

**Immigrant Social Capital and Firm Strategic Heterogeneity:
Effects on Foreign Entry and Firm Performance**

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Acknowledgments

My dissertation is, fundamentally, about relationships that enable the successful accomplishment of a business objective. Fittingly, the journey to create this dissertation has been marked by many relationships essential to its completion. My attempt to here acknowledge those who have helped me achieve the dream of an academic career is surely inadequate, yet worth making. I only hope that each person mentioned knows that my gratitude goes well beyond the few words I have dedicated to them.

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Abstract

I explore the effects of firms' ties to co-national immigrants on foreign entry and performance. I argue that location choice and subsidiary survival are influenced by immigrant social capital—which arises from common country bonds and becomes activated when firms co-locate with immigrants of the same nationality in a host location. Moreover, firms respond to and benefit differentially from the resources available through immigrant social capital based on heterogeneity in capabilities, resource needs, and the types of buyers they target. I test these ideas on a sample of foreign investments made by 197 firms from 27 countries into the U.S. between 1998 and 2003. Using a unique set of instruments to account for selection bias, I find strong support for my propositions. This dissertation makes theoretical contributions by showing that immigrant social capital provides firms with unique location-based advantages, and that strategic heterogeneity explains which firms seek out and benefit from social capital. It also has practical implications for managers and policy makers.

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Chapter 1

Introduction

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. Not surprisingly, economic factors such as the suitability of the weather for motorcycle use, population growth, and the purchasing power of potential customers played a key role in the decision. But another, less obvious, factor was also important: managers explicitly selected Los Angeles because there was “a large... Japanese community” that they believed could be helpful in the process of expanding into a new market (Pascale & Christiansen, 1989). Honda’s performance in the U.S. is by now legendary, in part because 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 success? Would the effect have differed if Honda possessed prior experience in the U.S., or operated in a different product market, or had different resource needs?

The example of Honda suggests a connection between two of the most conspicuous signs of globalization: corporate foreign investment and cross-national immigration. While significant bodies of research have separately grown around each phenomenon, we know surprisingly little about the relationship between immigration and the foreign expansion of firms (Iriyama, Li, & Madhavan, 2010; Rangan & Sengul,

2009). In this dissertation, I provide systematic evidence regarding this relationship by analyzing the effects of immigrants on two core outcomes of the foreign expansion process—location choice and subsidiary performance. While documenting this phenomenon represents a worthwhile objective in its own right, my broader goal is to further our understanding of a core issue in international strategy: when and how firms obtain advantages from location.

Research has typically explained the location choices of firms as driven by desirable attributes of places such as natural resources (Cheng & Kwan, 2000; Davidson, 1980), agglomeration economies (Marshall, 1920; Wheeler & Mody, 1992), or low production costs (Blonigen, 2005). These explanations are incomplete because they focus on location-based resources that are generic and thus equally available to all entrants, failing to address *which* firms will seek for and gain an advantage from being in a specific location. To partially address this concern, studies have shown that firms exhibit heterogeneity in how much they value or need the resources of a given place (e.g. Alcacer & Chung, 2007; Shaver & Flyer, 2000). Yet the issue remains that, even amongst the set of firms who value a given location, the types of resources discussed by extant work continue to be generically available to those who operate in that location (Zaheer & Nachum, 2011). To overcome this limitation, research must identify sources of location-based resources that are *uniquely available* to an identifiable subset of foreign entrants.

Consistent with this reasoning, I propose that social capital arising from ties to immigrants residing in a foreign location can function as a unique source of location advantages for firms of the same nationality as those immigrants. Co-national immigrants

differ from the types of locational attributes discussed by prior research because they are specific to the firm's country of origin and to the receiving location where immigrants have clustered. Since nationality is exogenous to both firms expanding abroad and to immigrants, and since immigrant clusters take significant time to develop, co-national ties to immigrants become hard to replicate as a source of advantage by other foreign firms. Returning to the Honda example, the strong presence of Japanese immigrants was a unique attribute of California and seems to have allowed the firm to capitalize upon the resources that California offered to motorcycle companies in ways that firms of other nationalities could not.

To expand these ideas, I develop two main propositions. First, social capital arises from the geographic clustering of immigrants and firms from the same home country within a host location. Such "immigrant social capital" affects where firms locate foreign operations and the survival of those operations. By virtue of their experiences across the home and host locations, immigrants span the distances (institutional, cultural, and others) that give rise to the liability of foreignness (Stinchcombe, 1965; Zaheer, 1995). Based on a shared history and framework of prior interaction arising from common nationality, co-national firms are uniquely able to tap into immigrants' repository of transnational resources. This gives co-national firms preferential access to knowledge, production inputs, and legitimacy which help lower operating costs or increase revenues within the host market—providing a unique advantage that increases the ability to obtain and benefit from location-based resources.

The second proposition is that heterogeneity in firms' strategic profiles produces a differential impact of co-national immigrants on the foreign activities of firms. I demonstrate that variation in firms' country-specific capabilities (measured as prior experience in the host country), in the types of buyers they target (consumer or industrial), and in the key resources they seek in the host location (human or physical) modify the propensity to co-locate with immigrants and the probability of survival in the host location. This strategic heterogeneity explains why not all firms of the same nationality seek after immigrant social capital.

I test these ideas on a sample of foreign investments into the United States made by 197 firms between 1998 and 2003, matched with detailed data on immigrants from 27 countries. An important empirical contribution comes from jointly estimating location choice and survival while accounting for selection bias (Heckman, 1979). The results provide clear and robust evidence that co-national immigrants have a significant effect on where firms establish operations and whether those operations survive, and that firms seek for the benefits of co-locating with immigrants differentially based on their strategic needs.

In addition to introducing a novel source of location-related advantages to the foreign entry literature, this study has important implications for two other bodies of research. The first is the work on social capital and firm strategy. Social capital, defined as resources arising from relationships which can be utilized to achieve individual goals (Coleman, 1988; Lin, 2001), is one of the primary theories explaining the effects of external ties on firms (Ahuja, 2000; Gulati, Nohria, & Zaheer, 2000; Koka & Prescott,

2002). Research in this area mostly focuses on network structure (the configuration of ties) or composition (the attributes of partners) as drivers of strategy and performance (McEvily & Zaheer, 1999; Stuart, 2000). Extant work explains the effects of social relations on firms based on differences in *access* to such ties (Lavie, 2006)—implicitly assuming homogeneity in the strategy of a focal firm that would lead it to seek out and benefit from social capital in the first place.

Yet a fundamental tenet of strategic management is that firms exhibit heterogeneous profiles (e.g. capabilities, resources) (Wernerfelt, 1984). I combine these two theoretical perspectives and argue that immigrant social capital will affect strategic choice and performance differentially based on firm heterogeneity. The context of this study is particularly attractive for this purpose because, in contrast to alliances and other interfirm ties commonly studied, immigration is an exogenous source of social capital that allows me to more easily observe firms' choices to seek or avoid social capital.

The other body of work which this dissertation advances focuses on immigration and its effects on the economy. As already mentioned, cross-national immigration has long been a source of public and academic interest, representing one of the fastest growing global trends with over 200 million people currently living outside their country of birth (United Nations, 2009). While research provides evidence of the effects of immigration on labor markets, social conditions, and entrepreneurship (Borjas, 1994; Kalnins & Chung, 2006; Portes & Rumbaut, 2006; Simon, 1999), we know significantly less about its impact on the foreign activities of established firms. A small but growing body of work has documented a positive effect of immigration on trade and FDI at the

country level (Bandelj, 2002; Gould, 1994; Head & Ries, 1998), and some management scholars have begun to show interest in the subject (Foley & Kerr, 2010; Iriyama, Li, & Madhavan, 2010; Rangan & Sengul, 2009).

These pioneering studies provide important evidence on the connection between immigration and corporate foreign expansion. However, they focus only on country-level effects or do not explain precisely how firms with different strategic profiles make decisions about when (and when not) to seek for the resources offered by co-national immigrants. I address this point by connecting the literatures on location and social capital to explain how immigrants produce unique advantages and which firms seek to capitalize upon those advantages. In addition, while this is admittedly not primarily a policy-oriented document, my work informs current—and often heated—policy debates by suggesting that issues of national openness to immigration and to foreign investment are inherently connected, and should be considered jointly by policymakers to arrive at coherent solutions to matters of public interest.

Outline of Chapters

The rest of this dissertation proceeds as follows. In Chapter 2, I summarize the three bodies of work most relevant to this study: location and foreign entry, social capital, and immigration and economic activity. The purpose of Chapter 2 is to position this study in the context of prior literature, outline the limitations of existing work, and explain how my work advances each of the three areas of study.

In Chapter 3, I build the theoretical arguments and present a set of testable hypotheses. I categorize the hypotheses into three types that progressively build upon

each other. The first set of predictions focuses on the main (unconditional) effect of immigrants on location choice and performance. The second set of hypotheses focuses on the characteristics of immigrant populations, proposing that their accumulated resources—which I capture through proxies such as education, income, and tenure in the receiving location—partially explain whether immigrants attract and benefit co-national firms. The final set of hypotheses emphasizes firm heterogeneity, demonstrating that companies strategically respond to the opportunities created by immigration in ways consistent with their strategic needs. I propose that firms will be influenced by immigrants in different ways based on varying levels of experience within the host location, on differences in the types of buyers they target, and on whether they primarily seek for human or physical production inputs.

In Chapter 4, I present the data and research design. I explain the virtues of the U.S. context for my purposes, describe the construction of the variables, and present the econometric tools I used to test the hypotheses. Chapter 5 contains the results of the analyses, along with a multitude of additional tests and robustness checks I conducted to address endogeneity concerns and validate the causal mechanisms. I conclude the dissertation in Chapter 6, where I discuss the findings and draw implications for researchers, managers, and policy makers.

Chapter 2

Literature Review

In this review of prior literature, I summarize the key concepts and findings from three bodies of work relevant to my dissertation: location and foreign market entry, social capital as it pertains to firms, and cross-national immigration and its effects on economic activity. For each body of research, I first summarize the primary theories and relevant empirical findings and then highlight the areas for expansion that my dissertation addresses.

Location and Foreign Market Entry

Dunning (1988) summarizes the market entry literature by suggesting that the cross-national activities of firms are explained by three factors. First, the types of assets that can be exploited or accessed to obtain competitive advantage by operating across different countries explain *why* firms go abroad. Second, the characteristics of a specific location that make it attractive as a place to establish operations explain *where* they would go. Finally, the benefits of internalizing foreign subsidiaries via equity ownership rather than utilizing weaker governance modes (such as licensing) explain *how* they organize foreign activities. Of these three factors, my dissertation primarily informs the ‘where’ aspects of market entry, and indirectly some of the ‘why’. Specifically, it demonstrates how immigrant concentration as a characteristic of a location affects the choice to establish operations in that place and the performance implications of that choice. I take ‘how’ factors related to internalization of operations (how they organize) as

given, but do explain ‘why’ co-national immigrants can help firms exploit or access performance-enhancing assets and resources.

Before proceeding to the location aspects of market entry, I will briefly review research explaining why firms internationalize because it provides the backbone for where firms choose to establish operations. Scholars have put forth resource-based and resource-seeking theories of market entry. The former argue that firms enter new markets because they can achieve profits by exploiting some kind of existing resource, usually an intangible asset that cannot be easily protected via legal contracting with a foreign partner. This logic characterized early theories of the MNE, which typically viewed the firm as developing valuable resources in the home market and then extending them to international markets in which those advantages remained after taking into account the costs of doing business abroad (Buckley & Casson, 1976; Hennart, 2001; Hymer, 1976; Vernon, 1966). McDonald’s replication of its franchise system to exploit its brand across the world is a good example of resource-based entry.

Resource-seeking explanations of market entry arose as firms became increasingly embedded in multiple countries and value chains became globalized, diminishing the dominance of headquarters relative to foreign subsidiaries. These theories argue that firms enter countries to develop or obtain resources that lower production costs or lead to innovative products (Kogut, 1991; Wesson, 1999). Examples of this kind of entry would include establishing a factory in China to lower manufacturing

costs, or setting up an R&D facility in a location with a particularly talented group of scientists¹.

These models of foreign investment are based on the crucial observation that, all else equal, domestic firms have advantages over foreign entrants. Such advantages come from having more experience, better access to suppliers, more political and social connections, or any factor providing superior knowledge about or legitimacy within the local market. The disadvantages of foreign players have been captured by the term ‘liability of foreignness’ (Zaheer, 1995)—a basic assumption upon which virtually all international business research relies. Such liabilities impose costs that decrease the (expected and actual) profitability of competing in foreign markets, and must be offset by some kind of revenue or cost benefit obtained by investing in the new market. Thus, the focus of the market entry literature has been on factors that somehow diminish liabilities of foreignness and increase the likelihood of success. In this light, market location choice—*where* to go—is one of the most important choices firms make to offset the costs of foreign expansion and produce unique place-based advantages.

The international economics literature has long studied the attributes of countries, cities, or other geographical units explaining the distribution of foreign subsidiaries. These studies share the basic notion that some immobile asset exists in a foreign location, and that firms need to operate in that location to benefit from that asset. The earliest models focused on relatively immovable factor endowments affecting the inherent

¹ Interestingly, the resource-based versus resource-seeking explanations of market entry have a parallel with the original resource-owning versus the modified resource-accessing RBV literature I will review in the section on social capital.

profitability of a location (Davidson, 1980; Isard, 1956), such as natural resources, market size, relative prices or wages, or transportation costs. These location-endowment models have been empirically verified for FDI involving many countries (Bevan & Estrin, 2004; Blonigen, 2005; Cheng & Kwan, 2000). In a seminal paper, Wheeler and Mody (1992) showed that in addition to natural factor endowments, foreign location patterns are strongly influenced by agglomeration economies. These arise because the clustering of firms produces externalities upon which cluster participants can capitalize, such as specialized workers and suppliers or knowledge spillovers (Marshall, 1920). Several additional studies have found evidence supporting industry agglomeration as a driver of location choice (Chung & Alcacer, 2002; Head, Ries, & Swenson, 1995; Nachum, 2000; Shaver & Flyer, 2000).

More recently, research with a foundation in international management has shown that, in addition to factor endowments and agglomeration, institutional-cultural differences between locations (usually pairs of countries) have a bearing on firms' location choices. These studies build on process models of internationalization driven by experiential learning. In a seminal piece, Johanson and Vahlne (1977) argue that the liability of foreignness stems primarily from firms' lack of knowledge regarding a target market, which creates a 'psychic distance' between the existing markets in which the firm operates and those which it can potentially enter. Such distance can arise due to dissimilarities between locations along many dimensions—such as culture, institutions, and technology, among other factors—and creates uncertainty which diminishes the prospect of market entry. These authors make two key propositions. First, firms are most

likely to enter markets that are less ‘distant’ (most similar) to those in which it currently operates. Second, firms will enter a given market gradually by making incremental commitments—e.g. moving from exporting, to forming an alliance, to fully owning operations. While the incremental commitment hypothesis has received little empirical support (Eriksson, Johanson, Majkgård, & Sharma, 1997; Pedersen & Shaver, 2002), research has mostly shown support for the institutional-cultural similarity hypothesis. For example, studies show an inverse relationship between cultural (Li & Guisinger, 1992; Loree & Guisinger, 1995), political (Chen & Chen, 1998; Delios & Henisz, 2003; Holburn & Zelner, 2010), and institutional (Bénassy-Quéré, Coupet, & Mayer, 2007) distance and the likelihood of market entry.

With distance (broadly defined) between the home and host locations as a central determinant of market location choices, scholars have devoted attention to factors that somehow reduce that distance and enhance the prospect of successful investment. Some of the prominent factors include alliances with local partners (Hennart & Reddy, 1997), imitation of other firms’ entries (Henisz & Delios, 2001; Zaheer, 1995), and economic and historical ties between countries (Rangan & Sengul, 2009). However, prior experience seems to occupy a central place in this literature. Based on theories of organizational learning, scholars have found that prior experience in a location enhances future success within it (Barkema, Bell, & Pennings, 1996; Kogut, 1983; Pennings, Barkema, & Douma, 1994; Shaver, Mitchell, & Yeung, 1997). In addition, a process of vicarious learning from information spillovers has also been inferred by studies assessing

how the presence of other firms in a foreign market affects the location choice and performance of a focal firm (Mitchell, Shaver, & Yeung, 1994).

