrant populations across three or more census years (e.g., 1980, 1990, 2000, etc.). But in practice this would require a sample of firms that are actively investing in the U.S. for at least 30 years. Such a list of firms would be very narrow and give rise to other research design concerns arising from significant sampling biases.

assess how temporal changes in immigration affect repeated entries. Thus the choice set for each company is composed of states in which it has no prior subsidiaries. The mean choice set size is 47.93 (median of 49). Industries (i) are assigned based on the activities of the subsidiary—not the parent—because parent firms may have subsidiaries in various industries; thus I consider entries into different industries as separate from those into the same industry. For example, if Firm A established subsidiaries in Industry 1 in Maine and Colorado and a subsidiary in Industry 2 in Nebraska, the two entries into Industry 1 form part of the same choice set while the entry into Industry 2 is part of a different choice set. This setup is consistent with prior work (Chung and Alcacer, 2002), though the results are robust if I group entries by firm regardless of industry (only 13 firms in the sample entered more than one industry).

Survival. The second dependent variable, $survival_{pj}$, is coded as 1 if subsidiary j continued to be operated by parent company p eight years after its initial establishment, which is the maximum period for which I could observe the survival of a subsidiary established in 2003 (the last year in which entries occur in the sample) at the time I completed the study. Survival is a good measure of performance only if the reasons for relinquishing control of operations are related to poor choice or suboptimal management. Consequently, I verified the timing and reason for exit of each entry to ensure that no cases of good performance were counted as exits. I found nine exits for “positive” reasons, which I removed from the data. The survival rate was 61.8 percent.

Immigrant concentration. The variable $immigrant\ concentration_{sc}$ captures the percentage of the total population of state s born in home country c . This measure is consistent with the notion that immigrant clusters comprising a larger proportion of a total population will have greater influence, knowledge, and legitimacy. Table A1 in the Online Appendix (<http://asq.sagepub.com/supplemental>) lists the top three states for each of the sending countries in terms of immigrant concentration. Not surprisingly, the proportion of co-national immigrants relative to the total state population is small in most cases. But the measure varies significantly across states for immigrants of the same nationality, preserves relative differences within states across different nationalities, and reduces the bias of states with very large populations (e.g., California, Texas) present in raw counts of immigrants. Sensitivity tests using counts instead of percentages (and controlling for total state population) yielded substantially the same results. Figure A1 in the Online Appendix shows three maps depicting the bivariate correlation between immigrant concentration and the number of entries by state for the entire sample and for two illustrative sending countries.

Prior experience. I measured firm experience based on the number of states in which the parent firm had subsidiaries prior to the year of entry. To test the hypotheses, I divided the sample into firms with low and high experience, based on whether the number of states they entered was below or above the sample mean, respectively.

Industry concentration. I measured the intensity of industry activity as the share of total U.S. employment in each subsidiary’s industry by state.⁶ This

⁶ I intended also to control for the percentage of supplier and buyer employment (Martin, Swaminathan, and Mitchell, 1998), but these measures were correlated with focal industry employment at levels above 0.80. The results are robust to their inclusion, but I did not include them in the main analysis to reduce collinearity concerns.

measure serves as both a control in all models and as a contingency variable when testing H4a and H4b. To test the hypotheses, I divided the sample into firms with low and high industry concentration, based on whether the state's share of industry employment was below or above the sample mean, respectively.

Knowledge intensity. I considered firms in high-technology industries as more knowledge intensive than those in low-technology industries. To make the distinction empirically, I categorized each firm as high or low technology based on the parent's primary SIC code. I relied on the Bureau of Labor Statistics (BLS) 1999 classification of three-digit SIC codes because it was published during the period of observation and relied on objective, knowledge-related data. According to the study, "industries are considered high tech if employment in both research and development and in all technology-oriented occupations accounted for a proportion of employment that was at least twice the average for all industries" in the U.S. (Hecker, 1999: 19).

Control variables. I used a number of state-specific controls, beginning with other-country immigrants. If common nationality is crucial in facilitating knowledge exchange, immigrants of other nationalities should have no influence or at least not have as strong a correlation on firms as those of the same origin. Moreover, factors that simultaneously drive immigration in general, regardless of nationality, and foreign investment choices by firms should not trump the unique benefits of common-nationality ties. For this to be the case empirically, the coefficient of immigrant concentration should remain significant after accounting for immigrants from all other origins. I thus included the percentage of *other-country immigrants* (all countries except the focal firm's) in each state. I also controlled for *immigrant education*, *income*, and *tenure*. These measure the median educational attainment, median household income (in thousands), and median years in the U.S. of immigrants from the firm's home country by state. The educational attainment variable ranges from 1 (no schooling completed) to 9 (4 or more years of college). These three controls capture differences in assimilation, local influence, and resources across immigrant groups.

The education of the total population is attractive to firms seeking skilled employees, sophisticated consumers, or knowledge-based assets. To capture educational attainment and quality in each state, I included two measures. First, *education expenses per student* measures the amount spent (in thousands) on primary and secondary education. Second, *federal education funds per student* captures the federal dollars (in thousands) per student allocated to each state. I expect this latter variable to have a negative coefficient because public education in the U.S. is the primary responsibility of states, and the federal government views its funds "as a kind of 'emergency response system,' a means of filling gaps in state and local support" (U.S. Department of Education, 2010). Thus laggard states tend to receive greater federal funding than leader states. Population income levels are indicative of the purchasing power of potential customers, and thus I added the *real GDP per capita* of each state. I also included a measure of *state age* (median age of adults in the total population).

The concentration of co-national firms in a foreign location may provide an alternative source of learning and resource access to that offered by individual immigrants (Shaver, Mitchell, and Yeung, 1997), and firms of the same nationality may flock to similar places due to mimetic effects (Martin, Swaminathan, and Mitchell, 1998). I thus included the percentage of *home-country firms*, measured as the share of total U.S. subsidiaries of companies headquartered in the focal firm's country, excluding the focal firm, located in each state. In addition, I included a measure counting the number of *home-country rivals*, because research shows that firms may follow domestic rivals into foreign locations for competitive or mimetic reasons (Delios, Gaur, and Makino, 2008). Both of the foregoing measures are based on the 2002 *Directory of Corporate Affiliations*.

I included *state size*, measured as area in square miles, because it is correlated with natural resources, population, and a host of other factors that make states attractive (Coughlin, Terza, and Arromdee, 1991). Shaver (1998) found that foreign firms in the U.S. are more likely than domestic ones to locate in states that border the ocean. Such states provide easier access to the rest of the world through ports for the transportation of goods, and air travel from them tends to be less expensive for individuals. Thus I included an indicator of whether a *state borders the ocean* or not. For similar reasons, I also included two measures of distance. The first is the great circle *geographic distance* between each state's capital and the city of each parent company's headquarters. Because geographic distance does not capture the ease of access or frequency of travel between pairs of locations, the second measure counts the number of *direct flights* between the major airport closest to each parent firm's headquarters and each state in the U.S.

States compete to receive FDI from foreign countries by offering incentives to lure companies to invest within their borders, so I included a control for *state FDI incentives*. This is an indicator variable coded as 1 if a state had offered some kind of incentive, and 0 otherwise, based on the report, *State Business Incentives: Trends and Options for the Future*, published by the Council of State Governments in 2000. I used an indicator because the types and degrees of incentives were not readily comparable across states. The incentives included tax reductions, programs to contact and recruit foreign firms, special trade zones, or special exemptions from certain laws. I also included the *state corporate tax rate*, measured as the maximum corporate tax rate charged by the state in the year before entry (Bobonis and Shatz, 2007). Labor laws might also be relevant because they affect the cost of production for firms (Alcacer and Chung, 2002) and probably the attractiveness of states for immigrants seeking work, so I included an indicator of *state right to work laws*. Another factor influencing both firms' costs and immigrants' location choices is the *state unemployment rate* (Coughlin, Terza, and Arromdee, 1991). Finally, I included *state gas prices* as a proxy for energy and transportation costs.

Estimation

Two characteristics of the data drive the choice of estimation approach. First, because survival can be observed only if an entry occurs, I must account for selection when estimating survival. Second, the first-stage location choice is polychotomous because firms choose among many states. Typically, the conditional logit model is most appropriate to estimate polychotomous location

choice (Mcfadden, 1974; Shaver and Flyer, 2000) because it takes into account the grouping of the data into discrete choice sets by calculating the likelihood within groups. In doing so, it conditions out factors that define the choice set and explains the chosen alternative relative to attributes of the other options in the set. But because selection models based on the conditional logit specification have not been developed, I was unable to use it and simultaneously estimate survival. Fortunately, recent advances suggest an alternative approach that yields reliable first-stage results while letting me account for selection in the second stage.