A recent emphasis in this work has been to dissect prior experience into various dimensions. The key idea in these studies is that general international experience may not be as useful or relevant as experience in specific domains critical to success in a target location. For example, Shaver et al. (1997) show that firms benefit the most from the presence of other foreign firms in a host country given two conditions. First, the focal firm must have at least a presence in the foreign market so as to possess some absorptive capacity; second, the experience of others must be in industries different from those in which the focal firm has a presence so as to not be redundant. More recently, research has shown that experience with politically and institutionally challenging environments leads firms to locate in markets with similar political and institutional challenges and be more successful within them (Delios & Henisz, 2003; Holburn & Zelner, 2010).

Areas for Expansion. As mentioned in the introduction, the reasoning that firms benefit from locating in places with attractive characteristics (e.g. natural resources, industry agglomeration) or those somehow related to firms' prior experience cannot explain *which firms* will specifically gain a location-based advantage. On the one hand, attractive resources alone are insufficient to explain why firms would obtain any kind of advantage because the attractive features are generically available to all firms in the location. On the other hand, while similarity in institutions, culture, and other features may lead firm to enter a specific location, similarity alone does not imply improved performance—it only suggests that foreign managers will be comfortable doing business

in environments similar to those with which prior experience has made them familiar. The common limitation arises because the sources that make a location attractive in prior work are usually not unique to a specific firm's profile (Zaheer & Nachum, 2011).

Some scholars have partially addressed this limitation by focusing on firm heterogeneity to explain that firms will differ in how much they value or need certain characteristics of locations (Alcacer & Chung, 2007; Shaver & Flyer, 2000). Nevertheless, even amongst the set of firms who value a given location, the types of resources typically considered are generically available to the firms that establish operations in the place. In this study I offer a different but complementary solution to the problem of unique advantage from location.

Namely, I argue that the ability to establish unique relations giving rise to social capital within a location causes some location-related resources to be uniquely available to some firms but not others. In particular, social ties to co-national immigrants are helpful to some firms because not all firms have equal access to such immigrants when going abroad. Since large-scale immigration is generally exogenous to any given firm, it provides *a source of strategic heterogeneity for foreign entrants unique to each source country-target location combination* for foreign firms. Thus, immigrant social capital functions as a type of barrier or isolating mechanism for some firms, becoming a location-related source of advantage unlike traditional locational attributes considered in the literature.

More broadly, the effects of networks and social capital have received little attention as potential sources of resources that increase the likelihood of investment in a

location and of success once the investment has been made. Some work has recently been conducted in this area, showing that firms are more likely to establish foreign subsidiaries in a given country if their home country partners have already done so (Guillén, 2002; Guler & Guillen, 2010; Martin, Swaminathan, & Mitchell, 1998). However, ties to immigrants are a novel type of connection that merits study in the context of foreign entry for reasons that I explain below when reviewing the literature on immigration and economic activity. In addition, we lack empirical evidence that network driven foreign investment is actually a good strategy that improves performance in the target market, which I am able to observe in this dissertation.

Social Capital, Resources, and Firm Networks

In lay terms, social capital expresses the idea that ‘it’s not just what you know but who you know’ that helps you accomplish your goals. That idea has been theoretically developed by scholars and extended to firms, which have external relationships with many other partners and stakeholders. Formally, social capital refers to “resources embedded in a social structure that are accessed [or] mobilized in purposive action” (Lin, 2001). This definition contains the two key components of social capital central to all treatments of the subject by leading scholars (Bourdieu, 1985; Burt, 1992; Coleman, 1988; Nahapiet & Ghoshal, 1998; Portes, 1998): social structure and resources. Resources refer to any kind of assets, tangible or intangible, that can be accessed or shared in a social exchange. Social structure refers to any non-transient, relatively enduring relationship between actors (Zukin & DiMaggio, 1990).

Adler and Kwon (2002) provide a list of five qualities that make it appropriate to call social capital a form of capital. First, firms can invest in social capital with the expectation of future benefits (although quantifying the expected benefits of social relations is particularly challenging a priori). Second, capital of the social kind is appropriable and convertible into other forms of capital. For example, a firm can learn from the experiences of its alliance partners and use that knowledge to create products that can be exchanged for financial capital. Third, social capital can substitute or complement other types of resources and capital. Fourth, firms' external relations generally need maintenance or they decay and depreciate (social capital does not decay with use, but only with non-use). Fifth, social capital can be a private good that excludes outsiders, such as those not involved in a specific type of relationship, as well as a public good that benefits a collectivity.

Crucially, social capital has one quality that makes it *distinct* from any other type of capital: it cannot be owned by an individual party. Instead, social capital always exists in the relationship between two or more entities. This distinction is crucial to differentiate between resources that a firm can obtain through unilateral action versus those that it can only access by participating in relations with other entities. Even though they cannot be owned, resources arising from social capital can be *accessed* and their benefits appropriated by individual parties—a key point which I develop in more detail below.

The concept of social capital is very broad in its application to relationships between entities at any level of analysis (e.g. individual, group, and organization). Given the topic of this dissertation, I will focus my review on research relevant for relationships

involving firms and their strategies to improve performance. While there is a rich social capital literature involving relationships between individuals and teams, I will generally not refer to it unless it provides theoretical insights relevant for firm-level research. Given that resources and social structure are the main components of social capital, and that my focus is on firms' foreign expansion efforts, I will define those terms more precisely and explain their importance by drawing from research in strategy and management.

The resource-based view (RBV) of the firm focuses on explaining the importance of resources to achieve competitive advantage. Penrose (1959) was the first to define the firm as "a collection of productive resources". Early treatments of the RBV defined resources as "those (tangible and intangible) assets which are tied semipermanently to the firm" (Wernerfelt, 1984), which includes things such as brand names, knowledge, technologies, personnel, processes, and more. Barney's (1991) seminal article argued that resources must simultaneously be valuable, rare, inimitable, and non-substitutable to lead to sustained competitive advantage (Peteraf, 1993; Wernerfelt, 1984). As a significant body of empirical evidence built up to validate the basic claims of the RBV (Armstrong & Shimizu, 2007; Barney, 2001), a parallel literature emerged demonstrating how external resources arising from alliances and other types of network ties affect firm strategy and performance (Gulati, 2007).

Lavie (2006) provides an important connection between the RBV and the social networks literature by pointing out that while the RBV is agnostic to where firm's resources come from, it has generally assumed that a firm must own and control a resource to appropriate its value. Based on the abundant evidence that firms obtain

performance-enhancing resources from alliances and other forms of collaboration, Lavie (2006) argues that the RBV can be extended to include any resource that the firm can *access*—whether it owns that resource or not. This represents an important extension because it places the RBV squarely within the domain of social capital (and vice versa). In fact, a major area of strategy research now concerns itself with understanding the antecedents and consequences of network resources and capabilities (Gulati, 2007). The basic claim of the RBV—that resources must be valuable, rare, inimitable, and non-substitutable to lead to competitive advantage—remains intact. However, the recognition that firms can obtain social capital suggests that such resources can come from firms’ external relations. Thus, I define resources in line with a modified conception of the RBV as those tangible and intangible assets which the firm internally owns or can externally access through network ties to external entities.

I define social structure above as any relatively enduring, non-transient relationship between organizations. To make this definition more concrete, I follow Nahapiet and Ghoshal (1998) in distinguishing between three dimensions of social structure giving rise to social capital. First, the structural dimension refers to the configuration of linkages between actors in a network (Granovetter, 1992). This aspect of social structure is by far the most popular and commonly researched in organizational studies, and includes work on network positions such as structural holes, closure, centrality, and related concepts (Burt, 1992; McEvily & Zaheer, 1999; Shipilov & Li, 2008). Second, the relational dimension of social structure refers to “the kinds of personal relationships [actors] have developed with each other through a history of interactions”

(Nahapiet & Ghoshal, 1998). The relational aspect has been emphasized in—usually dyadic—studies of trust, norms, and affective issues that allow firms to more successfully jointly execute strategies (Khanna, Gulati, & Nohria, 1998; Ring & Van de Ven, 1992; Zaheer, McEvily, & Perrone, 1998). Third and less commonly studied, the cognitive dimension represents “those resources providing shared representations, interpretations, and systems of meaning among parties”, including shared codes and narratives (Nahapiet & Ghoshal, 1998). In this vein, firms can develop shared cognitive resources with other entities that allow for the more effective transfer of knowledge and information (Koka & Prescott, 2002).

Given the importance of social capital in helping firms achieve their goals, researchers have studied the factors that drive firms to establish inter-firm ties. These studies suggest that often social structure is the product of intentional efforts to obtain resources from partners (Ahuja, 2000; Ahuja, Polidoro, & Mitchell, 2009). Nevertheless, as Gabbay and Leenders (1999) observe, “the social structure that brings opportunities for the realization of particular goals need not have been built in the pursuit of these goals—social capital is often a by-product of other social activity.”

The issue of whether network ties are endogenous or exogenous for firms is crucial but only beginning to receive explicit treatment by scholars (Ryall & Sorenson, 2007). While a full discussion of this topic is well beyond the scope of this dissertation, I should at a minimum state my assumptions and beliefs regarding strategic choice in forming and utilizing social ties in the context which I study. I explore effects arising from the relationship a firm has with immigrants from its own country. Co-nationality is

exogenous because individuals and firms do not control where they are born². The tie between a firm and individuals sharing a nationality exists in latent form and is not explicitly created in the same sense as a strategic alliance or board interlock. However, I view the choice to utilize that tie by a firm expanding abroad as a strategic choice that some firms make and other do not based on their strategic needs and objectives. Demonstrating this heterogeneity in firms' responses towards immigrants is a central objective of this project.

Areas for Expansion. Clearly the concept of social capital has provided a fruitful way to explain how firms are affected by their external relations while still pursuing individual goals to enhance their performance. I address two limitations in this literature to help further our understanding of corporate social capital.

First, extant research has focused almost exclusively on social capital arising from firm-to-firm relationships. These include strategic alliances, board interlocks, venture capital syndicates, and other linkages in which the networked parties are firms. This focus makes sense as these kinds of relationships are the most direct and obvious in their impact on strategy and performance because they are established for business reasons. Nevertheless, firms have relationships with many types of stakeholders such as governments, interest groups, ethnic populations, and more (Freeman, 1984). Management scholars have tended not to study whether and how such relations may give rise to social capital that enables (or constrains) strategic action, perhaps because several

² Some could argue that firms do have latitude over where they are established. This may be true for a small subset of entrepreneurial firms whose founders deliberately select the country in which the venture will operate. However, my study is limited only to established firms who cannot change their country of origin and thus expand abroad through FDI.

of the relationships with these stakeholders have no explicit business purpose or exist only in latent form.

The main exception is the research on firm-government relations. That literature shows that firms' political ties have important implications for firms (Fisman, 2001; Hillman, 2005; Peng & Luo, 2000), and has given rise to a body of work on 'non-market strategy' (Baron, 1995). For example, Siegel (2007) shows that ties to the ruling political party in South Korea created differential opportunities for firms to establish international joint ventures. Importantly, when the political regime changed unexpectedly, firms with ties to the old regime lost those opportunities, while those tied to the new regime saw their rate of foreign alliances increase. By studying firms' ties to immigrant groups, I attempt to demonstrate that a novel type of stakeholder can provide (at least some) firms with competitive advantages, with the implication that firms source knowledge and other resources from a broader set of sources than considered by existing research. The reason for my choice of immigrants in particular can be found next in my review of literature on the effects of immigration on the economy.

Second, I explained above how the shift in emphasis from ownership of internal resources to *access* of resources via network relationships creates an inherent relationship between the RBV and social capital. Consequently, empirical work shows how variation in firms' ability to *access* network resources drives differences in firm strategy and performance. Yet such work implicitly holds the strategic heterogeneity (e.g. goals, capabilities, resources) of firms constant. One of the objectives of this study is to relax such an implicit assumption and demonstrate how firm heterogeneity affects whether

firms seek out and benefit from social capital in the first place. The context of immigration is especially valuable in this regard because immigrants are an exogenous source of social capital for firms, whereas many of the networks studied by extant work (e.g. alliances) are not. The exogenous nature of immigration allows me to more easily observe when firms seek for (and, importantly, when they do not) social capital in the first place.

In addition, perhaps because the RBV and social capital represent parallel research traditions, few studies have considered how internally owned and externally accessed resources or capabilities relate to each other (Zaheer & Bell, 2005). One important question in this regard pertains to whether resources owned by the firm versus those residing with network partners function as substitutes or complements, and under what conditions. If firms can make up for the lack of internal assets by capitalizing upon their external ties, then network resources should function as substitutes for internal ones. However, if networks provide access to different types of resources than those internally developed or owned, then internal resources may be complemented by network ones.

I provide some evidence on this issue by studying how co-national immigrants impact location choice and performance within the same country by comparing firms with different degrees of experience in the host country. This allows me to test whether the social capital based resources provided by immigrants become more or less impactful in the sequential investment process, and thus to assess the substitutability or complementarity of internal and external resources. More broadly, this contributes to the

literature by integrating the capability (or resource) tradition in strategy with the social capital tradition in economic sociology.

Immigration and Economic Activity

A Primer on Immigration. Immigration occurs when people move permanently across geographical locations. My interest is in international immigration, which involves movements of people across national boundaries, and I will focus on immigrant clusters rather than on individual immigrants. Immigrant clusters arise when a population of immigrants concentrates within a defined geographical area—a province, state, or country (e.g. Mexicans in California or Indians in England). While management scholars have generally paid little attention to immigrant concentration as a characteristic of investment locations (Iriyama et al., 2010 and Rangan & Sengul, 2009 are notable exceptions), they have done considerably more work when it comes to individual immigrants. Such work includes the human resources literature on expatriate managers (Black, 1988) and the literature on individual immigrant entrepreneurship (Kalnins & Chung, 2006; Kerr, 2008; Nanda & Khanna, 2010; Saxenian, 1999; 2002). In contrast, immigration as a population-level phenomenon has been more extensively studied in sociology, economics, and political science. In this section, I will present some of the relevant findings from these fields, which provide many of the important facts about the phenomenon that I will build upon throughout my dissertation.

Traditional studies of cross-national migration focused mainly on the activities of migrants in the receiving country. In sociology, the major concern has been with how migrants assimilate into the new society through various mechanisms such as language

acquisition, labor participation, or political involvement (Levitt & Jaworsky, 2007). In economics, scholars have emphasized the impact of immigrants on labor markets in the receiving country (Borjas, 1994). One assumption behind older studies on the topic was that ties to the homeland were virtually severed or simply irrelevant to the immigration experience. While this may have been a reasonable expectation for 19th century migrants who had great difficulty communicating and traveling home, it is inappropriate in an age of instant communication and affordable travel. Scholars now accept that migrants maintain familial, social, economic, and political ties across the sending and receiving countries. The following statement is representative of this view:

Once begun, migration spreads through social networks...In many cases, the magnitude, duration, and impact of migration is so strong that *migrant social networks mature into transnational social fields or public spheres spanning the sending and receiving country*. These extend beyond the chains of social relations and kin that are specific to each person located within them...The *economic initiatives, political activities, and socio-cultural enterprises* in which they engage are powerfully shaped by the social fields in which they are carried out. 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. The transnational social fields that migration engenders encompass all aspects of social life. (Levitt, 2001a, emphasis added)

This phenomenon, referred to as immigrant transnationalism, suggests that migrant social networks are prevalent conduits of several types of exchange: economic, political, and cultural. Importantly, transnationalism allows immigrants to more comfortably operate in the home and the host environments by leveraging their knowledge about both places. Transnational activities are carried out by immigrants at all social levels, from grassroots movements to fund a parish back home (Portes & Rumbaut, 2006), to formal political lobbying (Levitt, 2001b), to transfers of technology and

business ideas (Kerr, 2008; Nanda & Khanna, 2010; Saxenian, 2002). A view of migration as an activity that affects and is affected by multiple fields spanning the sending and receiving country provides the impetus to understand how immigration influences the actions of entities beyond the individual immigrant, including those of organizations across national boundaries—a point I develop later when building the arguments to support the hypotheses.

The notion of transnationalism underpins the fact that immigrant populations tend to concentrate or cluster within specific geographical areas and form relatively dense local populations within countries, regions, or cities. This concentration is explained by the cumulative causation (or path-dependence) that characterizes the location choices of individual immigrants. Massey (1990) and Massey and Zenteno (1999) show that past location choices are strong predictors of current location choices by immigrants of the same country (or region) of origin. This dynamic process occurs as current migrants provide information about the receiving country to migrants preparing to make the trip abroad. Moreover, immigrant concentration creates a setting in which the group can develop the influence and obtain the necessary resources to successfully complete the process of assimilation to the host location (Portes & Rumbaut, 2006; Portes & Sensenbrenner, 1993).

Immigrant groups are heterogeneous in terms of resources and influence—both across nationalities within a given location, and across locations within a given nationality. The concept of assimilation broadly captures the amount and quality of resources that an immigrant population has achieved relative to the native population

(Waters & Jiménez, 2005). More assimilated immigrant clusters possess higher degrees of human, financial, social, and physical resources. The mix of these various dimensions of assimilation provides a picture of the assets possessed by an immigrant cluster, which in turn create heterogeneity in the economic, cultural, and political influence of various groups. Thus, for example, groups composed primarily of highly educated and wealthy immigrants tend to generate greater access to resources and influence for their co-national peers than groups composed of low-skilled, uneducated, and poor immigrants.

From this brief description of major findings from research on cross-national migration, it is possible to reach a set of stylized facts. International migrants tend to agglomerate within defined geographic areas (countries, provinces, or states) and maintain ties to their home lands that turn into transnational networks affecting the social, political, and economic arenas. These networks carry information and resources across national boundaries. The quality and intensity of flows through the transnational network vary depending on migrants' degree of assimilation. These basic facts—especially the notion of transnationalism—are sufficient to observe that immigration can potentially have important effects on the movement of goods and capital across borders. While not directly citing the concept of transnationalism, macroeconomists have provided a small but quickly growing body of evidence in this regard, which I review next.

Immigration, Trade, and FDI. The first studies showing a relationship between immigration and global economic activity focused on trade (imports and exports) between countries. In a seminal article, Gould (1994) put forth two arguments for why immigration increases trade: “First, immigrants tend to bring with them a preference for

home-country products; and second, immigrants bring with them foreign market information and contacts that can lower the transaction costs of trade.” This became an important precedent by suggesting demand (preference for home-country products) and supply side (lowering transaction costs) benefits of immigration. Using aggregate data, Gould showed that the number of immigrants from a given country in the U.S. increased the amount of imports and exports between the U.S. and that country. Subsequent studies used similar arguments and replicated these findings in the U.S. (Co, Euzent, & T. Martin, 2004; Dunlevy, 2006; Mundra, 2005), Canada (Head & Ries, 1998; Wagner, Head, & Ries, 2002), China (Rauch & Trindade, 2002), Spain (Blanes, 2005), Greece (Piperakis, Milner, & Wright, 2003), and France (Combes, Lafourcade, & Mayer, 2005). Some studies reported that immigrant groups with more education had a stronger effect on trade than less educated groups (Gould, 1994; Head & Ries, 1998).

More recently, scholars have found that immigration also affects FDI between countries using data from Germany (Buch, Kleinert, & Toubal, 2006), the U.S. (Foad, 2009; Kugler & Rapoport, 2007; Madhavan & Iriyama, 2009), and Eastern Europe (Bandelj, 2002)³. Echoing Gould's (1994) arguments with regards to trade, the studies just cited also argue that immigrants function as conduits of information that increase expected demand and lower operating costs in the host market. Foad (2009) suggests that immigrants may also lower the political hazards of foreign investment by creating a more

³ For economists, the positive relationship between immigration and FDI challenges the neoclassical assumption that labor and capital are substitutes in the production process (Kugler & Rapoport, 2007). If neoclassical theory were correct, immigrants (labor) and FDI (capital) would flow in opposite directions. Showing that they flow in the same direction suggests that they are in fact complements and that immigration does more than simply provide a pool of labor to firms.

favorable institutional environment for foreign firms, though this mechanism is not empirically demonstrated in his study. His study does show, however, that the effects on FDI are strongest for the most educated and skilled immigrant populations.

Areas for Expansion. The work just highlighted provides an important motivation to further study the relationship between immigration and foreign entry from a global strategy standpoint because firms are the primary conduits of FDI. Yet by focusing on country-level trade and FDI, macroeconomic research does not consider that foreign investment decisions are made by firms following heterogeneous strategies. Only two very recent firm-level studies touch upon the subject. Rangan and Sengul (2009) demonstrate that foreign subsidiaries have higher sales if the home and host country have strong historical immigration ties and argue that such connections facilitate control of foreign operations by making it easier for MNCs to convince employees in headquarters to accept stints as expatriates. Iriyama et al. (2010) argue that homophily and historical ties between locations increase firm preferences to interact with those of similar backgrounds and find that foreign VC firms in the U.S. are more likely to locate in states with higher immigrant concentrations. These studies, however, focus only on the main effects of immigration.

In short, extant work at the country level does not provide theory to explain how and why firms respond to the presence of immigrants abroad, and the scant work at the firm level does not account for the heterogeneous effects of immigrants on firms with different strategic profiles. Given the basic premise of strategic management that firms are heterogeneous in resources, capabilities, and competitive profiles, not all firms should

respond in the same way to the opportunities created by immigrant concentration. Thus, different firms will deem the opportunity to co-locate with immigrants from their home countries as differentially attractive—and sometimes even unnecessary and unattractive. Implied in this observation is the need to assess the performance effects of locating foreign subsidiaries where co-national immigrants reside, which so far has not been done.

Taking into account firm heterogeneity to better understand this phenomenon also creates the challenge of theoretically explaining the mechanisms that would lead firms to invest (or not invest) in new markets in response to immigrant concentration. While prior research highlights the demand and supply benefits provided by immigrants, it does not clearly specify how firms sharing a common national origin with the immigrant group would be able to appropriate those benefits more than other firms, and under what conditions. I provide an answer to this issue by drawing on the location and social capital literatures reviewed previously. Finally, I make a key empirical contribution by assessing the effects of immigrants not only on the choice of FDI location, but also the performance of foreign subsidiaries once the location choice has been made. This becomes important to validate the idea that firms actually obtain some kind of valuable resource from co-national immigrants, and also to provide useful managerial recommendations to firms seeking to engage in immigrant-driven investment strategies.

Conclusion

I have identified areas for advancement within three bodies of literature and anticipated how studying the effects immigrants on foreign entry and performance can help make progress in each one of those fields of study. For the literature on foreign

entry, my dissertation introduces co-national immigrants as a source of location-related advantages that is uniquely available to firms of certain nationalities within a target location, addressing the issue of when location can become a source of advantage. For the social capital literature, this work suggests the importance of moving beyond traditional inter-firm ties (e.g. alliances) and into other types of valuable relationships with stakeholders such as immigrants. Moreover, the relatively exogenous nature of immigration and the focus on firms' heterogeneous objectives help address the issue of when firms seek out and benefit from social capital in the first place by shifting the focus from *access* to social ties to the strategic choice to capitalize upon those ties. For the work on the economic effects of cross-national immigration, my thesis adds a strategic perspective by showing that firms exhibit heterogeneity in their responses to the opportunities created by immigrant concentration. Next, I develop of a set of testable hypotheses to demonstrate that immigrant social capital affects location choice and performance.

Chapter 3

Immigrant Social Capital, Location Choice, and Firm Performance

Because of transnationalism, immigrants bridge the cultural, economic, and institutional distances that inherently make new market entry challenging for firms. As such, they possess resources—knowledge, connections, labor, financing—that are particularly attractive to firms seeking to expand from the sending to the receiving location (Gould, 1994). Firms that are able to tap into such ‘bridging resources’ offered by immigrants should be more motivated and able to expand into locations with a critical immigrant mass. Co-national firms are particularly well positioned to access the transnational resources of immigrants by virtue of past interactions in the homeland and a shared history and context of exchange. Such co-nationality leads to preferential resource transfers based on social capital, which I define and discuss next.

Immigrant Social Capital and Location-Based Advantages

I define immigrant social capital as the potential resources accruing to firms by virtue of their affiliation with a population of co-national immigrants residing in a host location. In this case, the relationship or network tie giving rise to social capital stems from the common national origin of the firm and the immigrant population. Co-nationality in this case functions as a source of homophily, a foundational concept for theories of social capital which leads to preferential exchange between entities (Iriyama et al., 2010; Lin, 2001). Without a common country affiliation, immigrant social capital

as defined here does not exist. Of course, firms from other countries may gain access to the resources of an immigrant population, but such access will be based on something other than common country ties.

The preferential resource transfers from immigrants to co-national firms are based on two dimensions of social capital: relational and cognitive (Nahapiet & Ghoshal, 1998)⁴. As explained in more detail above, the relational aspect refers to the affective bond between two parties arising from a common history (Granovetter, 1992). Entities that have interacted in the past or that originate from similar backgrounds are more likely to develop relational attributes such as trust, solidarity, and a preference for continued exchange (McEvily, Perrone, & Zaheer, 2003). Importantly, scholars argue that trust is essential for successful foreign operations (Zaheer & Zaheer, 2006). The cognitive dimension of social capital refers to “resources providing shared representations, interpretations, and systems of meaning among parties” (Nahapiet & Ghoshal, 1998) which facilitate the transfer and interpretation of knowledge—also essential in the process of foreign expansion (Johanson & Vahlne, 1977). The relational and cognitive dimensions are related, because common cognitive frames often arise from a common context of interaction.

These two forms of social capital facilitate the transfer of resources from the immigrant population to a co-national firm seeking to expand into a foreign location where immigrants reside. Three types of resources are especially useful in the process of

⁴ While the structural dimension of social capital may be operating as well, I cannot observe it in this context and thus limit my theorizing to the relational and cognitive dimensions.

foreign expansion: knowledge, production inputs, and legitimacy. These, in turn, allow the firm to lower production costs or increase revenues. While these three resources are related and often transferred simultaneously, I discuss each separately for conceptual clarity.

Knowledge. The processes by which firms obtain knowledge from co-national immigrants are varied, but can be roughly split between immigrant and firm initiated exchanges. Throughout the investment process, the firm may directly contact co-nationals to assess the viability of the market or the availability of critical supplies. One example comes from a former Swedish executive who retired in Argentina after many years working there for a Swedish MNC. This person receives calls for advice from Swedish companies seeking to invest in Argentina, who seek to learn from his knowledge of the opportunities and business environment in that country⁵. Immigrants may themselves contact the firm to promote investment in the host location by seeking for chances to supply important resources or by showing interest in purchasing the firm's products. For example, the Spanish firm Freixenet first 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 & Rialp, 2002).

Research has shown that the presence of the relational and cognitive dimensions of social capital leads to increased volume and richness of information transfer between parties (Koka & Prescott, 2002). Immigrants transfer knowledge across their new and old

⁵ I thank Anna Ljung of Uppsala University for sharing this example with me during a conversation about the activities of Swedish firms in Latin America.

homes via the transnational network. At a minimum, this steers the attention of the firm towards the host location, bringing it within the confines of the search for investment opportunities in the pre-entry phase (March & Simon, 1958). Even after a firm has entered, immigrants can be an important source of information regarding local resources and opportunities or on how to solve problems that arise throughout the expansion process.

Importantly, immigrants retain 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 first-hand experience, which is more influential than second-hand observation (Nisbett & 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 (Koka & Prescott, 2002). In this regard, the importance of co-nationality in the process of knowledge transfer has been documented by studies showing that ties between immigrant scientists in the U.S. and those in the home country increase technological knowledge flows from the receiving to the sending country (Kerr, 2008; Oettl & Agrawal, 2008).

Production Inputs. The solidarity and willingness to cooperate arising from relational social capital increases the ability of the firm to obtain key supplies from individuals of the same nationality. Such resources could be human, physical, financial, or intangible. Perhaps most directly, immigrants can become employees of the firm and be more productive because they are familiar with the delivery of ethnic products or

because they are more comfortable with the management style of a co-national firm. This was the case with Jollibee, the Philippines-based fast food restaurant, which hired co-national immigrants to work at its foreign stores as it expanded throughout Asia (Bartlett & O'Connell, 1998). I will elaborate on the benefits of employing same-country immigrants below. Yet employment is only one type of production input from which firms can benefit. Immigrant businesspeople could also be preferred suppliers of raw materials or startup financing (Kalnins & Chung, 2006). Besides providing these resources directly, immigrants can use their social networks to connect the firm to local suppliers, as well as to exert other kinds of social and political influence.

Legitimacy. As immigrant groups become embedded in the local economy and culture, they not only absorb local practices, tastes, and ideas but also contribute their own to the native society. Just as the status and legitimacy of firms' leaks over onto their network partners (Podolny, 2001), the standing of a large and influential immigrant group has an imprinting effect upon co-national firms. This occurs because potential customers, suppliers, and other stakeholders within a host market experience uncertainty regarding the quality of a new entrant and seek for cues that resolve it. Ties to immigrants can help lessen uncertainty in two ways. On the one hand, immigrants themselves may be the stakeholders being courted by the firm (as potential suppliers or consumers), and the co-national ties in such a scenario directly lessen uncertainty about the firm. On the other hand, the uncertainty experienced by natives regarding the firm may be assuaged through the tacit endorsement of the immigrant population. Such endorsement occurs when

immigrants serve as customers, or as they provide the knowledge and production resources just discussed.

In sum, immigrant social capital allows firms to obtain privileged access to the transnational resources of its co-nationals living abroad. Knowledge, production inputs, and legitimacy are particularly helpful in the process of expanding into the target location because they have been shown by prior research to increase the likelihood of foreign entry (Delios & Henisz, 2003; Johanson & Vahlne, 1977; Kostova & Zaheer, 1999).

H1: The higher the concentration of co-national immigrants in a foreign location, the more likely firms are to establish a subsidiary in that location.

If immigrant social capital truly brings preferential access to resources, it becomes important to demonstrate that such resources provide actual performance benefits. These benefits will arise due to demand (revenue increasing) or supply-side (cost reducing) effects. Access to knowledge and legitimacy allow the firm to receive stronger demand for its products or services. 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 (Hymer, 1976; Vernon, 1966). Immigrants thus form a natural target for the firm to expand its operations (Buch et al., 2006; Gould, 1994). In addition, a significant immigrant presence can help increase demand amongst the native population in the host market. As just mentioned, immigrants bring new tastes, preferences, and ideas that locals incorporate—including tastes for ethnic products or brands. Consequently, both the immigrant and native populations are likely to purchase the firm's products in locations with a strong immigrant concentration.

Supply side benefits stem directly from the availability of knowledge and production inputs explained above, which allow the firm to operate at lower costs relative to foreign entrants without access to an immigrant population.

At this point, an important clarification is in order. If managers are aware of the potential benefits of immigrant social capital, why should there be differences in performance arising from the presence of co-national immigrants in a location? After all, managers would always (all else equal) select the location with the highest immigrant concentration and in equilibrium no firm would derive an advantage from immigration. However, immigrants of various nationalities concentrate differentially within and across locations, so that some places have more immigrants of certain nationalities than others. Since managers have no control over large-scale immigration, they may not have the opportunity to tap into immigrants within a given location for exogenous reasons, and thus we observe that across nationalities some firms have more access than others to immigrant social capital⁶. This is precisely the reason, as mentioned in the introduction, why immigrants differ from other generic location-based resources discussed by prior literature.

Given the inherent challenges of doing business abroad that put foreign firms at a disadvantage, a key performance outcome for firms expanding abroad is the ability to survive (Zaheer & Mosakowski, 1997). After accounting for factors leading to the selection of a foreign location (including immigration), firms with access to immigrant

⁶ In addition to exogenous differences in the number of immigrants of *different* nationalities within any given location, firms of the *same* nationality also exhibit heterogeneity in how much they need or want to tap into immigrants for resources. This gives rise to another source of differential effects from co-locating with immigrants, which I develop in detail below when discussing firm heterogeneity.

ties that that help enhance revenues or reduce costs should be more likely to survive in foreign markets than those without such connections. Thus,

H2: Conditional on the firm's decision to establish a foreign subsidiary, the higher the concentration of co-nationals immigrants where the subsidiary was established, the greater the probability of subsidiary survival.

Immigrant Resource Heterogeneity

Immigrant groups differ significantly in the human, financial, and social resources they can mobilize. If the effects I propose are based on resource transfers arising from social capital, then groups with more or better resources should have stronger effects on the location choice and survival of co-national firms than those with inferior resources. In the immigration literature, scholars have focused on assimilation as a construct that captures the degree of socioeconomic resources obtained by a group of foreign-born residents (Waters & Jiménez, 2005). Of the several factors comprising assimilation, three are particularly relevant indicators of immigrants' possession of knowledge, production inputs, and legitimacy: education, income, and tenure in the host location.