Studies have demonstrated that unconditional probit models with indicator variables to define the choice set exhibit a diminishing bias relative to conditional models as the number of alternatives in the choice set increases, with the bias becoming negligible as the size of the set approaches 20 (Heckman, 1981; Katz, 2001; Coupé, 2005; Holburn and Zelner, 2010). Because the median choice set in my data contains 49 states (only one case has fewer than 20, containing 19 alternatives), I was able to use an unconditional fixed effects probit model to estimate location choice. The advantage here is that I could then use Heckman's (1979) two-step estimator to account for selection when estimating survival, but with the advantages of a conditional logit equivalent in the first stage.⁷ Because the two-step approach was designed to use ordinary least squares (OLS) in the second stage, I estimated survival using a linear probability model (OLS). Such a model is heteroskedastic, so I used robust standard errors clustered by parent firm.

Exclusion restrictions. To properly identify the survival results in the second stage of the estimation, I included two instrumental variables that affect firms' probability of entering a state but not the likelihood of survival. While firms select locations primarily due to factors expected to improve performance, once a set of locations has acceptable prospects, firms are likely to take other considerations into account as well, such as a desirable lifestyle. Such non-performance issues serve as good instruments because there should be no compelling reason to include them as controls when estimating survival. Both instruments capture the notion that foreigners prefer places that are similar to their home countries. The first instrument measures the *mean temperature difference* between the sending country and the receiving state. I expect it to have a negative effect on location choice because, all else equal, managers and employees will prefer places with similar weather to the one they are used to. Similarly, foreign firms may prefer locations in which their expatriates feel more comfortable with the ideology and lifestyle of the general population. Thus the second instrument captures the *religious attendance difference* between the home country and the host state. I obtained data on the percentage of the population that attends religious services (regardless of denomination) once a month or more from the *World Values Survey* (worldvaluessurvey.org) for each country and from the Pew Center's *Trends in Political*

⁷ While the papers cited agree that the bias becomes negligible as the choice set approaches 20 options, Greene (2004) expressed some skepticism even though his simulation results were similar to those in other studies. To ensure that in my case the conditional and unconditional results were similar, I compared the results reported in the body of this paper to those using a conditional logit. The findings are virtually identical and are available upon request.

Values and Core Attitudes (people-press.org), and subtracted the latter from the former. I also expect this measure to have a negative effect on entry as a reflection of the preference to live in places with those of similar values.

Assessing moderating effects. Due to the firm fixed-effects specification, coefficients for firm-level variables in the first-stage location choice model cannot be estimated. Yet some hypotheses call for the inclusion of these variables (e.g., prior experience) as moderators of immigrant concentration. Interacting firm-specific variables with immigrant concentration is problematic because the sign, significance, and magnitude of interactions in non-linear models are not accurately reflected by the coefficient of the interaction term (Ai and Norton, 2003). In addition, including interaction terms assumes that the effect of all other variables in the sample is equal across the groups being compared by the interaction. To skirt these concerns, I followed recent best practices. In the primary analysis, I split the sample at meaningful levels of the moderating variables and assessed the statistical significance of differences by conducting a t-test comparison of the marginal effects across subsamples (Hoetker, 2007; Shaver, 2007). To aid in interpreting the location choice results, I also present graphs of the predicted probabilities following an approach analogous to the simulation-based technique proposed by King, Tomz, and Wittenberg (2000) as an additional test.

RESULTS

Online Appendix tables A2 and A3 contain descriptive statistics and correlations. Table 2 shows the location choice results. Model 1 includes the control variables. As expected, the two instrumental variables negatively affect the probability of entry ($p < .01$ for temperature and $p < .05$ for religious attendance). Model 2 includes the measure of immigrant concentration which, in support of H1, reveals a positive correlation with entry ($p < .01$). Though the sign and significance of probit coefficients are meaningful, they do not reflect the magnitude of the effect on the probability of entry because the slope of the cumulative probability curve changes depending on the values of other observations in the sample. Following best practice, I instead interpret magnitudes based on the average marginal effect (AME) (Hoetker, 2007).⁸ The AME in model 2 shows that a 1-percent increase in immigrant concentration increases the probability of entry by 1.35 percent. Although this seems like a small effect, it should be assessed relative to a meaningful benchmark. For example, it represents a 50 percent rise relative to the average probability of entry in the sample (2.69 percent) and is 3.67 times greater than the effect of industry concentration.

In models 3 and 4, I split the sample by the mean level of prior experience in the U.S. Immigrant concentration has a positive relationship to the entries of firms with low experience ($p < .01$) but no influence on those with high experience. These magnitudes are statistically different ($p < .01$) per a t-test comparison of the AMEs (1.37 percent vs. -0.99 percent). As an alternative to comparing marginal effects, Hoetker (2007) suggested scaling the coefficient

⁸ I weighted the AME by the inverse of the number of entries made by each firm so that no firm contributed excessively to the effect size. Results were nearly identical if I weighted each entry equally regardless of firm.

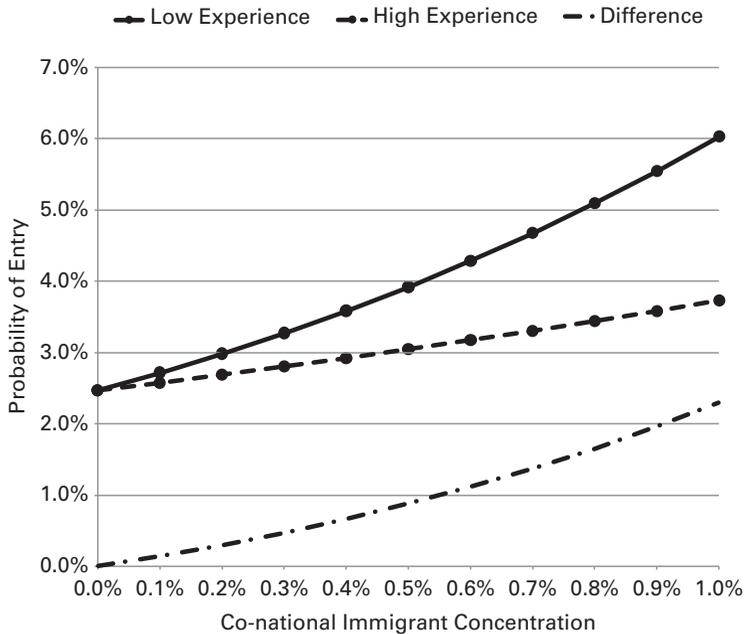
Table 2. Fixed-effects Probit Analysis of Location Choice*