Educational achievement provides a good indication a group's human capital (Becker, 1993; Coleman, 1988). Immigrants with greater education occupy influential positions in corporate, political, and social circles—which brings increased social status and legitimacy. Such influence and status also provide access to valuable, timely, and relevant knowledge which can be transferred to firms in the process of market entry. Similarly, a group's financial resources create important opportunities to obtain socioeconomic influence to support causes or entities affiliated with the group. Immigrants with high incomes may become attractive customers for some firms. In

addition, given the propensity of immigrants to engage in entrepreneurship (Kloosterman & Rath, 2003; Saxenian, 1999), higher income can be viewed as a rough proxy for the business success and savvy of the immigrant population. Research shows that immigrant business owners show solidarity towards newer businesses owned by those of their same nationality (Kalnins & Chung, 2006). While education and income are measures of the human (not social) capital of an immigrant group, the key point is that co-nationality facilitates social capital which gives firms preferential access to such human capital.

H3a: The greater the educational achievement of the immigrant population, (1) the more likely co-national firms are to establish foreign subsidiaries in that location and (2) the more likely those subsidiaries are to survive.

H3b: The higher the income of the immigrant population, (1) the more likely co-national firms are to establish foreign subsidiaries in that location and (2) the more likely those subsidiaries are to survive.

In contrast, tenure in the receiving country has the opposite effect. The ability of immigrants to provide useful resources, as well as their motivation to support co-national entities, depends upon their participation in the transnational network via ties in the home and host locations. With time, knowledge regarding the home country diminishes in importance as immigrants increasingly become embedded in the local culture and economy and begin to gradually lose their ability to compare conditions across the home and host environments. Thus, co-national firms can obtain the strongest information and legitimacy benefits from immigrants who, on average, have come from the sending country relatively recently.

H3c: The longer the tenure of the immigrant population, (1) the less likely co-national firms are to establish foreign subsidiaries in that location and (2) the less likely those subsidiaries are to survive.

Firm Strategic Heterogeneity

So far, the focus has been on establishing the general effect of immigrant social capital on firms' location choices and subsequent performance. However, firms naturally vary in their ability and need to access the resources offered by social capital. This variation is a function of firms' capabilities, the kinds of buyers they target, and local resource needs. The next set of hypotheses fulfills two important purposes. First, they have the theoretical implication that social capital affects firms not only because some firms have differential access to it, but also because firms differ in their strategic *choices to access* social capital in the first place. Second, showing contingent results helps validate some of the theoretical mechanisms proposed above (i.e. knowledge, production inputs, and legitimacy as well as whether demand or supply effects are in operation) and which cannot be teased out by assessing only main effects.

Firm Experience. Prior research provides evidence that the factors influencing foreign activity are substantively different depending on the firm's experience within the target location. As organizations gain experience within a foreign country, subsequent subsidiary location choices are more influenced by host-country effects than by home-country factors (Delios & Henisz, 2003; Guillén, 2002). In fact, recent research has argued that accumulated experience helps the firm develop capabilities specific to the host-location or country (Perkins, 2005; Tuschke, Sanders, & Hernandez, 2010) that alter the types of knowledge and resources it seeks from external agents—such as immigrants—because the firm develops location-specific knowledge and routines (Shaver et al., 1997). Such logic suggests that the effects of immigrants on location

choice and survival should differ across firms with varying levels of country-specific experience.

For well established firms, a significant portion of the knowledge provided by immigrants will be redundant with what they have already gained from past interaction with the immigrant group or from first-hand experience. This will be especially true for country-level information that is fungible across multiple entries within the same country. While there may be a component of learning that is specific to each entry (e.g. entering Mississippi vs. entering New York), there is a portion of learning about national-level institutions, culture, and other factors that becomes redundant. Less experienced firms should also disproportionately benefit from the legitimacy of a well assimilated immigrant population. In fact, expansion within the receiving country is an indication that a firm has partially overcome the liability of foreignness. Thus, country-specific capabilities substitute for immigrant concentration by lessening the need for the knowledge and legitimacy de novo entrants typically lack⁷. Formally,

H4a: As firms gain experience in the host country, the effects of co-national immigrant concentration on (1) location choice and (2) survival become less positive.

While highly experienced firms are less in need of a large concentration of immigrants, this does not mean that they cease obtaining resources from co-nationals altogether. Rather, the types of resources needed change as firms move down the country-specific learning curve (Levitt & March, 1988). With experience, firms continue

⁷ Although one could argue that experience also diminishes the need for production inputs obtained via immigrants, the reasons for that are less clear than for knowledge and legitimacy.

seeking for valuable resources but transition into a stage in which they are filling gaps in their internal capabilities and routines. Co-national immigrants can continue to be valuable in this phase, but they are likely to have a different profile than those who provided resources previously. Put differently, certain characteristics of immigrants will take on greater importance than their sheer number.

The effect of immigrant education should increase for co-national firms with high levels of country-specific experience. As explained above, more educated immigrants possess knowledge of greater uniqueness, are better connected, and have more social influence than their less educated counterparts. Similarly, immigrant income should take on greater importance because experienced firms may be seeking for higher end consumers or for financing to expand operations in the host country. Also, high-resource immigrants may become more willing to deal with co-national firms that have demonstrated their ability to succeed and grow in the receiving country. The negative main effect of immigrant tenure will become exacerbated for experienced firms because high-tenure immigrants are the least likely to possess cutting edge education and connections to providers of valuable resources. Thus,

H4b: As firms gain experience in the host country, the effects of immigrant education on (1) location choice and (2) survival become more positive.

H4c: As firms gain experience in the host country, the effects of immigrant income on (1) location choice and (2) survival become more positive.

H4d: As firms gain experience in the host country, the effects of immigrant tenure on (1) location choice and (2) survival become more negative.

Type of Buyer Market. I argue above that immigrant social capital gives rise to supply and demand effects. The primary type of effect that firms obtain depends upon the

kind of buyer market they are targeting in the foreign location. To isolate the two effects, I distinguish between consumer and industrial goods firms. This distinction also provides a useful test of whether immigrant social capital is in fact the mechanism driving the results. If the benefits of immigration were confined only to demand opportunities, social capital may not be necessary to explain the effects I propose. After all, it would be reasonable for firms to expand into markets with a strong ethnic demand without any expectation of resource transfers motivated by co-nationality. However, social capital is necessary to explain preferential supply-side resource transfers. Thus, an important test to ascertain the operation of immigrant social capital is whether immigrants affect the strategy and performance of firms *not* subject to strong ethnic demand-side needs.

Scholars have long recognized that firms selling consumer and industrial goods follow different strategies because of the inherently different nature of their products and customers (Porter, 1974). Consumer goods firms sell directly to individual customers and provide products more subject to ethnic preferences (e.g. food, cosmetics) (Kotler & Armstrong, 1996). Clearly, such firms would benefit from co-national immigrants, who have ethnic tastes, as a source of increased demand (Gould, 1994). At the same time, nothing precludes consumer goods firms from also obtaining supply side benefits—such as hiring immigrant labor or obtaining physical inputs through the immigrant network. However, I cannot empirically rule out the alternative argument that *only* demand benefits are operating for consumer firms.

In contrast, industrial firms sell to other companies that further process the focal firm's output. These upstream products are less ethnically inclined (e.g. lumber,

computer processors) than those sold by consumer firms. This fact has the important implication that firms targeting industrial buyers will benefit from immigrants *primarily* as a source of production resources. Thus, immigrant social capital must be driving any observed effects for these because they are supply-related. I emphasize that these arguments are relative rather than absolute—consumer firms may obtain supply benefits and industrial firms may obtain demand benefits; but on average I expect consumer firms to benefit relatively more from demand benefits and industrial firms to have relatively greater supply side advantages.

Several hypotheses stem from these observations. As a baseline, I expect *both* types of firms to be influenced by the presence of immigrants in the target location. While this amounts to the null hypotheses, in this case the null is important because it dismisses the alternative that *only* consumer goods firms respond to and benefit from immigrants residing abroad, which would weaken the social capital mechanism I have put forth. Thus,

H5: The effect of immigrant concentration on (1) location choice and (2) survival is positive for both consumer and industrial goods firms.

In addition to the baseline positive effect of immigrant concentration, the relative importance of supply or demand effects leads to comparative differences in what aspects of the co-national immigrant population have a greater impact on industrial and consumer goods firms. When it comes to sheer numbers, firms targeting consumer markets in the foreign location may be more attracted by the numerical concentration of co-national immigrants. This occurs because, if the benefits are primarily demand-based, stronger concentration translates into a larger pool of potential ethnic customers—or of native

customers whose preferences have been influenced by a large group of immigrants. In contrast, firms functioning primarily in industrial goods markets will place relatively greater weight on immigrants that provide high-quality production resources because these firms are most affected by supply side effects. In this vein, they will be more attracted to immigrants with higher levels of education and income because these are more informed, well-connected, and influential in the local society. In addition, they will be less inclined to co-locate with and benefit from immigrants of higher tenure because such immigrants are less connected to the transnational immigrant network. Thus,

H5a: The effect of immigrant concentration on (1) location choice and (2) survival is more positive for consumer than for industrial goods firms.

H5b: The effect of immigrant education on (1) location choice and (2) survival is more positive for industrial than for consumer goods firms.

H5c: The effect of immigrant income on (1) location choice and (2) survival is more positive for industrial than for consumer goods firms.

H5d: The effect of immigrant tenure on (1) location choice and (2) survival is more negative for industrial than for consumer goods firms.

Human Capital Intensity. The purpose of the next set of hypotheses is to demonstrate that firms differentially seek to obtain certain supply side benefits from immigrants because they vary in the types of resources they rely upon the most for competitive advantage (Barney, 1991; Peteraf, 1993). If immigrant social capital is truly providing firms with supply side resources—as the industrial vs. consumer goods distinction was designed to demonstrate—then there should be a matching of firms’ resource needs with their preference for locations in which co-national immigrants are more likely to fulfill those needs. While the types of production resources firms may

obtain from immigrants are varied (e.g. cash, raw materials), one of the often important and empirically observable is labor. Here again it is worth emphasizing that while labor gets at the human capital of immigrants, social capital allows co-national firms to differentially access and benefit from the human capital of the immigrant population.

As already touched upon, firms benefit from hiring co-national workers because a shared culture, language, and identity allows them to utilize workers more productively than firms of other nationalities (Newman & Nollen, 1996). If the product has ethnic characteristics, immigrants will be better positioned to understand how to produce or sell it to customers because of the understanding of the product derived from their home country background. Moreover, immigrants themselves may be motivated to work for co-national firms because research shows that, holding skill constant, foreigners tend to have a harder time than natives in finding employment (De Jong & Madamba, 2001). Thus, they are an underutilized human resource that co-national firms are more likely to recognize or to utilize productively. This idea parallels work demonstrating that in places where women experience workforce discrimination, firms that hire and promote women have a competitive advantage because they can tap into a stronger pool of underutilized talent relative to firms that draw from a thinner pool of already-exploited male talent (Adler, 1993; Siegel, Pyun, & Cheon, 2011).

The anticipated and actual benefits of hiring co-national human capital should be strongest for firms whose production in the host location is most labor intensive. These firms usually provide intangible services (e.g. R&D, financial services) or products requiring a high level of capable workers. In both cases, the pool of available labor must

be skilled in some way. Such firms should be more attracted than low labor intensity companies to locations with a high concentration of potential workers as well as those who are educated. Moreover, high labor intensity firms should be more willing to pay greater wages for well-educated or highly skilled employees. Since immigrants of long tenure in the receiving country are the most likely to have already overcome the difficulty of finding employment relative to natives, they are the least likely to be motivated to work for a co-national firm relative to any other organizations. Thus,

H6a: As the labor intensity of the subsidiary increases, the effects of immigrant concentration on (1) location choice and (2) survival become more positive.

H6b: As the labor intensity of the subsidiary increases, the effects of immigrant education on (1) location choice and (2) survival become more positive.

H6c: As the labor intensity of the subsidiary increases, the effects of immigrant income on (1) location choice and (2) survival become more positive.

H6d: As the labor intensity of the subsidiary increases, the effects of immigrant tenure on (1) location choice and (2) survival become more negative.

Chapter 4

Data and Research Design

The United States provides an ideal setting to test these hypotheses because it presents significant variation in terms of immigration, incoming FDI, and location options. The U.S. is amongst the top receivers of immigration (Portes & Rumbaut, 2006) and foreign capital (UNCTAD, 2006) in both volume and variety. To allow for variance in immigration patterns and location options, 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 (Coughlin, Terza, & Arromdee, 1991; Shaver & Flyer, 2000). 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 & Zenteno, 1999; Portes & Rumbaut, 2006). Thus, I observe both differences across firms and immigrants of *different* nationalities and those within firms and immigrants of the *same* nationality located in different states⁸.

Limiting the study to a single country has the advantage of eliminating variation in country-level factors that simultaneously influence immigration and foreign

⁸ In Appendix B, I provide an alternative analysis using cities (more precisely, economic areas defined by the BEA) as the unit of analysis and discuss the advantages and disadvantages of that approach.

investment (e.g. institutions, laws, culture), and would confound the effects of social capital I try to isolate. While the results of a single country study may not generalize to all contexts, it seems most critical at this point to empirically isolate the operation of immigrant social capital in a rigorous manner. Of course, it will be instructive for further research to address differences across countries to provide boundary conditions and extensions of the results from this study.

I obtained a sample of foreign subsidiaries operating within the United States from the *Directory of Corporate Affiliations*. To be included in the database, companies headquartered outside of the U.S. “generally have revenues in excess of US\$10 million, in excess of 300 employee totals, or substantial assets/net worth” and can be public or private⁹. Admittedly, these criteria raise the possibility that the findings of my study may not apply to very small companies or to new ventures. However, it is worth noting that the cutoff is relatively low (e.g. the *smallest* of the 2008 Global 500 companies had US\$18 billion in revenues), and that most firms engaging in FDI need a respectable amount of resources.

I identified new entries into the U.S. based on the 2003 edition of the directory. I chose 2003 to allow for a sufficiently long window of time to observe survival (until the end of 2009), and used a single directory year to reduce potential biases from changes in the budget and data gathering policies of the owner of the directory¹⁰. I identified all

⁹ <http://www.corporateaffiliations.com/nonsub/aboutContent.asp>, accessed 6 January 2010.

¹⁰ The changes in data gathering policies were explained to me by a manager of Lexis Nexis, the owner of *Corporate Affiliations*, during a personal conversation on February 22, 2010. The budget dedicated to each of the databases owned by Lexis Nexis changes yearly depending on customer demand and other strategic reasons.

companies headquartered outside the U.S. with at least one subsidiary inside the U.S. I initially found 731 potential new entries by comparing the list of units operating in the U.S. in the 2002 directory to that of the 2003 edition. Any units listed in the 2003 but not in the 2002 directory were flagged as potential new entries. Since *Corporate Affiliations* does not list the entry date or explain why an entry was added to the directory, I verified the date and circumstances surrounding each potential new entry. I conducted a thorough search of news regarding each investment, complemented by information from company websites, corporate directories, or phone calls when public information was unavailable. 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 294 new entries made by 197 parent firms between 1998 and 2003 that were usable in all the analyses. Of the original 865 potential new entries, 352 were eliminated because the entry occurred before 1998. Since, as explained in more detail below, the immigration data comes from the 2000 decennial U.S. census and does 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 miscellaneous reasons: the listing was not FDI but simply a legal reorganization, the firm intended to divest or 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 major receiving states and sending countries for the 294 entries. While I was not able to obtain a random sample, I verified the

representativeness of my data by comparing it with information from the Bureau of Economic Analysis (BEA) on all FDI into the U.S. during the period surrounding my observations. I found a correlation of 0.78 between the distribution of sending countries in Table 1 (Panel B) 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 (Panel A) and employment of foreign subsidiaries by state in 2000 was 0.87. Thus, the data mirror the overall distribution of U.S. incoming FDI during the same time period.