	1 Controls	2 Main Effect	3 Prior Experience		4 Industry Concentration		7 Low Tech	8 High Tech
			Low	High	Low	High		
Immigrant concentration		0.2944*** (0.0668)	0.3156*** (0.0862)	-0.1863 (0.2953)	0.2711*** (0.0815)	0.3075*** (0.1071)	0.2795*** (0.0593)	0.6628** (0.3031)
AME		1.35%	1.37%	> -0.99%	1.73%	< 3.73%	1.32%	< 2.77%
AME t-test		N/A	p < .01 (H3a)		p < .01 (H4a)		p < .01 (H5a)	
AME/Mean Entry		50.17%	51.09%	> -36.75%	64.42%	< 138.81%	48.94%	< 103.07%
Coef/Ind. Concentration		3.67	4.03	> -2.04	N/A	N/A	3.58	< 6.58
Immigrant education	0.0349 (0.0588)	0.0825 (0.0646)	0.0215 (0.0694)	0.3233** (0.1545)	0.1098 (0.0954)	0.1342 (0.1328)	0.1016 (0.0756)	0.0047 (0.1065)
Immigrant household income	0.0011** (0.0005)	0.0011** (0.0006)	0.0005 (0.0004)	0.0015 (0.0009)	0.0011 (0.0008)	-0.0024 (0.0056)	0.0016** (0.0007)	-0.0002 (0.0007)
Immigrant years in USA	-0.0050 (0.0050)	-0.0057 (0.0050)	0.0021 (0.0058)	-0.0210*** (0.0073)	-0.0024 (0.0091)	-0.0055 (0.0086)	-0.0041 (0.0061)	-0.0120 (0.0087)
GDP per capita (real)	0.0128 (0.0075)	0.0118 (0.0074)	0.0220** (0.0096)	-0.0009 (0.0119)	0.0158 (0.0125)	0.0247 (0.0243)	0.0162 (0.0092)	-0.0026 (0.0115)
Median age (state)	-0.0233 (0.0220)	-0.0200 (0.0218)	-0.0206 (0.0271)	-0.0118 (0.0385)	0.0490 (0.0369)	-0.1203** (0.0513)	-0.0152 (0.0250)	-0.0427 (0.0444)
Other-country immigrants	0.0005 (0.0103)	0.0043 (0.0091)	0.0064 (0.0110)	-0.0035 (0.0166)	0.0305 (0.0188)	0.0095 (0.0161)	0.0079 (0.0103)	-0.0121 (0.0208)
Industry concentration	0.0802*** (0.0097)	0.0803*** (0.0098)	0.0784*** (0.0109)	0.0914*** (0.0247)	0.4381*** (0.1082)	0.0737*** (0.0140)	0.0781*** (0.0117)	0.1008*** (0.0197)
Home-country rivals	0.0028 (0.0285)	0.0020 (0.0284)	0.0077 (0.0317)	-0.0122 (0.0622)	0.0423 (0.1140)	0.0035 (0.0372)	0.0448 (0.0448)	-0.0262 (0.0413)
Home-country firms	0.0111** (0.0055)	0.0079 (0.0052)	0.0071 (0.0053)	0.0180 (0.0241)	-0.0027 (0.0104)	0.0059 (0.0093)	0.0040 (0.0059)	0.0149 (0.0127)
Direct flights	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	-0.0000 (0.0001)	-0.0001 (0.0001)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0001)
Geographic distance	-0.1416** (0.0592)	-0.1153 (0.0601)	-0.1010 (0.0792)	-0.1674 (0.0888)	-0.0963 (0.0940)	-0.1913 (0.1144)	-0.0895 (0.0664)	-0.2276 (0.1308)
State education expense	0.0783** (0.0363)	0.0778** (0.0364)	0.0669 (0.0447)	0.0841 (0.0652)	0.0028 (0.0791)	0.0571 (0.0559)	0.0565 (0.0417)	0.1311 (0.0737)
Federal education funds	-0.8928*** (0.2824)	-0.8514*** (0.2692)	-0.8577** (0.3840)	-1.0943*** (0.3726)	-0.4308 (0.4713)	-0.9406 (0.7095)	-0.9908*** (0.3061)	-0.5313 (0.6630)
State FDI incentives	0.1107 (0.0830)	0.0986 (0.0826)	0.1277 (0.0972)	0.0555 (0.1591)	0.0805 (0.1283)	-0.0589 (0.1670)	0.0192 (0.0975)	0.3348** (0.1537)
State corporate tax rate	-0.0091 (0.0134)	-0.0093 (0.0134)	-0.0042 (0.0175)	-0.0217 (0.0207)	0.0166 (0.0255)	-0.0170 (0.0227)	-0.0131 (0.0154)	-0.0052 (0.0283)
State right to work laws	-0.2948*** (0.0991)	-0.3012*** (0.0987)	-0.1074 (0.1259)	-0.6540*** (0.1236)	-0.1641 (0.1447)	-0.4641** (0.1978)	-0.4443*** (0.1086)	0.0914 (0.2004)
State unemployment rate	0.0557 (0.0531)	0.0591 (0.0523)	0.0916 (0.0697)	0.0065 (0.0823)	0.0995 (0.0752)	0.0720 (0.0977)	0.0528 (0.0616)	0.0673 (0.1049)
State gas prices	-0.3726 (0.6971)	-0.5789 (0.6989)	-1.0523 (0.8603)	0.7280 (1.1664)	0.0186 (1.3140)	-1.0364 (1.4412)	-0.2018 (0.7862)	-1.7070 (1.5030)
State size (area)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)
Mean temperature difference (IV)	-0.0344*** (0.0129)	-0.0273** (0.0124)	-0.0133 (0.0168)	-0.0566*** (0.0173)	-0.0053 (0.0204)	-0.0431** (0.0260)	-0.0327** (0.0133)	-0.0187 (0.0304)
Religious attendance difference (IV)	-1.0767** (0.5408)	-1.3677** (0.5336)	-1.5010** (0.6915)	-1.3875* (0.8011)	-1.5324** (0.8512)	-1.2963 (1.3821)	-1.8869*** (0.5966)	0.0650 (1.3205)
Pseudo R ²	0.1855	0.1915	0.1909	0.2049	0.1298	0.1461	0.1942	0.2069
Log likelihood	-1087.2	-1079.2	-706.9	-361.1	-330.1	-598.6	-809.2	-261.0
Sample size	10,788	10,788	7,906	2,882	2,456	2,490	7,760	3,028

* $p < .10$; ** $p < .05$; *** $p < .01$; one tailed tests for directional hypotheses; two tailed test for all else.

* Robust standard errors are in parentheses.

Figure 1. Relationship between immigrant concentration and location choice for firms with low and high prior U.S. experience.*

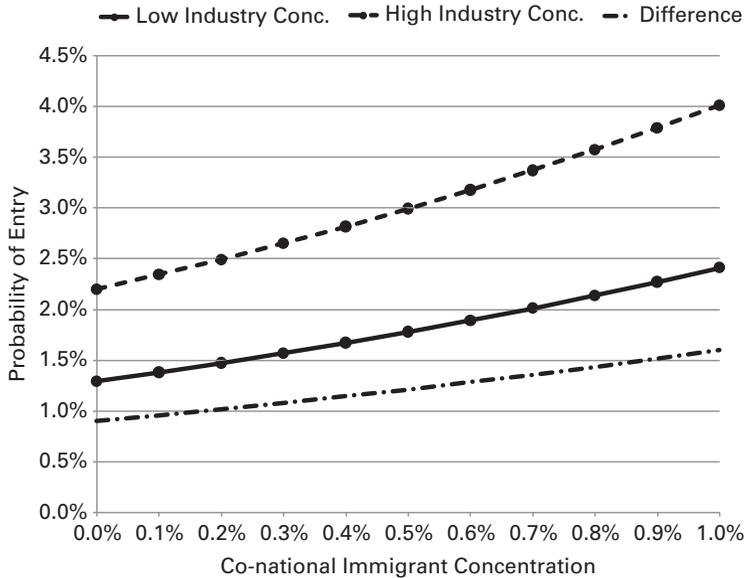


* A dot along the two lines indicates that the coefficient across the two subsamples is significantly different. The “difference” line plots the difference in probability between the two lines at each point. A horizontal (flat) line would indicate that the slopes of the two lines do not differ, whereas a sloped line indicates that the slopes differ from each other throughout the range of the observation.

of interest (immigrant concentration) by a meaningful variable within each model and then comparing the ratios across models. This approach is helpful when comparing the magnitude of effects across subsamples of the data because it eliminates differences in unobserved variation across groups present in probit models. Because industry concentration is theoretically and statistically important for location choice, I used it as the scaling variable. This ratio is 4.03 for firms with low U.S. experience and -2.04 for firms with higher levels of prior experience. As a final aid in interpreting the significance and magnitude of the comparison, I graphed the interaction effect following an approach analogous to the simulation-based method suggested by King, Tomz, and Wittenberg (2000), which requires including an interaction term (not shown in the tables). Note that this method creates estimates of the predicted probabilities instead of marginal effects. Figure 1 clearly shows that less experienced firms are more likely to select states with co-national immigrants and that the difference is significant for the entire plotted range (0.1 to 1 percent of a state’s population). Though each comparison (AME, ratio of coefficients, and simulation technique) yields different magnitudes, all three approaches provide support for H3a.

The comparison across locations with low and high industry concentration per H4a appears in models 5 and 6 of table 2. I split the data into choice sets with options above or below the mean of industry concentration. Immigrant

Figure 2. Relationship between immigrant concentration and location choice for locations with low and high industry concentration.*

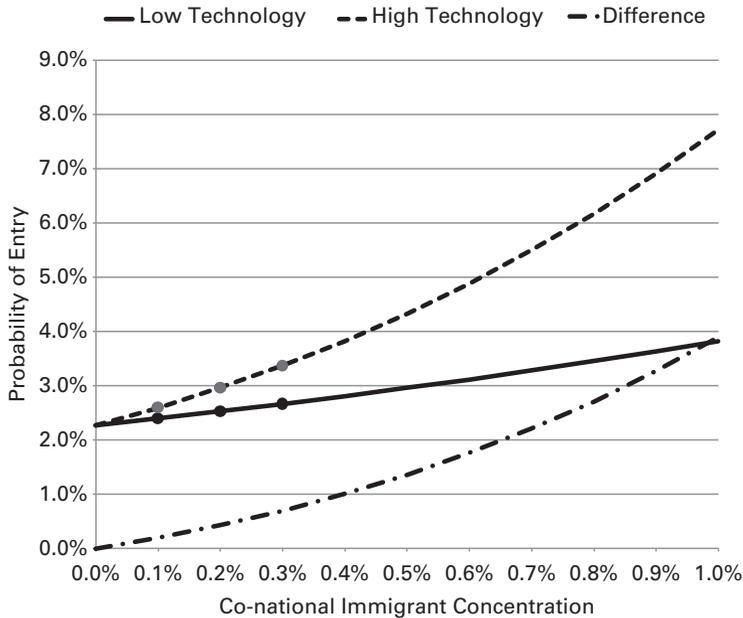


* Low industry concentration was plotted at the 25th percentile, and high industry concentration was plotted at the 75th percentile in the sample. A dot along the two lines indicates that the coefficient across the two subsamples is significantly different. The “difference” line plots the difference in probability between the two lines at each point. A horizontal (flat) line would indicate that the slopes of the two lines do not differ, whereas a sloped line indicates that the slopes differ from each other throughout the range of the observation.

concentration has a stronger positive correlation with the probability of entry for locations with high industry concentration (AME of 3.73 percent) than for those with low industry presence (AME of 1.73 percent). This difference is significant at $p < .01$, and the interaction based on the simulation approach is depicted in figure 2. Because splitting the data by a location characteristic rather than a chooser’s attribute amounts to restricting the size of the choice set in each subsample, there is a loss of data in each subgroup as seen by the sample sizes of models 5 and 6. To ensure that the findings are not driven by the dropped data, I made the comparison through an alternative approach. Rather than splitting the sample, I created four dummy variables representing all possible low/high combinations of *industry* and *immigrant concentration* (divided at the median): both low, low immigrants/high industry, high immigrants/low industry, and both high. Although this reduces variation in the measures, it prevents any loss of data and still has a straightforward interpretation. Using these four dummies, I found that the high/high combination had the strongest positive influence on location choice and that it was statistically more positive than each of the other three combinations (results available upon request). Thus immigrants are most attractive to firms when industry concentration is highest.