** INSERT TABLE 1 HERE **

Variables

Location Choice. The dependent variable $entry_{psi}$ is coded as 1 if an entry by a parent company (p) occurred within state (s) in industry (i), and 0 otherwise. There were 198 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 variables are time invariant (more detail below) and thus I cannot assess how temporal changes in immigration affect repeated entries. Thus, the choice set for each parent 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 industry of the subsidiary—not the parent—because I consider the choice of industry as an important characteristic of each specific investment and because parent firms may have subsidiaries in various industries. 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 California 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 (Alcacer & Chung, 2010) and allows me to assess the effects on location choice of differences in the type of buyer market and in the labor intensity of each subsidiary because these vary by industry. Only 13 firms in the sample entered more than one industry. I also identified 10 firms that established subsidiaries in more than one year—eight firms invested in two different years, and two firms invested in three different years. In these cases, I created a separate choice set for each year. Of course, decisions by the same parent firm to invest in different years or across different industries are not independent of each other. To account for this, I clustered the estimated standard errors by parent firm.

Survival. The second dependent variable, $survival_{ps}$, is coded as 1 if subsidiary s continued to be operated by parent company p six years after initial establishment¹¹. This time window is similar to the five year period from prior work (Shaver et al., 1997), and is also 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 gathered the data. Survival is a good measure of performance only if the reasons for relinquishing control of operations or closing a business are related to poor strategic choice or suboptimal management. As anticipated above, I verified the timing and reason

¹¹ Notice that the state (the s subscript) drops out in this dependent variable. Thus, the dataset when *entry* is the dependent variable includes a row for each parent-state-subsidiary combination, whereas the dataset when *survival* is the dependent variable contains a row for each parent-subsidiary combination. I discuss below how I deal with this when explaining the estimation procedure.

for exit of each entry to ensure that no cases of good performance were counted as exits. While the vast majority of cases were truly poor performing businesses, I eliminated nine exits for ‘positive’ reasons (e.g. intended sale of successful operations or a legal restructuring of foreign operations). The survival rate for the 294 subsidiaries was quite high at 83.67% (48 non-surviving cases).

Immigration Measures. The primary independent variables of interest capture characteristics of each parent firms’ co-national immigrant population by state. I obtained U.S. immigration data from a 5% public use micro sample (IPUMS) of the 2000 census made available by the Minnesota Population Center (Ruggles et al., 2010), which provides the most recently available representative, detailed measure of the stock of immigrants and their assimilation characteristics¹². Unfortunately, detailed census data becomes available only every ten years, making it impossible to obtain annual measures. This limitation is partially ameliorated by the fact that meaningful concentrations of immigrants usually take many years to form. Moreover, given that my main interest is in comparisons *across* nationalities, the relative differences across foreign born groups in the U.S are persistent over short periods—such as the one in my sample.

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 and thus be more likely to provide immigrant social capital. Table 2

¹² At the time I completed writing this dissertation, the results of the 2010 Census were in the process of being released to the public. While 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.

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. More importantly, the measure varies significantly across states for immigrants of the same nationality, preserves relative differences within states across populations from different home countries, and reduces the bias of states with very large populations (e.g. California, Texas) present in simple counts of immigrants. Sensitivity tests using the raw number of co-national immigrants yielded substantially the same results and can be found in Table 11 of Appendix A. Figure 1 shows three maps depicting the correlation between immigrant concentration and the number of entries by state for the entire sample and for two specific sending countries.

** INSERT FIGURE 1 AND TABLE 2 HERE **

To capture different dimensions of assimilation, I created three variables: *immigrant education*, *income*, and *tenure*. Each of these measures the median educational attainment, median household income (in thousands of dollars), and median years in the U.S. of immigrants from the firm's home country within each of the 50 States. The educational attainment variable ranges from 1 (no schooling completed) to 9 (4 or more years of college).

Prior Experience. The variable *firm experience* contains the number of states in which the parent firm had subsidiaries prior to the year of entry.

Industrial or Consumer Buyer Market. I measure the type of buyer market at the subsidiary level. To do so, I follow a novel approach based on the 2002 benchmark input-

output (IO) tables of the U.S. created by the BEA. These tables are published every 5 years and provide detailed breakdowns of the amount of an industry's output purchased by other industries for further processing (industrial buyers) as well as by final users for personal consumption. Based on the concordance of IO industry classifications and NAICS codes provided by the BEA, I matched the 6 digit NAICS code of each subsidiary to the percentage of its industry's total output purchased for personal consumption. The vast majority of subsidiaries (83 percent) listed only one NAICS code; if they listed two or more, I matched the IO industry to the primary NAICS of the subsidiary. While the variance of this measure arises from differences across industries rather than individual firms, there is a wide variety of industries in the sample and no single industry represents a significant portion of the data¹³. This measure has an advantage over current approaches because it is continuous rather than dichotomous and is based on an objective source to determine who purchases firms' products rather than on subjective coding (Dutta, Bergen, John, & Rao, 1995).

Labor Intensity. The 2002 IO tables also provide details on the amount of each industry's inputs supplied by other industries, as well as the amounts paid to employees. Using this data, I matched each subsidiary's 6 digit NAICS code to the percentage of the industry's total expenditures on compensation of employees.

Control Variables. If immigrant social capital as defined in this paper is truly at play, the resources offered by immigrants to co-national firms should not be available to firms of *other* nationalities (or at least not have as strong of an effect as on those of the

¹³ Please see Table 15 in Appendix C for details on the type and frequency of industries in the data.

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 effects of the co-national immigrant variables should remain significant after accounting for the effects of immigrants from all other origins. In short, the network tie or connection giving rise to social capital should be the shared country of origin and not something else. To this end, I include a measure of the percentage of *other country immigrants* (all countries except the focal firm's) in each state.

While I predict that characteristics of co-national immigrants—education, income, and tenure—affect location choice and performance, similar qualities of the entire state population may be appealing for related reasons. The education of the population is attractive to firms seeking skilled employees, sophisticated consumers, or whose strategies are based on exploiting or seeking for knowledge-based assets (Chung & Alcacer, 2002). To capture the importance and quality of education in each state, I included two measures. First, *education expenses per student* measures the amount spent (in thousands of dollars) 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 variable to have a negative effect on the dependent variables 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 per student than leader states.

State income levels are indicative of the purchasing power of potential customers, and thus I added the *real GDP per capita* of each state. While there is no direct counterpart in the native population to immigrant tenure in the receiving country, immigrant tenure is naturally correlated with immigrant age, and thus I include a measure of *state age* (median age of adults in the total population) to include a state level measure that covaries with immigrants' years in the U.S. Similar to the control for other country immigrants, these three counterparts to the immigrant assimilation variables play the important role of allowing me to claim that any effects of the assimilation variables are due to a relationship based on co-nationality (i.e. immigrant social capital) rather than factors related to education, income, or age per se.

The literature on agglomeration economies shows that the concentration of same-industry activity in a geographical region strongly attracts FDI (Shaver & Flyer, 2000; Wheeler & Mody, 1992). Industry agglomeration provides the benefits of specialized labor, knowledge spillovers, and proximate suppliers and buyers (Marshall, 1920). I thus include the percentage of *same industry employment*, measured as the share of total U.S. employment in a specific industry located in each state (Alcacer & Chung, 2010)¹⁴. The concentration of co-national firms may provide an alternative source of learning and resource access to that offered by individual immigrants (Martin et al., 1998; Shaver et al., 1997). I thus include the percentage of *same country firms*, measured as the share of

¹⁴ I intended also to control for the percentage of supplier and buyer employment (Martin et al., 1998), but found that these measures were correlated with focal industry employment at levels above 0.80. The results are robust to their inclusion, but I do not include them in the main analysis to reduce collinearity concerns.

total U.S. subsidiaries of companies headquartered in the focal firm's country—excluding the focal firm—located in each state.

A final set of controls accounts for geographical characteristics that may affect both firms' investments as well as immigrants' location choices. Shaver (1998) found that foreign firms in the U.S. are more likely than domestic ones to be located in states that border the ocean. Such states provide easier access to the rest of the world by virtue of having ports for the transportation of goods, and air travel from them tends to be less expensive for individuals. Thus, I include an indicator of whether a *state borders the ocean* or not. For similar reasons, I also include a measure of the great circle *geographic distance* between each state's capital and the city of each parent company's headquarters.

The controls just described are state-specific. I account for firm-level heterogeneity by employing a fixed effects specification, which I describe next.

Estimation

Since I only observe survival if an entry occurs, the performance outcome is dependent on the initial location choice and thus I must account for selection when estimating survival. A key consideration in choosing the appropriate selection model is that the first-stage location choice is polychotomous because firms choose amongst many states. While selection models based on the multinomial logit have been developed (e.g. Bourguignon, Fournier, & Gurgand, 2007), that model is designed for cases in which the variables determining the alternative selected are firm (or case) specific (Cameron & Trivedi, 2009). In contrast, the variables of primary interest in my study are state (or

alternative) specific, making the conditional logit the most appropriate model to estimate location choice (McFadden, 1974; Shaver & Flyer, 2000)

The conditional logit takes into account the grouping of the data into discrete choice sets (or panels) by calculating the likelihood within panels. In doing so, it conditions out factors that define the choice set (firm, industry, and year in this study), and explains the chosen alternative based on the attributes of the other options in the set. Thus, it functions like a fixed effects model by ruling out factors related to the firm, its industry, or the year of entry given the cross-sectional nature of the firm-level data. Since selection models based on the conditional logit specification have not been developed, I am unable to use it to estimate location choice in the first stage. Fortunately, recent advances in econometrics suggest an alternative approach that yields reliable first stage results while accounting for selection in the second stage.

Several Monte Carlo simulations have demonstrated that unconditional probit or logit 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 or exceeds 20 (Coupé, 2005; Heckman, 1981; Holburn & Zelner, 2010; Katz, 2001). Since the median choice set in my data contains 49 states (only one case has fewer than 20, containing 19 alternatives), I am able to use an unconditional fixed effects probit model to estimate location choice. The advantage of this approach is that I can then use Heckman's (1979) two-step estimator to account for selection when estimating the survival model, but with

the advantages of a conditional logit equivalent in the first stage¹⁵. Since the two-step approach was designed to use OLS in the second stage, I estimate survival using a linear probability model. Such a model is heteroskedastic, so I use robust standard errors clustered by parent firm (Cameron & Trivedi, 2009)¹⁶.

Exclusion Restrictions. To properly identify the second-step survival effects, I include two instrumental variables that affect firms' probability of entering a state but not the likelihood of subsidiary survival. The independent and control variables discussed above are based on the notion that firms select locations primarily due to factors expected to enhance performance. Once a set of locations has acceptable performance prospects, however, 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 subsidiary survival.

The first instrument measures the *yearly inches of snow* for each state. I expect it to have a negative effect on location choice because, on the margin, managers and employees will prefer places with milder winters and more opportunities for year-round outdoor activities. The second instrument captures the ratio of *Republican Party (conservative) to Democratic Party (liberal) votes* in the 2000 presidential election. I

¹⁵ While the papers cited agree that the bias becomes negligible as the choice set approaches 20 options, Greene (2004) expresses some skepticism about the extent to which the bias become insignificant even though his simulation results are similar to those in other studies (e.g. Coupé, 2005; Katz, 2001). To ensure that in my case the conditional and unconditional results were similar, I compared the results reported in the main body of this dissertation to those using a conditional logit. Please see Table 10 in Appendix A for the conditional logit findings, which are virtually identical to those based on the unconditional fixed effects probit.

¹⁶ Please see Table 12 in Appendix A for survival results with homoskedastic standard errors.

chose the 2000 election because it was in the middle of the sample period. Since the distribution of the popular presidential vote amongst the two major political parties is quite stable by state in the short run, the measure captures the sociopolitical ideology of the population fairly accurately. I expect this measure to have a negative effect on entry because most of the sending countries in the sample favor social policies that are more aligned with the liberal ideology of the Democratic Party relative to the more conservative Republican Party. All else equal, foreign firms may prefer locations in which they feel more comfortable with the ideology and lifestyle of the general population.

Assessing Moderating Effects. While I cannot assess the effects of firm-specific variables in the first-stage location choice model, several of the hypotheses call for the inclusion of these variables (prior U.S. experience, type of buyer market, labor intensity) as moderators of the effects of the immigration variables. Interacting the firm-specific variables with the appropriate immigrant characteristics 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 & 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 this problem, I split the sample at meaningful levels of the moderating firm-specific variables and assess the statistical significance of differences by conducting a t-test comparison of the marginal effects across subsamples (Hoetker, 2007; Shaver, 2007).

Chapter 5

Results

Tables 3, 4a, and 4b contain the descriptive statistics and correlations. For ease of reference, Table 5 summarizes the hypotheses and the results reported below. Table 6 shows the main effect results for the location choice models. Model 1 includes only the control variables, which generally exhibit the expected sign and significance. The exceptions are real GDP per capita, whether the state borders an ocean, and other country immigrants; none are significant. Importantly, the two instrumental variables are significant and negatively affect the probability of entry ($p < 0.01$ for *yearly inches of snow* and $p < 0.05$ for *republican/democrat vote ratio*) after accounting for the effects of other factors expected to influence firm performance.

** INSERT TABLES 3, 4A, 4B, AND 5 HERE **

In Models 2–5 I introduce the effects of the immigration variables one at a time and include them all in the fully specified Model 6. In support of H1, immigrant concentration has a positive effect on entry ($p < 0.01$) when included on its own in Model 2 as well as in Model 6. Similarly, immigrant income positively affects location choice in Models 4 and 6 ($p < 0.05$), supporting H3b(1). The effects of immigrant education are not significant in Models 2 or 6, failing to support H3a(1). Immigrant tenure shows mixed results; while Model 5 reveals the expected negative effect on entry ($p < 0.01$), the effect disappears in Model 6. H3c(1) is thus not supported. The joint inclusion of the four

variables related to immigration in Model 6 significantly increased the value of the log-likelihood relative to Model 1 (controls only) ($p < 0.05$).

** INSERT TABLE 6 HERE **

While the coefficients of the probit model allow me to assess the sign and significance of the independent variables, they do not reflect the magnitude of their 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 (Hoetker, 2007). Following best practice, I instead interpret effect magnitudes based on the average marginal effect (AME) of each variable of interest. The AME is obtained by calculating the marginal effect (holding all other variables at their mean values) for each observation in the sample, and then averaging across all observations. Table 8 shows the AMEs for the variables of interest based on Models 6–12 in Tables 6 and 7.

Based on Model 6 (Table 6), the AME for immigrant concentration is 1.38 percent: a one percent increase in co-national immigrant concentration increases the probability of entering a state by 1.38%. While this seems like a small effect, it should be assessed relative to a meaningful benchmark. For example, 1.38% represents a 51.3% rise relative to the average probability of entry in the sample (2.69%). In a different comparison, I also show the AME of industry agglomeration as a reference (please note the caveat detailed in Table 8). The marginal effect of immigrant concentration (1.38%) is 3.12 times higher than that of industry agglomeration (0.44%), suggesting that immigrant concentration has a substantial practical impact on location choice. I make one more comparison in Table 8 by assessing how the probability of entering a state increases

as the independent variables go from the minimum to the maximum value observed in the data. For example, if immigrant concentration were to increase from zero to 11.73% of a state's population, the probability of entering that state would increase by roughly 75%. A similar minimum to maximum increase for industry agglomeration would lead to an 82% increase in the probability of entry. Altogether, these benchmarks suggest that co-national immigrants have a substantial impact on firms' location choices.

** INSERT TABLES 7 AND 8 HERE **

Table 7 shows the results for the moderating effects predicted by H4–H6. In Models 7 and 8, I split the sample by the mean level of prior experience. Immigrant concentration has a stronger positive effect on the entries of firms with low experience ($p < 0.01$) than on those with high experience, as depicted in Figure 2. The AME is 1.31% for less experienced firms and -1.22% for more experienced firms, although the latter effect is not distinguishable from zero. Highly experienced firms are more attracted than low experience firms to co-national immigrants with greater education ($p < 0.10$), higher income levels ($p < 0.05$), and shorter tenure in the U.S. ($p < 0.01$). The 1.49% AME of immigrant education on the entry choices highly experienced firms is noteworthy, suggesting that high quality immigrants are especially important for these types of companies. I validated the significance of these comparisons across subsamples by conducting a t-test of the AMEs as shown in Table 8 and found them to meaningfully differ ($p < 0.01$ in all cases), supporting H4a–H4c when entry is the dependent variable.