Models 7 and 8 of table 2 compare across low- and high-technology firms. The coefficient of immigrant concentration has a more positive magnitude for

Figure 3. Relationship between immigrant concentration and location choice for firms in low- and high-technology industries.*



* A dot along the two lines indicates that the relationship across the two subsamples is significantly different. The “difference” line plots the difference in probability between the two lines at each point ($p < .10$ or lower). A horizontal (flat) line would indicate that the slopes of the two lines do not differ, whereas a sloped line indicates that the slopes differ from each other throughout the range of the observation.

highly knowledge-intensive firms (AME of 2.77 percent) than for less knowledge-intensive ones (AME of 1.32 percent), and this difference is significant ($p < .01$). Figure 3 depicts the interaction, which visually shows that the slopes of the two schedules are different, though the estimated confidence intervals for each reveal that statistically these differences exist only within the range of 0.1–0.3 percent immigrant concentration (where the bulk of immigration data is observed). The explanation is that there are very few entries of high-technology firms into locations with unusually high levels of immigrant concentration, so the predicted probabilities are fairly imprecise (wide confidence intervals) beyond 0.3 percent immigration. Thus H5a is supported but only within the range of data surrounding the sample mean of immigrant concentration.

Table 3 reports the survival results. Each survival model is based on a first-stage location choice estimation from which the Inverse Mill’s Ratio (the selection control) is calculated. The coefficients of the linear probability models are the same as the marginal effects because they are simply OLS estimates. Model 9 includes the controls only. Model 10 reveals that a 1-percent increase in immigrant concentration raises the likelihood of subsidiary survival by 7.7 percent ($p < .05$), in support of H2. This represents a 12.45 percent improvement in the likelihood of survival relative to the sample mean (61.8 percent). Models 11 and 12 are based on firms with low and high prior experience, respectively. Though the coefficients within each model are not different from

Table 3. Linear Probability Model of Subsidiary Survival with Selection Control*

	9 Controls	10 Main Effect	11 Prior Experience		13 Industry Concentration		14 High	15 Low Tech	16 High Tech
			Low	High	Low	High			
Immigrant concentration		0.0770** (0.0417)	0.0633 (0.0605)	-0.6294 (0.4803)	0.0703 (0.0674)	0.0904** (0.0544)	0.0352 (0.0438)	0.1485 (0.2374)	
t-test		N/A	p < 0.001 (H3b)		p < 0.05 (H4b)		p < 0.001 (H5b)		
Immigrant education	-0.0089 (0.0573)	0.0473 (0.0758)	0.0471 (0.0871)	0.1239 (0.1532)	-0.0473 (0.0935)	0.1511 (0.1025)	-0.0171 (0.0734)	0.2909 (0.1531)	
Immigrant household income	0.0007** (0.0003)	0.0006** (0.0003)	0.0010 (0.0031)	0.0004 (0.0004)	0.0013*** (0.0003)	0.0029 (0.0031)	0.0008** (0.0003)	0.0097 (0.0058)	
Immigrant years in USA	-0.0019 (0.0041)	-0.0008 (0.0045)	0.0016 (0.0050)	0.0024 (0.0101)	-0.0015 (0.0068)	0.0032 (0.0059)	-0.0012 (0.0049)	0.0022 (0.0079)	
GDP per capita (real)	-0.0103 (0.0115)	-0.0114 (0.0117)	-0.0090 (0.0174)	-0.0230 (0.0146)	0.0027 (0.0155)	-0.0157 (0.0207)	0.0017 (0.0123)	-0.0796** (0.0323)	
Median age (state)	-0.0076 (0.0330)	-0.0113 (0.0337)	-0.0205 (0.0473)	0.0024 (0.0558)	-0.0354 (0.0828)	0.0072 (0.0448)	0.0123 (0.0380)	-0.0864 (0.0776)	
Other-country immigrants	0.0117 (0.0081)	0.0134 (0.0082)	-0.0017 (0.0110)	0.0416*** (0.0102)	0.0362** (0.0139)	0.0074 (0.0113)	0.0098 (0.0092)	0.0274 (0.0223)	
Industry concentration	0.0230** (0.0088)	0.0230** (0.0091)	0.0195 (0.0169)	0.0157 (0.0136)	0.2180** (0.0940)	0.0153 (0.0099)	0.0220** (0.0099)	0.0396** (0.0179)	
Home-country rivals	-0.0036 (0.0185)	-0.0035 (0.0187)	-0.0015 (0.0204)	-0.0046 (0.0603)	0.0062 (0.1067)	-0.0026 (0.0198)	-0.0188 (0.0399)	-0.0128 (0.0203)	
Home-country firms	0.0011 (0.0066)	-0.0019 (0.0065)	0.0003 (0.0078)	-0.0122 (0.0158)	0.0433 (0.0226)	-0.0043 (0.0059)	0.0104 (0.0088)	-0.0117 (0.0095)	
Direct flights	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0001)	-0.0001 (0.0001)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	
Geographic distance	-0.0053 (0.0297)	-0.0058 (0.0293)	-0.0030 (0.0276)	0.0024 (0.0545)	-0.0286 (0.0419)	0.0170 (0.0343)	-0.0149 (0.0325)	0.0084 (0.0489)	
State education expense	0.0111 (0.0292)	0.0140 (0.0298)	0.0184 (0.0456)	0.0035 (0.0440)	-0.1042 (0.0691)	0.0161 (0.0384)	-0.0230 (0.0362)	0.1545** (0.0680)	
Federal education funds	-0.5540 (0.2946)	-0.5191 (0.2939)	-0.3420 (0.4409)	-0.5775 (0.4464)	-0.5456 (0.3940)	0.0258 (0.4580)	-0.5762** (0.2892)	-0.6395 (0.8272)	
State FDI incentives	0.0168 (0.0883)	0.0100 (0.0870)	0.1315 (0.1038)	-0.1820 (0.1489)	0.0138 (0.1344)	0.0081 (0.1495)	-0.0810 (0.0973)	0.2288 (0.1714)	
State corporate tax rate	-0.0161 (0.0143)	-0.0147 (0.0144)	-0.0010 (0.0204)	-0.0320 (0.0239)	0.0212 (0.0266)	-0.0197 (0.0201)	-0.0096 (0.0169)	-0.0220 (0.0274)	
State right to work laws	0.0247 (0.0791)	0.0215 (0.0789)	0.0875 (0.1214)	-0.0757 (0.0987)	-0.0613 (0.1381)	0.0189 (0.1237)	-0.0236 (0.0899)	0.1169 (0.2116)	
State unemployment rate	0.0086 (0.0544)	0.0095 (0.0543)	0.0114 (0.0728)	-0.0271 (0.0819)	-0.0073 (0.0798)	0.0090 (0.0751)	0.0016 (0.0614)	0.0216 (0.1260)	
State gas prices	-0.2673 (0.3272)	-0.3001 (0.3263)	-0.2174 (0.3194)	-0.2476 (0.5173)	0.3788 (0.5214)	-0.4232 (0.3329)	-0.0962 (0.4272)	-0.8240** (0.3959)	
State size (area)	-0.0000 (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)	
Inverse mill's ratio (selection control)	0.3132** (0.1347)	0.2998** (0.1379)	0.2402 (0.3008)	0.1684 (0.1193)	0.6630*** (0.1547)	0.1292 (0.1685)	0.2728* (0.1534)	0.5638*** (0.1876)	
Constant	1.0563 (1.4043)	0.7404 (1.4413)	0.7599 (2.0022)	0.5963 (2.3451)	1.2050 (3.1401)	-0.6849 (2.0495)	0.2812 (1.5755)	1.6183 (3.8789)	
R-Squared	0.1026	0.1016	0.0555	0.2849	0.3326	0.0884	0.1023	0.4848	
Model F	1.8388**	1.7473**	0.701	8.6892***	12.224***	1.0522	1.5453*	15.937***	
Sample Size	288	288	183	105	87	201	219	69	

* $p < .10$; ** $p < .05$; *** $p < .01$; one tailed tests for directional hypotheses; two tailed test for all else.

* Robust standard errors are in parentheses.

zero, the relevant comparison of interest is in the difference between the coefficients. A t-test reveals that immigrant concentration has a more positive coefficient on the rate of survival of firms with low experience than those with higher levels of experience ($p < .01$), supporting H3b.

I also find support for H4b in models 13–14. They reveal that immigrant concentration increases the survival of subsidiaries in locations with high industry concentration to a greater extent than those in locations with low industry concentration. Though the difference is relatively small in magnitude (9.04 percent vs. 7.03 percent), it is statistically significant ($p < .05$). Finally, the findings for firms in low- vs. high-technology industries provide support for H5b: models 15 and 16 show that immigrants have a much more positive impact on the survival of high-technology firms (14.85 percent) than on low-technology firms (3.52 percent), and this difference is significant across the subsamples ($p < .01$).

Robustness Tests and Other Considerations

Simultaneity and reverse causality. Given the cross-sectional nature of the data, omitted variables bias may be a concern if unobserved factors (e.g., attitudes toward foreigners) make locations mutually attractive for firms and immigrants, which would render the location choice results I report spurious. The survival results are less subject to this problem because they are estimated after accounting for selection. Importantly, the covariates and the moderating relationships reported above go some way toward addressing the concern. For example, controlling for other-country immigrants rules out that places with high general immigration—which are likely to have the unobserved factor that attracts immigrants and firms simultaneously—account for the observed findings. Also, the inclusion of many state characteristics affecting their attractiveness for individuals and firms (e.g., GDP per capita, distance, labor laws, industry activity, state size, etc.) reduces concerns. In addition, the likelihood that an omitted variable would vary systematically and simultaneously across the contingencies reflected in H3–H5 (prior experience, industry concentration, and knowledge intensity) seems quite low. Nevertheless, in a further test I reestimated all models excluding the eight states that received the highest levels of both immigration and investment (California, Texas, New York, New Jersey, Georgia, Illinois, Massachusetts, and Connecticut) because these are the most likely to have characteristics inherently attractive to foreign individuals and firms. The results are summarized in table A4 in the Online Appendix. Support for the hypotheses remained in all cases except for H5b (survival of low- vs. high-tech firms).

I conducted a similar test excluding the four countries making the most investments (U.K., France, Germany, and Canada) to see whether some unobserved attribute of these nations could explain away the findings. This additional analysis is also reported in table A4, and once again the pattern of results is highly supportive of those in the main analysis. The one exception is that H3b is not supported. Considering that more than half of the entries drop out of the sample, this suggests the results are fairly stable. In contrast, the results are sensitive if only the top four sending countries are included in the analysis—while the location choice results remain robust, only H5b is supported among the survival hypotheses.

Reverse causality could be another concern, in this case the possibility that entries by firms drive immigration rather than vice versa. This is a reasonable notion, especially if large clusters of expatriates move to the receiving location as the parent firm expands abroad. This concern is mitigated because I considered only first time entries by a firm into a state, ensuring that co-national immigrants were in the state before the firm. In addition, I controlled for the presence of same-country firms, so immigration driven by prior entries of other firms of the same nationality is accounted for. Also, a significant concentration of immigrants takes several years to form (Massey and Zenteno, 1999), so it becomes unlikely that a handful of firms would have a major impact on the measures of immigrant concentration in the short period of this study.

First-stage selection. While the selection model corrects for the bias that would exist in the second-stage (survival) results, there could be a selection issue in the first-stage because the sample assesses the choice of state but does not account for the choice to engage in FDI and enter the U.S. in the first place. I cannot fully correct for this because there is no good way to determine which firms might have considered alternatives to FDI in the U.S. (including domestic investment) or what alternative locations they would have considered. Nevertheless, I did take an important step by comparing the group of parent firms in the sample—all of which made an investment in the U.S.—to all firms in the same *Corporate Affiliations* directory year that did not invest in the U.S. (the “non-sample” group). I limited the non-sample group to the same home countries as those in the sample group. I then compared the sample to the non-sample group in terms of assets, liabilities, market value, and number of employees. These measures were not uniformly available for all firms in the directory, but they were the most commonly available measures I was able to obtain. When comparing all firms regardless of country, I found no difference across the sample and non-sample firms in terms of assets, liabilities, or market value, though the firms in the sample had greater numbers of employees ($p < .01$). I then compared sample to non-sample firms by country of origin. These within-country comparisons were not possible for all countries because of missing data, yet, for the cases in which it was possible, there were no systematic differences between sample and non-sample firms along the four variables. The firms in the source directory that invested in the U.S. do not appear to be systematically different from those that did not, except perhaps in number of employees if all countries are considered jointly. Of course, this does not fully resolve the possible concern, so the results should be interpreted only conditional on the decision to engage in FDI.

Are immigrants just consumers? If the benefits of immigrants were confined only to demand (vs. supply) opportunities, knowledge may not be necessary to explain the relationships I observe. After all, it would be reasonable for firms to expand into markets with a strong ethnic demand without any expectation of knowledge transfers motivated by shared nationality. Knowledge is necessary, however, to explain any supply-side effects of immigrants on location choice and survival. Thus an important test to dismiss this alternative explanation is whether immigrants affect organizations *not* subject to ethnic demand-side needs. To test this, I compared firms selling consumer and industrial

goods. Consumer firms provide products more prone to ethnic preferences sold directly to customers (e.g., food, cosmetics) (Kotler and Armstrong, 1996). In contrast, industrial firms sell to other companies that further process the focal firm's output, and such upstream products are less ethnically inclined (e.g., lumber, computer processors). While *both* types of firms plausibly benefit from immigrants as knowledge conduits, the relative importance of supply or demand effects leads to comparative differences in what they obtain from co-national immigrants. Thus it is important to demonstrate that immigrants affect the location choices of firms selling industrial goods, or at least that they do not affect *only* firms selling consumer goods. While this amounts to the null hypothesis, it eliminates the rather un insightful alternative hypothesis that immigrants are simply ethnic consumers.

I thus split the sample by the percentage of each subsidiary's sales to final users for personal consumption versus sales to other industries for further processing (industrial buyers). The data come from the 2002 input-output tables of the BEA. Firms with low levels (below the median) of this measure are industrial-goods-oriented, whereas those with higher levels are consumer goods oriented. The results reveal that immigrants significantly affect the location choice of *both* types of firms ($p < .01$) but that they have no relationship to the survival of either. This test rules out the possibility that immigrants are simply consumers and, in light of the three moderating hypotheses (H3–H5), suggests that knowledge is a plausible explanation.

City-level analysis. I argued above that states are appropriate geographic units of analysis for legal and historical reasons, but there are reasons why cities might be preferable because economic activity does not fit neatly within state boundaries—some economic clusters encompass more than one state (e.g., greater New York City), and some states contain multiple economic clusters (e.g., Houston and Dallas). While acknowledging the virtues of a city level analysis, I have opted for states in this particular study because of three data related considerations. First, a city-level analysis requires immigration data at the county level because MSAs or economic areas are aggregations of counties. The Census microsamples, which contain the most fine-grained data available, explicitly warn that information for small geographic areas (such as counties) is not accurate. In contrast, counts of immigrants and data on their characteristics are accurate at higher levels of aggregation such as the state. The studies that have used city-level data to explain FDI do not face such a measurement limitation (e.g., Alcacer and Chung, 2007). Second, many important covariates are available at the state but not the city level, including characteristics of immigrant groups, measures inherently controlled by state governments (labor laws, corporate taxes, FDI incentives), and other variables that are not reported for small geographic areas (e.g., energy costs). Third, and related, these covariates are essential in a cross-sectional study because they cannot be accounted for by specifying location-specific fixed effects. Because the decennial nature of the immigration data makes a cross-sectional design unavoidable, there are advantages in using states as units of analysis for this study.

With this in mind, and in the spirit of thoroughness, I conducted an analysis using the BEA's economic areas as location options. I had to eliminate areas with populations below 120,000 and drop firms from seven countries that sent

very few immigrants because the Census data are not accurate for very small locations or sparse immigrant groups. I also was unable to include as many covariates as I could in the state-level analysis. A full discussion of the details of these data and analysis is beyond the scope of this paper but is available upon request. Table A4 in the Online Appendix summarizes the results and lists the included covariates. With the caveat that the data are limited, all the hypotheses are supported except for H4b, because no significant difference exists in the survival of firms located in areas with low or high industry concentration. Overall, the findings reported at the state level appear to be highly similar to those at the city level—which mirrors what Chung and Alcacer (2002) found when reporting results at both levels of analysis. In addition, the results excluding the states receiving the most immigrants and FDI, which I reported previously, are helpful in this regard because they assess the sensitivity of the analysis to excluding states that contain multiple large cities within their boundaries.