** INSERT FIGURE 2 HERE **

Models 9 and 10 compare results across firms operating within different types of buyer markets, splitting the sample by the median percentage of subsidiaries' output purchased by final consumers (9.58%). For convenience, I will call those below the median industrial goods firms and those above consumer goods firms. Immigrant concentration positively affects the location choices of both, supporting H5 and the idea that supply-side resource transfers are taking place. The effect of immigrant concentration is more positive for industrial goods firms based on a comparison of the AMEs in Table 8 ($p < 0.01$)—the opposite of what I expected based on H5a(1). Immigrant education has no effect on either type of firm, failing to support H5b(1). In contrast, industrial goods firms are more attracted to immigrants with higher incomes and those with shorter tenure in the U.S. ($p < 0.01$ for both comparisons of AMEs), in support of H5c(1) and H5d(1).

The comparison across low and high labor intensity firms is shown in Models 11 and 12, with the sample split by the mean percentage of subsidiaries' total expenditures on compensation of employees. Immigrant concentration positively affects the entries of firms with both low and high labor intensity. However, this effect is more positive for high labor intensity firms ($p < 0.01$ when comparing AMEs, per H6a[1]), as illustrated in Figure 3. The effects of immigrant education and income are positive and significant for high labor intensity firms but not for those of low labor intensity, with those differences being statistically significant ($p < 0.01$) in support of H6b(1) and H6c(1). In contrast, low labor intensity firms are less likely to co-locate with immigrants of longer tenure ($p < 0.01$, failing to support H6d[1]). Overall, the findings are consistent with the idea that

firms seek to employ co-national immigrants of higher human capital if that asset is crucial to their operations. For example, an additional unit of education attainment increases the likelihood of entry by 0.80% (representing a roughly 30% increase relative to the sample mean) for highly labor intensive firms compared to only 0.06% for less labor intensive firms.

** INSERT FIGURE 3 HERE **

Table 9 reports the findings for the second stage models. Each survival model is based on a first stage location choice estimation from which the Inverse Mill's Ratio (the selection control) is calculated. Since I am using a linear probability model, the coefficients are the same as the marginal effects and can be directly interpreted to assess the magnitude of each variable on the probability of survival. Model 13 is estimated on the entire sample, and shows that a one percent increase in immigrant concentration raises the likelihood of subsidiary survival by 5% ($p < 0.05$), in support of H2. This represents a 4.19% improvement in the likelihood of survival relative to the sample mean (83.7%). None of the assimilation measures are significant in the full-sample, failing to support H3a–H3c when survival is the dependent variable.

Models 14 and 15 are based on firms with low and high prior experience, respectively. As in the case of entry, less experienced firms are attracted to states with higher immigrant concentration ($p < 0.05$). In contrast, the magnitude of the immigrant concentration coefficient for more experienced firms is large but not significant, indicating a high noise-to-signal ratio. To more confidently assess the significance of this variable and to test the difference across low and high experience subsamples, I utilized a

simplified set of models with fewer control variables (since many of the controls are not significant anyway) which are shown in Table 13 of Appendix A. These simpler models produce similar results as those in Table 9—immigrant concentration is significant for less experienced firms but not for highly experience firms—but the magnitude for high experience firms is now smaller (4.4% vs. 7.1%) and statistically different at a moderate level ($p < 0.10$), consistent with H4a(2). Educational attainment, in contrast, improves the probability of survival for highly experienced firms ($p < 0.01$) but not for those with low experience, supporting H4b(2). The effects of immigrant income and tenure are the opposite of what I expected—income has a more negative effect on the survival of high experience firms ($p < 0.01$), whereas tenure has a more positive effect on these firms ($p < 0.05$). Thus, I find no support for H4c(2) and H4d(2).

** INSERT TABLE 9 HERE **

The findings for firms targeting industrial or consumer buyer markets are generally not significant when it comes to survival. None of the effects are different from zero within subsamples. However, H5c(2) is supported because income has a more positive effect on industrial than on consumer goods firms ($p < 0.01$)—although the substantive difference is small. The rest of the hypotheses regarding the type of buyer market and subsidiary survival are not supported when survival is the dependent variable.

The final set of results is shown in Models 18 and 19, where I compare across firms with low and high labor intensity, respectively. The percentage of co-national immigrants has a positive effect on firms with high labor intensity ($p < 0.05$), leading to a 10.64% increase in the probability of entry for every one percent increase in immigrant

concentration as shown in Table 9. This effect is more positive than for low labor intensity companies ($p < 0.01$), which supports H6a(2). While education, income, and tenure are not significant within models, important differences exist across subsamples. Based on t-test comparisons of coefficients, co-national immigrant education and income have a more positive effect on the survival of firms high in labor intensity ($p < 0.05$), supporting H6b(2) and H6c(2), respectively. The difference in immigrant tenure is significant across subsamples, but not in the expected direction, failing to support H6d(2).

Overall, the results of the survival models are weaker than those of the entry models. To a large extent, this is driven by the very low non-survival rate (only 16.3%), which reduces the variance needed to distinguish effects with sufficient power, as evidenced by the many non-significant coefficients even amongst the control variables. To partially address this concern, the simplified models in Table 13 of Appendix A provide survival results consistent with those just reported. Taken together, the findings for both location choice and survival are highly consistent with the thrust of this dissertation: co-national immigrants appear to provide unique opportunities to some firms expanding abroad, and firms take advantage of those opportunities based on their heterogeneous strategic profiles.

Robustness Tests

Endogeneity Concerns. The central claim of this study is that immigrant social capital is the causal mechanism behind the findings. While causality is impossible to positively establish given the non-experimental nature of the data, I conducted several

additional analyses to rule out the most likely sources of endogeneity. Measurement error is unlikely to be a concern because the U.S. Census Bureau provides highly reliable data on immigrants and their characteristics at the state level. However, one could argue that instead of measuring immigrant concentration as the percentage of same-country immigrants in a target location, the raw number of immigrants is a more appropriate measure. To assess this possibility, I repeated the analysis using counts of immigrants by state (in thousands) and generally obtained the same results as just reported. Table 11 of Appendix A provides more details.

Omitted variables bias may be a concern if unobserved factors (e.g. attitudes towards foreigners) make locations mutually attractive for firms and immigrants, which would render the effects I report spurious. Before reporting on additional tests to get at this issue, I note that the control variables and the moderating effects reported above go some way towards addressing the concern of omitted variables. For example, the measure of *other country immigrants* helps rule out that places with high general immigration—which are likely to possess the unobserved factor that attracts immigrants and firms simultaneously—account for the observed effects. Also, the inclusion of many state characteristics that affect their attractiveness for individuals and firms (such as GDP, geographic proximity, and industry agglomeration) mitigates the concern. In addition, the likelihood that an omitted variable would vary systematically and simultaneously across the three moderators (prior experience, type of buyer market, and labor intensity) seems quite low. Nevertheless, I conducted further tests to further reduce concerns of spurious correlation.

In one test, I ran all the location choice models excluding the states that received the highest levels of both immigration and investment (California, Texas, New York, New Jersey, Georgia, Illinois, and Massachusetts) because these are the most likely to have characteristics inherently attractive to foreign individuals and firms. The support for the hypotheses remained, and in some cases was stronger than before—raising the intriguing possibility that co-national immigrants may be especially helpful in otherwise less attractive states¹⁷. In a different analysis, I replaced all immigration variables from the 2000 Census with those from the 1990 Census. My reasoning for doing this was that the past immigration should be less correlated than current immigration with any omitted variable that in the future (roughly 10 years later, in this case) makes a place simultaneously attractive for foreign firms. At the same time, the distribution of immigrants within nationalities is likely to be correlated over long periods of time given the path-dependent nature of immigrant location patterns described in theoretical and empirical studies (e.g. Massey & Zenteno, 1999). Consistent with this reasoning, the results using data from the 1990 Census were substantially the same as those reported in my primary analyses.

The third and final potential source of endogeneity is reverse causality, in this case the possibility that entries by firms drive co-national 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. The analysis using the 1990

¹⁷ Unfortunately, I could not conduct a similar analysis for the survival models. With the entire 294 entries, the non-survival rate was already low at 16.3%. By dropping the major receiving states, the cases of non-survival became too low to provide sufficient power to estimate results—especially to assess interactions.

Census, which I just mentioned, suggests that this is unlikely because immigrants counted in 1990 were clearly in the U.S. well before the subsidiaries in my sample were established. In addition, a few features of the research design rule out reverse causality. Most importantly, I consider 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 control for the agglomeration of same-country firms, so immigration driven by prior entries of other firms of the same nationality is accounted for. Finally, a significant concentration of immigrants takes several years to form (Massey & 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 I observe.

Validation of Theoretical Mechanisms. In the theoretical development of the hypotheses, I argue that immigrant social capital provides firms with three types of resources valuable for foreign expansion: knowledge, production inputs, and legitimacy. While the moderating effects provide evidence consistent with these types of resources, I ran some additional models as a further way to ascertain the operation of some of these mechanisms. To get at knowledge, I compared the results for firms with low and high prior U.S. experience (Models 7–8, 14–15) to those obtained from a similar analysis, splitting the sample by firms’ levels of general international experience (all countries except the U.S.). The pattern of results was similar to when I used U.S.-specific experience, but one important difference emerged: the survival effect for firms lacking U.S.-specific experience was significantly stronger than for firms lacking general foreign

experience. This suggests that immigrants provide the greatest benefit to co-national firms because they transfer country-specific knowledge.

To more particularly isolate legitimacy effects, I ran two tests using data on firms' country of origin. I expected that firms from countries with characteristics perceived to be less legitimate would benefit the most from immigrant social capital. First, I divided the sample by the corruption perception index of each country from the year before the entry¹⁸. I found that firms from countries with high corruption indices were more attracted to states with high immigrant concentration than those from countries with low corruption indices. Second, I divided the data by the favorability of perceptions that Americans had of specific countries based on a Gallup poll conducted the year before each entry¹⁹. With this data in hand, I found that co-national immigrants had a stronger effect on firms from countries perceived more negatively in the U.S. than those perceived more positively.

A reasonable question might be asked regarding the relative importance of each of the three mechanisms. For example, is the knowledge mechanism more important than legitimacy, and for which firms? While I am able to provide evidence consistent with the notion that immigrants provide firms with knowledge, production inputs, and legitimacy, ultimately I cannot isolate just one of those while excluding or holding the others constant. This represents one of the limitations of this study and would be a useful refinement for future work to address.

¹⁸ Available from www.transparency.org.

¹⁹ Downloaded on June 4, 2010 from <http://www.gallup.com/poll/1624/perceptions-foreign-countries.aspx>.

Chapter 6

Discussion

The objective of this dissertation is to present immigrant social capital as a unique, non-generic source of location-based advantages for firms expanding into foreign markets. The focus of the hypotheses and empirical tests is 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 attempt to provide evidence that these effects are driven by the way in which immigrants help co-national firms access local resources such as knowledge, production inputs, and legitimacy. The results consistently support this notion. In this discussion of the findings, my goal is to draw out implications beyond the immediate conclusions already reported from the results. Rather, I focus on additional insights and issues that suggest interesting avenues for future research in the domains of location, social capital, and immigration.

The arguments I present suggest two possible mechanisms by which immigrants allow firms to obtain resources within a location. One mechanism, which is perhaps more strongly implied by the way I build my arguments, is that immigrants somehow *possess* a set of resources—knowledge, legitimacy, and certain production inputs—which they are more likely to transfer to co-national firms than to those of other nationalities. Another possibility, however, is that immigrants serve as third party mediators that help co-national firms *extract* otherwise generic resources in favorable ways. For example, immigrants could not only work directly for the firm, but could also help funnel a set of

non-immigrant skilled workers to the firm in some way. This is a subtly different but complementary way to understand what immigrants do for co-national firms.

To shed some light on this mechanism, I considered how the impact of immigrants on location choice changed as industry agglomeration increased. Industry agglomeration was introduced by Marshall (1920) long ago as a classic source of generic location resources including specialized labor and suppliers, as well as knowledge spillovers. If immigrants allow some firms to capitalize upon generic resources more than those without access to immigrants, we should observe that the effect of immigrant social capital becomes stronger as industry agglomeration goes up. To assess this effect, I split the data into locations with low or high industry agglomeration and compared the effects of the immigration variables across subsamples. I found that immigrant concentration and education have a stronger effect on the probability of entry and survival for locations with high industry agglomeration than for those with low industry agglomeration. This is nicely illustrated for immigrant concentration in Figure 4. These additional results suggest that immigrant social capital may be affecting firms through both mechanisms; that is, immigrants function as direct providers of their own resources *and* as conduits to access otherwise generic resources tied to a location.

** INSERT FIGURE 4 HERE **

This additional analysis suggests an area for future work centered on understanding the relative impact of various types of locational resources on foreign entry and performance. Based on the theoretical arguments from this study, I would expect unique resources to exhibit a stronger effect on location and performance than generic

ones. However, the relationship may be more complex than that because of differences in firm strategy and other characteristics. Moreover, this study does not take into account broader institutional factors that could also modify whether unique or generic sources of locational resources are most beneficial for firms in the process of expanding abroad. In fact, institutional arrangements could directly make certain types of resources unique sources of rents to certain firms favored by powerful actors or legitimated by certain institutions (Ahuja & Yayavaram, 2011).

While the focus of this paper has been on immigrants, this study implies that networks more generally play a key role in helping firms obtain locational advantages. Unlike generic attributes, social connections are unique to the parties involved in the relationship and any resource benefits that arise from the relationship exclude those outside of it. Thus, network ties formed in the host location function as isolating mechanisms for the resources obtained through those ties—consistent with the RBV notion that socially complex resources are some of the most likely to confer competitive advantage (Barney, 1991). Beyond immigrants in particular, firms establish connections with multiple local partners as they expand into host countries. While this fact has already been established by theoretical and empirical work on MNCs (Ghoshal & Bartlett, 1990; Zaheer & Hernandez, 2010), research generally has not focused on how and when these connections confer location-related advantages.

International business scholars have begun to rethink internationalization as a process of becoming embedded in global organizational networks—going as far as replacing the notion of the liability of foreignness with ‘liabilities of outsidership’

(Johanson & Vahlne, 2009). The notion of suffering from being outside of the network is consistent with the contribution I make in this study by showing that ties to co-national immigrants are a source of advantage. Yet much work remains to be done in this area, such as better understanding how firms establish specific connections with host-country partners (a process which I cannot observe given data limitations).

Moreover, the literature on social networks more broadly has tended to overlook the geographical aspects of organizational relationships (some exceptions are Bell & Zaheer, 2007 and Kono, Palmer, Friedland, & Zafonte, 1998). This may be the case because network theory has not been applied to questions of foreign expansion—where geography becomes paramount. Yet issues of location need not be international. Even within countries there is significant evidence that geographic factors matter for firms and industries (e.g. Ellison, Glaeser, & Kerr, 2010). This dearth of network applications to issues of location presents an exciting opportunity for future studies to show how social capital affects outcomes such as industry agglomeration, exporting, or competition within geographic spaces.

The finding that prior experience weakens the effects of immigrant concentration on location choice and survival suggests a substitution effect between the resources obtained through immigrant social capital and those obtained from prior experience. In particular, it implies that firms can make up for the lack of internal knowledge or legitimacy within a foreign market (and more generally, of internal competencies) by tapping into their latent, ethnic-based relationships. This addresses an important boundary condition of incremental models of international market expansion (Delios & Henisz,

2003; Johanson & Vahlne, 1977), which have emphasized first-hand, experiential learning as the key driver of location choice but cannot account for situations in which firms expand into markets without any prior experience. Also important is the finding that firms with high country-specific experience do not altogether cease seeking for resources from co-national immigrants, but rather seek for different qualities in the types of immigrants with whom they choose to co-locate. This provides a more nuanced view, implying that firm capabilities do not *always* substitute social capital, but rather that firms adjust what they seek from their external relations as their internal capabilities evolve.

The result that industrial goods firms are attracted to locations with strong immigrant concentration, as well as to wealthier and younger immigrants, suggests that the effects I observe are not driven solely by the demand benefits of immigration. Rather, some kind of supply-side resource transfer—evidence that social capital is operating—must be occurring. Somewhat surprisingly, industrial goods firms are more attracted to states with high immigrant concentration than consumer goods firms (though the effect is positive for both types of firms). A priori, I expected the latter to exhibit a stronger effect based on the desire to access a larger ethnic market. One possible interpretation is that consumer firms realize that immigrant clusters are quite small relative to the entire population and thus are wary of the risk of becoming stuck catering to a narrow niche. There is some anecdotal evidence for this in the case of Dabur India, whose CEO expressed concerns about targeting the Indian diaspora as a consumer market for fear of placing limits on growth into the larger native market (Dawar & Chandrasekhar, 2009).