Immigrant flows. The primary results are based on a measure capturing the stock of co-national immigrants as of 2000. In an attempt to capture the flow of immigrants, I subtracted immigrant concentration for each nationality by state in the 1990 Census from immigrant concentration based on the 2000 Census. This measures the change in immigrants over the ten-year period and introduces a temporal dimension to the independent variable (of course, the research design is still not fully longitudinal). The results of the estimation using this measure, and controlling for the change in total state population over the same period, are reported in table A4 and lead to virtually the same conclusions for the hypotheses, with the exception that H3a is not supported anymore. The findings are thus generally robust to accounting for change in the key variable of interest.

DISCUSSION

The objective of this study was to explore the impact of co-national immigrants on the process of expanding into foreign locations. The most direct theoretical contribution stems from demonstrating the role of immigrants as sources and conduits of knowledge that facilitates the process of international growth, but the study has broader implications for research on knowledge, organizational learning, and location. Existing studies of entrepreneurs have discussed the role of immigrants in transferring knowledge across borders (e.g., Saxenian, 2002; Kerr, 2008), but the implications of this have not been systematically applied to the investment decisions and performance of established firms. The results of this study indicate that common nationality links to immigrants are important to the process by which firms find a home away from their home countries because, as a source of homophily, they help overcome the relational and communication barriers to the exchange of knowledge. Because co-nationality is an exogenous resource, firms can capitalize upon the presence of immigrants to make specific foreign locations uniquely advantageous. The focus of the hypotheses and empirical tests was to show that co-national immigrants have a meaningful impact on where firms establish foreign operations and on the survival prospects of those operations. Moreover, I provide evidence suggesting that these results are driven by the way in which immigrants help co-national firms

access or transfer knowledge. These findings have implications for several literatures, with an emphasis on knowledge, learning, and the management of location, and they raise interesting possibilities for future work.

Theoretical implications. A classic issue explored in the knowledge and learning literatures relates to the barriers inherent in the knowledge transfer process, driven by relational conflict and the characteristics of tacit know-how. I have argued that co-nationality with a group of immigrants helps organizations overcome these barriers. This echoes prior work extolling the value of relationships and the resulting homophily, relational contracting, or trust as catalysts of knowledge exchange. Yet the nature of the relationship in this study differs from the types of interorganizational bonds discussed in prior work. Extant work has typically focused on exchange of know-how from one organization to another. In the context of this study, immigrants need not be agents of an organization—they can be individuals acting as mediators, motivated by co-nationality. Thus knowledge transfer might not necessarily involve organizations at all stages. I did not observe the entities to which the immigrants belong in this paper, but it would be interesting for future work to explore at what point organizations are necessary, and at what point they are not, to make knowledge transfer effective.

In addition, if immigrants function as third-party mediators by connecting firms to other sources of information, they are in a brokerage position. Although I have not framed the arguments around the notion of brokerage, I have argued that co-nationality predisposes immigrants to behave cooperatively because it helps overcome the typical barriers to knowledge exchange. This reasoning brings into question the notion that actors bridging structural holes are the competitively inclined *tertius gaudens* usually assumed or that the benefits of brokerage accrue mostly to the broker (e.g., Burt, 1992). Rather, the evidence here suggests that firms benefit from being brokered by immigrants and that there is an element of solidarity in the exchange. This possibility echoes recent work suggesting that the underlying quality of the relationship between network participants—cooperative or competitive—affects the benefits firms obtain from exchanging knowledge across organizational and national boundaries (e.g., Vasudeva, Zaheer, and Hernandez, 2013).

Relatedly, while extant work has focused on learning or knowledge arising from ties established with intended benefits in mind (e.g., alliances), I studied a kind of relationship that is more primal in nature and exists for reasons mostly beyond the control of the parties involved—as individuals and firms do not choose their country of birth—and thus is always present in potential form. Exploring how latent or potential social links become activated would be intriguing. One interesting direction would be to study what drives differences in organizational capabilities, which I have implicitly assumed to remain constant across organizations, to convert potential into actual benefits from links to external parties with common characteristics such as nationality. Of course, in this study I have not directly observed the formation of ties between firms and immigrants, so this would be an important step forward in further studies. Also, while this paper has focused on immigrants, this study implies that social ties more generally play a key role in helping firms obtain locational advantages. It would be interesting for further studies to compare the knowledge-related

effects of immigrants to other types of external connections, perhaps emphasizing the different outcomes for which formal, contractual ties such as alliances are useful and those for which less formal, latent ties such as co-nationality are well suited.

A related implication stems from the fact that social ties are unique to the parties involved in the relationship. Thus ties formed in the host location can function as isolating mechanisms for the resources obtained through those ties—raising the possibility that immigrants can help make a place endogenously beneficial for a firm by shaping the environment in its favor, channeling unique knowledge or other resources to co-national firms that firms of other nationalities cannot obtain. This notion echoes prior work on how firms can engage with their surrounding locations in beneficial ways (Feldman and Schreuder, 1996; Furman and MacGarvie, 2007), though research on location typically discusses firms choosing places to access resources that are, in principle, available to any firm within the location (e.g., labor, technological know-how). This begs the question of how a firm uniquely gains advantage from a place. In this vein, this study raises the intriguing possibility that the nature of the relationship with a source of knowledge embedded in a foreign location (such as a co-national immigrant population) is essential in explaining the ability of firms to convert location from a generic to a unique asset.

The results of this study provide some evidence in this regard, in that immigrants are stronger drivers of location choice and survival in locations with high levels of same-industry activity than in places with low levels of such activity. This finding should be useful in reconciling the tension between the benefits of location-specific externalities espoused by economists (e.g., Marshall, 1920) and the downside of local competition brought up by population ecologists (e.g., Sorenson and Baum, 2003), a key debate in the knowledge and location literatures. Whether firms benefit from industry-specific knowledge spillovers or suffer the competitive consequences depends on their ability to channel those spillovers into the firm. I argued that co-national immigrants play that important channeling role, though in fairness I did not observe the exact mechanism by which it occurs. It could be that firms are able to lure co-national immigrants away from other firms and capture the spillovers through employee mobility, or immigrants may act as network brokers in the process of local learning without needing to be employed by any of the parties. Getting down to this detailed level would be useful in furthering our understanding of how the benefits and costs of locating in economic clusters arise. But at a minimum, this evidence of channeling suggests that the spillovers of a specific location can be uniquely directed to firms of a certain nationality.

The finding that prior experience weakens the relationship between immigrant concentration and location choice and survival suggests a substitution effect between the knowledge obtained through immigrants and that obtained from prior experience; firms can make up for the lack of internal know-how within a foreign market by tapping into their latent, ethnic-based relationships. This informs one of the fundamental debates in the organizational learning literature, as the issue of whether experiential and vicarious learning are substitutes or complements has received mixed support (Argote and Miron-Spektor, 2011). While the results support a general substitution effect, it might be that certain conditions not explored in this paper reverse the relationship—such as the institutional context, the strategy of the firm, or the way in which firms are

connected (Tuschke, Sanders, and Hernandez, 2013). For example, the institutions of the various states in the U.S. are relatively more homogenous than those in other large countries, where prior experience in one location is less applicable to subsequent entries. Moreover, this finding addresses an important boundary condition of incremental models of international growth (Johanson and Vahlne, 1977), which have emphasized experiential learning as the driver of cautious expansion but tend to underemphasize the influence of vicarious learning on entry into markets in which firms lack prior relevant experience.

The study also has implications for work on technology and innovation, in light of the finding that immigrants are especially beneficial to firms in knowledge-intensive industries. Saxenian (2002) has already demonstrated the key role that immigrants play in Silicon Valley's high-technology entrepreneurship, and this study adds that immigrants seem to also be crucial to the international growth of technology firms. Inasmuch as these types of companies are seeking to develop new sources of knowledge and creativity, it would be interesting to evaluate how establishing foreign subsidiaries in places with high levels of immigration affects innovation, perhaps by looking at different outcomes such as patents or new product introductions. This relates to the keen scholarly and public interest in issues of technology, employee mobility, creativity, and the role of individuals in explaining firm performance (Mollick, 2012).

Limitations and future research. The cross-sectional research design places limits on claims of causality for the results. Although the use of selection models and a series of additional tests address some of the data constraints, ultimately the results should be interpreted as associational. Using U.S. Census data makes it necessary to do a cross-sectional study, but further studies might be able to get around this issue by using data available at shorter time intervals from other samples. Additional research is also needed to directly observe knowledge transfer and learning between firms and immigrants. While the moderating effects provide supporting evidence in this regard, the focus of this study has been on location choice and survival rather than knowledge outcomes per se. A different dependent variable, such as patenting or a survey of immigrants' knowledge transfer behaviors would be important empirical exercises to validate the assumptions of this paper. Relatedly, an interesting issue is whether the knowledge stock of immigrants is general or industry-specific. Data limitations prevented me from observing the credentials or work experience related to specific industries of the immigrant groups in this sample, but further work on this issue would be important to the literatures on organizational learning and knowledge transfer.