The effects of immigrants on firms differing in labor intensity are also supportive of the notion that firms adjust their social capital seeking behavior based on the kinds of resources most important to their performance. Both the performance and location choice findings show that labor intensive firms (i.e. those with greater levels of knowledge assets or in need of skilled labor) are more likely to seek for and benefit from co-national immigrants—especially if they are highly educated and well-paid. Thus, there is a complementarity between firms’ strategic asset needs and the kinds of resources they seek for and obtain from obtain social capital.

These three contingencies (prior experience, type of market, and labor intensity) get at the larger issue of the relationship between internal and external resources—representing two major strands of literature in strategic management. These two traditions have begun to be connected by scholars showing that the ability of firms to benefit from external ties replaces the implicit assumption of asset ownership in the resource-based view with a weaker assumption of resource *access* (Lavie, 2006). My contribution is to add that differences in the effects of external resources on firms come not only from variation in access but also from heterogeneity in firms’ *choices to access* social capital based on the strategies they follow. This has an important empirical corollary, suggesting that scholars must account for selection bias when assessing the performance effects of social capital—which I have done in this study.

While extant work has focused on social capital arising from ties established with strategic benefits in mind (e.g. alliances), I study a kind of relationship that exists for reasons typically beyond the control of the parties involved—because individuals and

firms do not choose their country of birth—and thus is always present in potential form. This raises the possibility of exploring the concept of ‘potential social capital’ and how it transforms into actual social capital. One interesting direction in this regard would be to study what drives differences in firms’ ability to convert potential into actual benefits from social capital, perhaps helping pin down the important but elusive concept of network capabilities (e.g. Gulati, 2007).

Further, if informal ties give rise to social capital, as shown here, future studies could benefit from mapping a ‘firm-stakeholder’ network which includes both formal and informal ties. Formal ties would include strategic alliances, board interlocks, and other relationships which are well-studied already; informal ties would include relations with entities such as immigrants and other interest groups. Such an approach would provide a more comprehensive picture of how external ties affect strategy and performance. Also, comparisons of the effects of formal and informal ties under various conditions can help scholars understand when ties with different types of stakeholders are more or less relevant to various domains of strategic action (e.g. foreign market expansion, innovation, market share, and more). This would also provide a way to combine the currently independent research streams on networks and stakeholder theory (Freeman, 1984) using the concept of social capital as a unifying framework.

The topic of immigration itself raises some important implications for research and practice. This study suggests that immigration deserves a place in international business research as a phenomenon similar to other issues that have evolved into established domains of inquiry—such as political risk or culture. Aside from providing a

good context to study location advantages and social capital, immigration is a pervasive and current sign of globalization with real impact on firm strategy. While firms do not control large-scale immigration, I provide evidence that they have latitude in responding strategically to it²⁰. 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 MNEs (UNCTAD, 2006), such staging of market entry may be useful for firms from emerging economies and could be one avenue for these firms to develop their capabilities (Khanna & Palepu, 2006; Wells, 1983).

The topic of this dissertation also has important implications for economic and immigration policy. One of the current debates in many countries concerns what to do about immigration (e.g. Buchanan, 2002; Legrain, 2007). A parallel debate concerns how open nations should be to foreign capital. In both cases the opinions exhibit wide variation in terms of how porous borders ought to be. Without intending to take a policy stance, at a minimum this study provides fodder for both debates by showing evidence of an inseparable relationship between migration and global flows of capital, and highlights the role of firms as strategic actors in this domain. These observations suggest that policy makers may benefit from jointly considering immigration and international investment—and the strategic responses of firms—for better policy solutions to these two issues so central to the public interest.

²⁰ It may be worth nothing that immigration is one of the so-called “three pillars of demography” along with fertility and mortality. Management research tends not to study demographic issues, yet if immigration matters for firms as this study demonstrates, perhaps there are interesting ways to incorporate the other two pillars of demography into our research domain.

Conclusion

I study the effects of co-national immigrants on foreign market entry and subsidiary survival to address critical issues in our understanding of location-based advantages and in the relationship between social capital and firm strategy. I depart from the prevalent focus on generically available resources and focus on immigrant social capital as a unique source of location-based advantage. I also demonstrate that whether firms seek out and benefit from immigrant social capital depends upon the capabilities they have developed in a host country, the types of buyer markets they target, and the key resources they seek when expanding abroad. Altogether, the results provide consistent evidence in favor of my propositions and raise useful implications for scholars, managers, and policy makers.

Figure 1 Immigrant Concentration (Shaded) and Entries (Numbers) by State

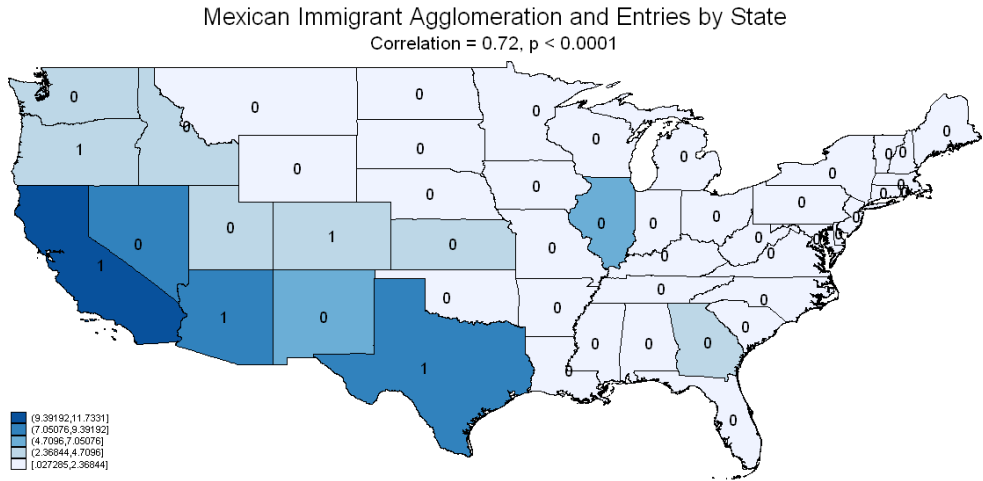
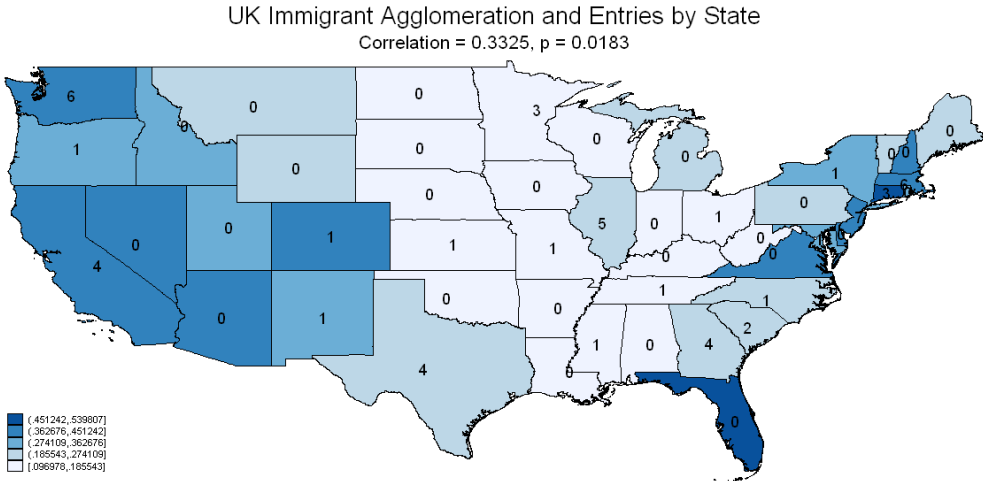
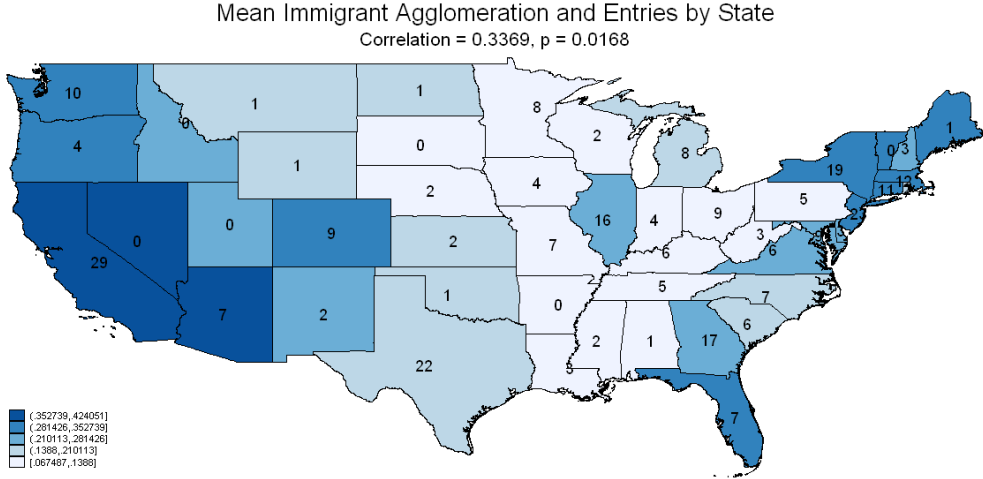


Figure 2
Effects of Immigrant Concentration on Firms with Low and High Prior Experience

Prior experience measured as the number of U.S. states in which the focal firm had foreign subsidiaries at the time of establishing the next subsidiary. Low experience is measured at or below the sample mean, and high experience is measured above the sample mean.

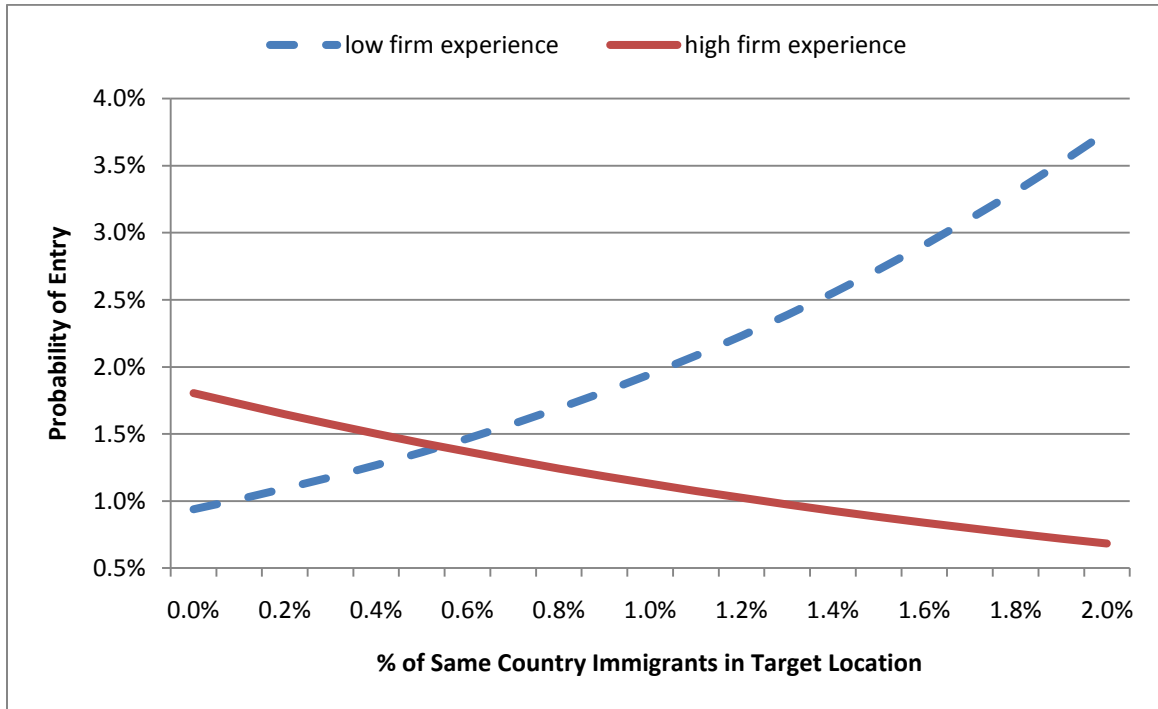


Figure 3
Effects of Immigrant Concentration for Firms with Low and High Labor Intensity

Labor intensity measured as the percentage of each subsidiary's costs allocated to compensation of employees. Low labor intensity is measured at or below the sample mean, and high labor intensity is measured above the sample mean.

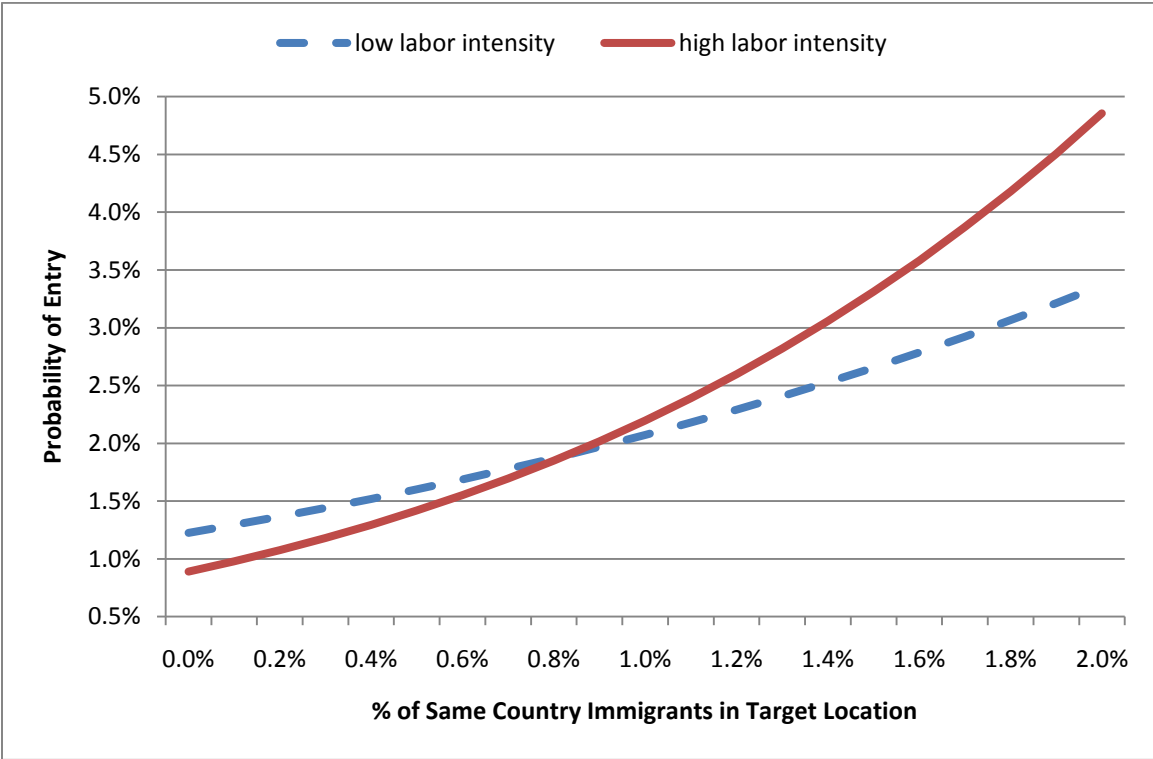


Figure 4
Effects of Immigrant Concentration for Locations with Low and High Industry Agglomeration

Industry agglomeration measured as the percentage of an industry's total employment within each U.S. state. Low industry agglomeration is measured at the 25th percentile, and high industry agglomeration is measured at the 75th percentile in the sample.