Another issue not directly addressed by this paper relates to the downsides and costs of relying on immigrants in the process of foreign investment. Anecdotal evidence suggests that managers fear that targeting immigrants creates a tradeoff between a small but secure niche market and a larger but less certain native market. For example, the fast food company Jollibee expressed this concern when considering locating restaurants in strong Philippine communities in the U.S. (Bartlett and O'Connell, 1998). Another potential downside, in light of the knowledge focus of this paper, could be that immigrants are trusted and effective but not accurate informants because they represent only a small

sliver of the greater population and thus might transmit biased or limited knowledge. These considerations evoke the notion of institutional duality (Kostova and Roth, 2002), in which managers face information, incentives, and pressures from various stakeholders (in this case, immigrants vs. natives). One implication of these considerations for the findings of this study is that, while I have used survival as a measure of performance, it could be that this outcome comes at the expense of growth. Though I do not have growth data to explore this possibility, it seems like an intriguing tradeoff to explore further.

Managerial implications. A phenomenological contribution of this study comes from explaining the relationship between organizational and human migration. Given the importance of both issues for society, the dearth of literature on the topic is somewhat puzzling (with the exceptions cited earlier in mind). Perhaps one reason for the lack of management research on the subject is that firms do not control large-scale immigration. Yet this research provides evidence that, at a minimum, they have latitude in responding to it. As the results suggest, managers seem to anticipate and realize the benefits of following immigrants into certain locations. Given the prevalence of immigration from emerging markets, and the increased global investments of emerging market firms, such staging of entry may be useful for firms from emerging economies and could be one way to explain the increasing role of such firms in the global landscape. More broadly, this paper motivates scholars and managers to consider migration as an important factor in the internationalization of organizations.

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REFERENCES

Ai, C., and E. C. Norton

2003 "Interaction terms in logit and probit models." *Economics Letters*, 80: 123–129.

Alcacer, J., and W. Chung

2007 "Location strategies and knowledge spillovers." *Management Science*, 53: 760–776.

Argote, L., and E. Miron-Spektor

2011 "Organizational learning: From experience to knowledge." *Organization Science*, 22: 1123–1137.

Arrow, K.

1974 *The Limits of Organization*. New York: Norton.

Bandelj, N.

2002 "Embedded economies: Social relations as determinants of foreign direct investment in Central and Eastern Europe." *Social Forces*, 81: 409–444.

Bartlett, C. A., and J. O'Connell

1998 "Jollibee Foods Corp. (A): International expansion." Harvard Business School Case.

Black, J. S.

1988 "Work role transitions: A study of American expatriate managers in Japan." *Journal of International Business Studies*, 19: 277–294.

Bobonis, G. J., and H. J. Shatz

2007 "Agglomeration, adjustment, and state policies in the location of foreign direct investment in the United States." *Review of Economics and Statistics*, 89: 30–43.

Buch, C. M., J. Kleinert, and F. Toubal

2006 "Where enterprises lead, people follow? Links between migration and FDI in Germany." *European Economic Review*, 50: 2017–2036.

Buckley, P. J., and M. Casson

1976 *The Future of the Multinational Enterprise*. New York: Macmillan.

Burt, R. S.

1992 *Structural Holes: The Social Structure of Competition*. Cambridge, MA: Harvard University Press.

Chung, W., and J. Alcacer

2002 "Knowledge seeking and location choice of foreign direct investment in the United States." *Management Science*, 48: 1534–1554.

Coughlin, C. C., J. V. Terza, and V. Arromdee

1991 "State characteristics and the location of foreign direct investment within the United States." *Review of Economics and Statistics*, 4: 675–683.

Coupé, T.

2005 "Bias in conditional and unconditional fixed effects logit estimation: A correction." *Political Analysis*, 13: 292–295.

Davidson, W. H.

1980 "The location of foreign direct investment activity: Country characteristics and experience effects." *Journal of International Business Studies*, 11: 9–22.

Delios, A., and W. J. Henisz

2003 "Political hazards, experience, and sequential entry strategies: The international expansion of Japanese firms, 1980–1998." *Strategic Management Journal*, 24: 1153–1164.

Delios, A., A. S. Gaur, and S. Makino

2008 "The timing of international expansion: Information, rivalry and imitation among Japanese firms, 1980–2002." *Journal of Management Studies*, 45: 169–195.

Feldman, M., and Y. Schreuder

1996 "Initial advantage: The origins of the geographic concentration of the pharmaceutical industry in the Mid-Atlantic region." *Industrial and Corporate Change*, 5: 839–862.

Florida, R.

2002 "The economic geography of talent." *Annals of the Association of American Geographers*, 92: 743–755.

Foley, C. F., and W. R. Kerr

2013 "Ethnic innovation and U.S. multinational firm activity." *Management Science*, 59: 1529-1544.

Furman, J. L., and M. J. MacGarvie

2007 "Academic science and the birth of industrial research laboratories in the U.S. pharmaceutical industry." *Journal of Economic Behavior and Organization*, 63: 756-776.

Glaeser, E. L., H. D. Kallal, J. A. Scheinkman, and A. Shleifer

1992 "Growth in cities." *Journal of Political Economy*, 100: 1126-1153.

Gould, D. M.

1994 "Immigrant links to the home country: Empirical implications for U.S. bilateral trade flows." *Review of Economics and Statistics*, 76: 302-316.

Granovetter, M.

1985 "Economic action and social structure: A theory of embeddedness." *American Journal of Sociology*, 91: 481-510.

Greene, W.

2004 "The behaviour of the maximum likelihood estimator of limited dependent variable models in the presence of fixed effects." *Econometrics Journal*, 7: 98-119.

Guillén, M. F.

2002 "Structural inertia, imitation, and foreign expansion: South Korean firms and business groups in China, 1987-95." *Academy of Management Journal*, 45: 509-525.

Gupta, A. K., and V. Govindarajan

2000 "Knowledge flows within multinational corporations." *Strategic Management Journal*, 21: 473-496.

Harris, C. D.

1954 "The market as a factor in the localization of industry in the United States." *Annals of the Association of American Geographers*, 44: 315-348.

Hecker, D.

1999 "High-technology employment: A broader view." *Monthly Labor Review*, 122: 18-28.

Heckman, J.

1979 "Sample selection bias as a specification error." *Econometrica*, 47: 153-161.

Heckman, J.

1981 "The incidental parameters problem and the problem of initial conditions in estimating a discrete time-discrete data stochastic process." In C. F. Manski and D. McFadden (eds.), *Structural Analysis of Discrete Data*: 179-195. Cambridge, MA: MIT Press.

Hoetker, G.

2007 "The use of logit and probit models in strategic management research: Critical issues." *Strategic Management Journal*, 28: 331-343.

Holburn, G. L. F., and B. A. Zelner

2010 "Political capabilities, policy risk, and international investment strategy: Evidence from the global electric power generation industry." *Strategic Management Journal*, 31: 1290-1315.

Hymer, S.

1976 *The International Operations of National Firms*. Cambridge, MA: MIT Press.

Iriyama, A., Y. Li, and R. Madhavan

2010 "Spiky globalization of venture capital investments: The influence of prior human networks." *Strategic Entrepreneurship Journal*, 4: 128-145.

Jacobs, J.

1961 *The Life and Death of Great American Cities*. New York: Random House.

- Javorcik, B. S., C. Ozden, M. Spatareanu, and C. Neagu**
2011 "Migrant networks and foreign direct investment." *Journal of Development Economics*, 94: 231-241.
- Johanson, J., and J. E. Vahlne**
1977 "The internationalization process of the firm: A model of knowledge development and increasing foreign market commitments." *Journal of International Business Studies*, 8: 25-34.
- Johanson, J., and J. E. Vahlne**
2009 "The Uppsala internationalization process model revisited: From liability of foreignness to liability of outsidership." *Journal of International Business Studies*, 40: 1411-1431.
- Kalnins, A., and W. Chung**
2006 "Social capital, geography, and survival: Gujarati immigrant entrepreneurs in the U.S. lodging industry." *Management Science*, 52: 233-247.
- Kane, A.**
2010 "Unlocking knowledge transfer potential: Knowledge demonstrability and superordinate social identity." *Organization Science*, 21: 643-660.
- Kane, A., L. Argote, and J. M. Levine**
2005 "Knowledge transfer between groups via personnel rotation: Effects of social identity and knowledge quality." *Organizational Behavior and Human Decision Processes*, 96: 56-71.
- Katz, E.**
2001 "Bias in conditional and unconditional fixed effects logit estimation." *Political Analysis*, 9: 379-384.
- Kerr, W. R.**
2008 "Ethnic scientific communities and international technology diffusion." *Review of Economics and Statistics*, 90: 518-537.
- King, G., M. Tomz, and J. Wittenberg**
2000 "Making the most of statistical analyses: Improving interpretation and presentation." *American Journal of Political Science*, 44: 347-361.
- Kogut, B., and U. Zander**
1992 "Knowledge of the firm, combinative capabilities, and the replication of knowledge." *Organization Science*, 3: 383-397.
- Kogut, B., and U. Zander**
1993 "Knowledge of the firm and the evolutionary theory of the multinational corporation." *Journal of International Business Studies*, 24: 625-645.
- Koka, B. R., and J. E. Prescott**
2002 "Strategic alliances as social capital: A multidimensional view." *Strategic Management Journal*, 23: 795-816.
- Kostova, T., and K. Roth**
2002 "Adoption of an organizational practice by subsidiaries of multinational corporations: Institutional and relational effects." *Academy of Management Journal*, 45: 215-233.
- Kostova, T., and S. Zaheer**
1999 "Organizational legitimacy under conditions of complexity: The case of the multinational enterprise." *Academy of Management Review*, 24: 64-81.
- Kotler, P., and G. Armstrong**
1996 *Principles of Marketing*. Englewood Cliffs, NJ: Prentice Hall.
- Levitt, P.**
2001a *The Transnational Villagers*. Berkeley, CA: University of California Press.
- Levitt, P.**
2001b "Transnational migration: Taking stock and future directions." *Global Networks*, 1: 195-216.

Levitt, P., and B. N. Jaworsky

2007 "Transnational migration studies: Past developments and future trends." *Annual Review of Sociology*, 33:129–156.

Lin, N.

2001 *Social Capital: A Theory of Social Structure and Action*. Cambridge: Cambridge University Press.

Mansfield, E., and A. Romeo

1980 "Technology transfer to overseas subsidiaries by U.S.-based firms." *Quarterly Journal of Economics*, 95: 737–750.

Marshall, A.

1920 *Principles of Economics*. London: Macmillan.

Martin, X., and R. Salomon

2003a "Knowledge transfer capacity and its implications for the theory of the multinational corporation." *Journal of International Business Studies*, 34: 356–374.

Martin, X., and R. Salomon

2003b "Tacitness, learning, and international expansion: A study of foreign direct investment in a knowledge-intensive industry." *Organization Science*, 14: 297–311.

Martin, X., A. Swaminathan, and W. Mitchell

1998 "Organizational evolution in the interorganizational environment: Incentives and constraints on international expansion strategy." *Administrative Science Quarterly*, 43: 566–601.

Massey, D. S., and R. M. Zenteno

1999 "The dynamics of mass migration." *Proceedings of the National Academy of Sciences of the United States of America*, 96: 5328–5335.

McFadden, D.

1974 "Conditional logit analysis of qualitative choice behavior." *Frontiers in Econometrics*, 8: 105–142.

McPherson, M., L. Smith-Lovin, and J. M. Cook

2001 "Birds of a feather: Homophily in social networks." *Annual Review of Sociology*, 27: 415–444.

Mollick, E.

2012 "People and process, suits and innovators: The role of individuals in firm performance." *Strategic Management Journal*, 9: 1001–1015.

Nahapiet, J., and S. Ghoshal

1998 "Social capital, intellectual capital, and the organizational advantage." *Academy of Management Review*, 23: 242–266.

Nanda, R., and T. Khanna

2010 "Diasporas and domestic entrepreneurs: Evidence from the Indian software industry." *Journal of Economics and Management Strategy*, 19: 991–1012.

Nelson, R. R., and S. G. Winter

1982 *An Evolutionary Theory of Economic Change*. Cambridge, MA: Harvard University Press.

Nisbett, R. E., and L. Ross

1980 *Human Inference: Strategies and Shortcomings of Social Judgment*. Englewood Cliffs, NJ: Prentice-Hall.

Oettl, A., and A. Agrawal

2008 "International labor mobility and knowledge flow externalities." *Journal of International Business Studies*, 39: 1242–1260.

Pascale, R. T., and E. T. Christiansen

1989 "Honda (B)." Harvard Business School Case.

Penner-Hahn, J., and J. M. Shaver

2005 "Does international research and development increase patent output? An analysis of Japanese pharmaceutical firms." *Strategic Management Journal*, 26: 121–140.

Polanyi, M.

1961 *The Tacit Dimension*. Chicago: University of Chicago Press.

Portes, A., and R. G. Rumbaut

2006 *Immigrant America: A Portrait*. Berkeley, CA: University of California Press.

Portes, A., and J. Sensenbrenner

1993 "Embeddedness and immigration: Notes on the social determinants of economic action." *American Journal of Sociology*, 98: 1320–1350.

Rangan, S., and M. Sengul

2009 "The influence of macro structure in the international realm: IGO interconnect- edness, export dependence, and immigration links in the foreign market performance of transnational firms." *Administrative Science Quarterly*, 54: 229–267.

Reder, M. W.

1963 "The economic consequences of increased immigration." *Review of Econom- ics and Statistics*, 45: 221–230.

Salomon, R., and X. Martin

2008 "Learning, knowledge transfer, and technology implementation performance: A study of time-to-build in the global semiconductor industry." *Management Science*, 54: 1266–1280.

Saxenian, A. L.

1999 *Silicon Valley's New Immigrant Entrepreneurs*. San Francisco: Public Policy Institute of California.

Saxenian, A. L.

2002 *Local and Global Networks of Immigrant Professionals in Silicon Valley*. San Francisco: Public Policy Institute of California.

Shaver, J. M.

1998 "Do foreign-owned and U.S.-owned establishments exhibit the same location pattern in U.S. manufacturing industries?" *Journal of International Business Studies*, 29: 469–492.

Shaver, J. M.

2007 "Interpreting empirical results in strategy and management research." *Research Methodology in Strategy and Management*, 4: 273–293.

Shaver, J. M., and F. Flyer

2000 "Agglomeration economies, firm heterogeneity, and foreign direct investment in the United States." *Strategic Management Journal*, 21: 1175–1194.

Shaver, J. M., W. Mitchell, and B. Yeung

1997 "The effect of own-firm and other-firm experience on foreign direct investment survival in the United States, 1987–92." *Strategic Management Journal*, 18: 811–824.

Simon, J. L.

1999 *The Economic Consequences of Immigration*. Ann Arbor, MI: University of Michigan Press.

Simonin, B. L., and J. Rialp

2002 *Freixenet Multimedia Case: The Australian Challenge*. Medford, MA: Fletcher School. CD-ROM.

Sorenson, O., and J. A. C. Baum

2003 "Geography and strategy: The strategic management of space and place." In J. A. C. Baum and O. Sorensen (eds.), *Advances in Strategic Management*, 20: 1–22. New York: Elsevier/JAI.

Stinchcombe, A. L.

1965 "Organizations and social structure." In J. G. March (ed.), *Handbook of Organi- zations*: 142–193. Chicago: Rand McNally.

Szulanski, G.

1996 "Exploring internal stickiness: Impediments to the transfer of best practice within the firm." *Strategic Management Journal*, 17: 27–43.

Teece, D. J.

1977 "Technology transfer by multinational firms: The resource cost of transferring technological know-how." *Economic Journal*, 87: 242–261.

Teece, D. J.

1981 "The market for know-how and the efficient international transfer of technology." *Annals of the American Academy of Political and Social Science*, 458: 81–96.

Tuschke, A., W. G. Sanders, and E. Hernandez

2014 "Whose experience matters in the boardroom? The effects of experiential and vicarious learning on emerging market entry." *Strategic Management Journal* (forthcoming).

UNCTAD (United Nations Conference on Trade and Development)

2006 *World Investment Report 2006*. New York: United Nations.

United Nations

2009 *Trends in International Migrant Stock: The 2008 Revision*. New York: United Nations.

U.S. Department of Education

2010 *Federal Role in Education*. Retrieved September 8, 2010. <http://www2.ed.gov/about/overview/fed/role.html>.

Vasudeva, G., A. Zaheer, and E. Hernandez

2013 "The embeddedness of networks: Institutions, structural holes, and innovativeness in the fuel cell industry." *Organization Science*, 24: 646–663.

Vernon, R.

1966 "International investment and international trade in the product cycle." *Quarterly Journal of Economics*, 80: 190–207.

Waters, M. C., and T. R. Jiménez

2005 "Assessing immigrant assimilation: New empirical and theoretical challenges." *Annual Review of Sociology*, 31: 105–125.

Wheeler, D., and A. Mody

1992 "International investment location decisions: The case of U.S. firms." *Journal of International Economics*, 33: 57–76.

Zaheer, A., E. Hernandez, and S. Banerjee

2010 "Prior alliances with targets and acquisition performance in knowledge-intensive industries." *Organization Science*, 21: 1072–1091.

Zaheer, S.

1995 "Overcoming the liability of foreignness." *Academy of Management Journal*, 38: 341–363.

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