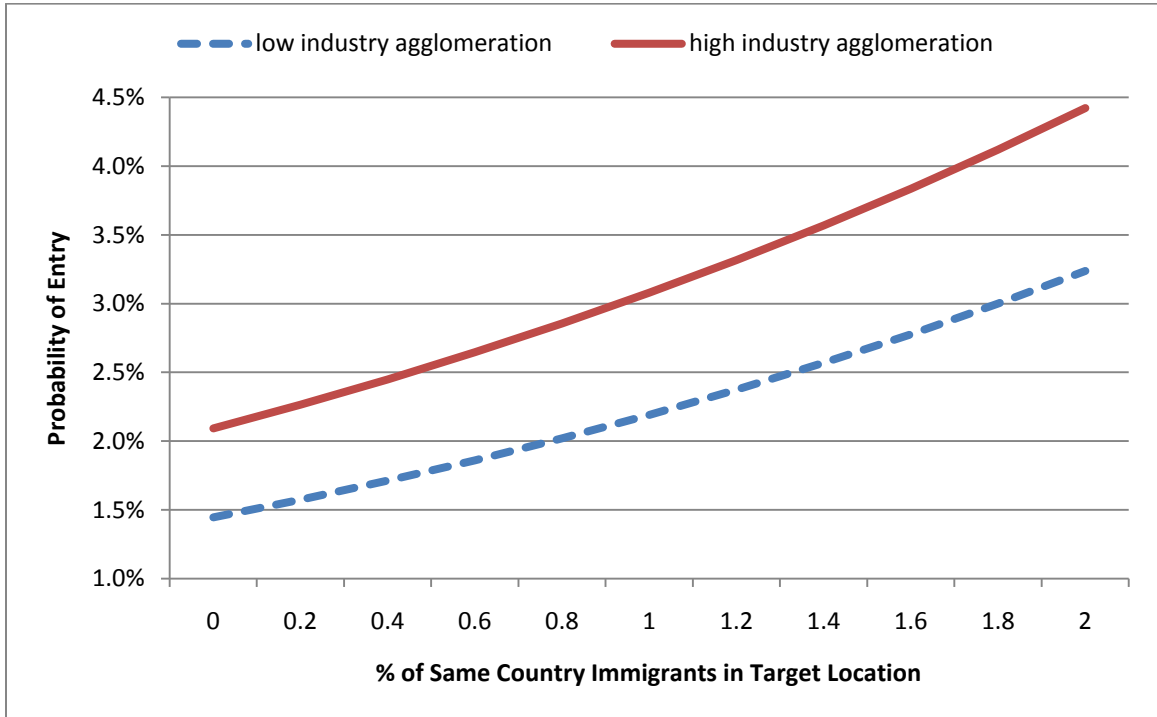


Table 1
Receiving States and Sending Countries

Panel A: Receiving States				Panel B: 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

Table 2
Top 3 Co-National Immigrant Concentration States by Sending Country

Country	Rank	State	Agglomeration	Country	Rank	State	Agglomeration
Australia	1	Hawaii	0.07%	Japan	1	Hawaii	2.17%
Australia	2	California	0.05%	Japan	2	California	0.42%
Australia	3	Washington	0.05%	Japan	3	Washington	0.41%
Austria	1	New York	0.06%	Korea (South)	1	Hawaii	1.45%
Austria	2	New Jersey	0.05%	Korea (South)	2	California	0.82%
Austria	3	Florida	0.04%	Korea (South)	3	Washington	0.70%
Belgium	1	New Jersey	0.03%	Mexico	1	California	11.73%
Belgium	2	New York	0.03%	Mexico	2	Texas	9.17%
Belgium	3	Nevada	0.03%	Mexico	3	Arizona	8.66%
Brazil	1	Massachusetts	0.56%	Netherlands	1	Utah	0.10%
Brazil	2	Connecticut	0.36%	Netherlands	2	Vermont	0.08%
Brazil	3	Florida	0.29%	Netherlands	3	Washington	0.08%
Canada	1	Vermont	1.59%	Norway	1	North Dakota	0.09%
Canada	2	Maine	1.55%	Norway	2	Washington	0.07%
Canada	3	New Hampshire	1.08%	Norway	3	Alaska	0.04%
China	1	New York	1.24%	Peru	1	New Jersey	0.52%
China	2	Hawaii	1.07%	Peru	2	Florida	0.34%
China	3	California	0.99%	Peru	3	New York	0.24%
Denmark	1	Washington	0.03%	Russia	1	New York	0.58%
Denmark	2	California	0.02%	Russia	2	Massachusetts	0.33%
Denmark	3	Utah	0.02%	Russia	3	Washington	0.30%
Finland	1	Florida	0.02%	South Africa	1	California	0.05%
Finland	2	Oregon	0.02%	South Africa	2	Colorado	0.04%
Finland	3	Connecticut	0.02%	South Africa	3	Florida	0.04%
France	1	Vermont	0.14%	Spain	1	New Jersey	0.12%
France	2	New York	0.12%	Spain	2	Florida	0.12%
France	3	Massachusetts	0.11%	Spain	3	New York	0.08%
Germany	1	Colorado	0.82%	Sweden	1	Connecticut	0.05%
Germany	2	Alaska	0.76%	Sweden	2	Vermont	0.05%
Germany	3	Washington	0.71%	Sweden	3	Washington	0.04%
India	1	New Jersey	1.43%	Switzerland	1	Alaska	0.06%
India	2	Illinois	0.67%	Switzerland	2	Connecticut	0.04%
India	3	New York	0.63%	Switzerland	3	California	0.04%
Ireland	1	Massachusetts	0.30%	Taiwan	1	California	0.45%
Ireland	2	New York	0.23%	Taiwan	2	Hawaii	0.27%
Ireland	3	New Jersey	0.15%	Taiwan	3	New Jersey	0.20%
Israel	1	New York	0.17%	United Kingdom	1	Connecticut	0.54%
Israel	2	New Jersey	0.11%	United Kingdom	2	Florida	0.51%
Israel	3	California	0.09%	United Kingdom	3	Massachusetts	0.45%
Italy	1	New York	0.83%				
Italy	2	Connecticut	0.78%				
Italy	3	New Jersey	0.73%				

Table 3
Descriptive Statistics

Variable	Mean	Median	SD	Min	Max
1 entry	0.027	0.000	0.162	0	1
2 survival	0.837	1.000	0.370	0	1
3 immigrant concentration	0.213	0.104	0.443	0	11.73
4 immigrant education	7.898	8.000	0.795	1	9
5 immigrant household income	56.535	53.550	42.386	0	1000
6 immigrant years in USA	29.005	31.000	10.282	0	76
7 prior U.S. experience	3.274	1.000	5.111	0	31
8 % sales for personal consumption	22.307	9.583	25.848	0	100
9 labor intensity	29.928	28.781	11.694	4.61	79.60
10 real GDP per capita	32.796	32.206	5.927	22.42	55.13
11 median age (state)	35.173	35.000	1.849	27	38
12 % other country immigrants	7.849	5.664	5.895	1.30	27.32
13 state borders ocean	0.453	0.000	0.498	0	1
14 % same industry employment	1.873	1.017	2.781	0	40.33
15 % same country firms	1.802	0.665	3.484	0	100
16 geographic distance	4.367	4.429	1.848	0.10	10.60
17 education expenses per student	8.187	7.938	1.624	4.96	14.02
18 federal education funds per student	0.642	0.605	0.223	0.26	1.94
19 yearly inches of snow (IV*)	33.819	25.867	30.164	0	162.85
20 republican/democrat vote ratio (IV)	1.212	1.087	0.479	0.52	2.58

* IV = Identifying or instrumental variable

Table 4a
Correlations in 1st Stage Sample (DV = Entry)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1 entry																		
2 immigrant concentration	0.05																	
3 immigrant education	0.02	-0.38																
4 immigrant household income	0.03	-0.05	0.07															
5 immigrant years in USA	-0.01	-0.08	-0.10	-0.04														
6 prior U.S. experience	0.05	-0.01	0.02	0.00	0.08													
7 % sales for personal consumption	0.01	0.04	-0.07	-0.01	-0.07	0.08												
8 labor intensity	-0.01	-0.05	0.07	0.00	0.02	-0.07	-0.19											
9 real GDP per capita	0.08	0.09	0.07	0.12	-0.01	-0.03	-0.01	0.00										
10 median age (state)	-0.02	-0.02	-0.02	-0.01	0.07	-0.01	0.00	0.00	-0.02									
11 % other country immigrants	0.12	0.08	0.08	0.06	-0.04	-0.03	-0.01	0.00	0.48	-0.10								
12 state borders ocean	0.07	0.06	0.09	0.07	-0.08	-0.02	-0.01	0.00	0.36	0.03	0.44							
13 % same industry employment	0.22	0.03	0.04	0.05	-0.05	-0.04	0.00	0.01	0.18	-0.09	0.42	0.15						
14 % same country firms	0.15	0.08	0.06	0.06	-0.04	-0.05	-0.01	0.00	0.27	-0.02	0.49	0.23	0.50					
15 geographic distance	-0.01	-0.26	0.25	0.02	-0.21	0.03	0.05	0.06	-0.06	-0.11	0.10	-0.02	0.01	-0.04				
16 education expenses per student	0.07	0.06	0.05	0.10	0.03	-0.08	-0.03	-0.01	0.67	0.32	0.34	0.27	0.15	0.29	-0.16			
17 federal education funds per student	-0.03	-0.01	-0.04	-0.03	-0.01	-0.03	-0.02	-0.01	-0.02	-0.08	-0.09	0.09	-0.12	-0.09	0.01	0.16		
18 yearly inches of snow (IV*)	-0.03	0.04	-0.02	0.03	0.12	0.00	0.00	0.00	0.17	0.20	-0.16	-0.12	-0.12	-0.05	-0.12	0.35	0.02	
19 republican/democrat vote ratio (IV)*	-0.07	-0.06	-0.10	-0.05	0.00	0.03	0.01	0.00	-0.31	-0.53	-0.43	-0.35	-0.22	-0.27	0.06	-0.44	0.22	0.05
* IV = Identifying or instrumental variable																		

Table 4b
Correlations in 2nd Stage Sample (DV = Survival)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 survival																
2 immigrant concentration	0.03															
3 immigrant education	0.00	-0.69														
4 immigrant household income	0.00	-0.07	0.17													
5 immigrant years in USA	0.05	-0.19	-0.11	0.07												
6 prior U.S. experience	0.10	-0.05	0.02	0.07	0.08											
7 % sales for personal consumption	0.02	0.12	-0.09	-0.03	-0.02	0.16										
8 labor intensity	-0.14	-0.07	0.11	0.11	-0.03	-0.21	-0.22									
9 real GDP per capita	-0.13	-0.02	0.17	-0.03	-0.12	-0.22	0.07	0.03								
10 median age (state)	-0.04	-0.13	0.10	0.11	0.15	0.12	-0.01	-0.03	0.08							
11 % other country immigrants	-0.10	0.00	0.10	-0.01	0.00	-0.24	0.01	0.10	0.52	-0.23						
12 state borders ocean	-0.05	0.04	0.08	0.00	-0.13	-0.18	0.06	0.05	0.40	-0.13	0.54					
13 % same industry employment	-0.03	0.02	0.05	-0.03	-0.03	-0.21	-0.12	0.01	0.09	-0.35	0.47	0.20				
14 % same country firms	-0.08	0.24	0.00	-0.01	-0.12	-0.20	0.00	0.08	0.28	-0.20	0.58	0.30	0.45			
15 geographic distance	0.06	-0.21	0.31	0.01	-0.28	0.01	0.06	0.02	0.02	-0.16	0.05	0.00	0.02	0.05		
16 education expenses per student	-0.15	-0.11	0.16	0.04	-0.01	-0.16	0.04	0.03	0.67	0.42	0.36	0.23	0.01	0.22	-0.12	
17 federal education funds per student	-0.04	-0.01	-0.02	0.02	0.04	-0.10	-0.09	-0.02	-0.20	-0.21	0.16	0.03	0.16	0.07	-0.02	0.02

Table 5
Summary of Hypotheses and Results

The > and < are “greater than” and “less than” symbols, respectively
 L = Supported when Location Choice is the dependent variable
 S = Supported when Survival is the dependent variable

The + or - signs when comparing across subsamples (e.g. low vs. high firm experience) indicate whether the coefficient for a given subsample is expected to be “more positive” or “more negative.” For example, “+ >” suggests that the coefficient of the subsample on the left is expected to be have a more positive effect on the dependent variables, whereas “> -” indicates that the coefficient of the subsample on the right is expected to have a more negative effect. The symbol “+ < +” indicates that both coefficients are expected to be positive and significant, but the one on the right will be more positive than the other.

Variable	Main Effect		Firm Experience				Buyer Market				Labor Intensity			
	Predicted	Support	Low	vs.	High	Support	Ind.	vs.	Con.	Support	Low	vs.	High	Support
Immigrant Concentration	+	L,S	+	>		L,S	+	<	+	L		<	+	L,S
Immigrant Education	+			<	+	L,S	+	>				<	+	L,S
Immigrant Income	+	L		>	+	L	+	>		L,S		<	+	L,S
Immigrant Tenure	-			>	-	L	-	<		L		>	-	

Table 6
Effects on Location Choice (1st Stage)
Estimation Method: Fixed Effects Probit
Control Variables and Main Effects of Immigration Variables

	Controls	% Immigrants	Education	Income	Tenure	Main Effects
	1	2	3	4	5	6
immigrant concentration		0.2455 *** (0.0492)				0.2675 *** (0.0533)
immigrant education			0.0495 (0.0599)			0.0737 (0.0608)
immigrant household income				0.0013 *** (0.0005)		0.0013 ** (0.0006)
immigrant years in USA					-0.0047 *** (0.0047)	-0.0048 (0.0048)
real GDP per capita	0.0071 (0.0067)	0.0058 (0.0067)	0.007 (0.0067)	0.0066 (0.0067)	0.0071 (0.0068)	0.0053 (0.0068)
median age (state)	-0.0761 *** (0.0258)	-0.0743 *** (0.0258)	-0.075 *** (0.0260)	-0.077 *** (0.0260)	-0.0746 (0.0259)	-0.0711 *** (0.0262)
% other country immigrants	-0.0041 (0.0074)	-0.0056 (0.0074)	-0.0035 (0.0075)	-0.0041 (0.0075)	-0.0036 *** (0.0074)	-0.0044 (0.0075)
state borders ocean	0.0489 (0.0817)	0.0472 (0.0830)	0.0426 (0.0822)	0.0467 (0.0819)	0.0392 *** (0.0833)	0.0269 (0.0846)
% same industry employment	0.0850 *** (0.0090)	0.0858 *** (0.0090)	0.0850 *** (0.0090)	0.0848 *** (0.0090)	0.0848 ** (0.0090)	0.0857 *** (0.0091)
% same country firms	0.0153 *** (0.0054)	0.0134 *** (0.0050)	0.0152 *** (0.0055)	0.0152 *** (0.0055)	0.015 *** (0.0055)	0.0125 ** (0.0050)
geographic distance	-0.1199 ** (0.0550)	-0.1049 * (0.0544)	-0.1242 ** (0.0552)	-0.1196 ** (0.0552)	-0.1221 ** (0.0550)	-0.1101 ** (0.0543)
education expenses per student	0.0796 ** (0.0347)	0.0898 *** (0.0346)	0.0794 ** (0.0347)	0.0778 ** (0.0346)	0.0803 ** (0.0347)	0.0895 *** (0.0346)
federal education funds per student	-0.5826 *** (0.1811)	-0.5892 *** (0.1790)	-0.5763 *** (0.1812)	-0.5829 *** (0.1824)	-0.5666 (0.1791)	-0.5627 *** (0.1771)
yearly inches of snow (IV)	-0.0043 *** (0.0016)	-0.0045 *** (0.0017)	-0.0043 *** (0.0016)	-0.0043 *** (0.0016)	-0.0041 (0.0016)	-0.0044 *** (0.0017)
republican/democrat vote ratio (IV)	-0.3063 ** (0.1315)	-0.2872 ** (0.1321)	-0.2981 ** (0.1325)	-0.315 ** (0.1324)	-0.3084 (0.1319)	-0.2787 ** (0.1344)
Pseudo R-Squared	0.1792	0.1839	0.1794	0.1808	0.1796	0.1867
Log Likelihood (LL) (model p-value)	-1113.68	-1107.21 ***	-1,113.4 ***	-1,111.5 ***	-1,113.2 ***	-1,103.5 ***
Change in LL relative to Model 1		6.47 ***	0.30	2.19 *	0.53	10.18 **
Sample size	10,980	10,980	10,980	10,980	10,980	10,980
# of Parent Firms	197	197	197	197	197	197

* p < 0.10, ** p < 0.05, *** p < 0.01 (one-tailed tests of hypotheses, cluster-robust standard errors in parentheses)

Table 7
Effects on Location Choice (1st Stage)
Estimation Method: Fixed Effects Probit

Moderating Effects of Firm Experience, Type of Buyer Market, and Labor Intensity

The moderating hypotheses are tested by comparing across subsamples (e.g. industrial vs. consumer goods firms) rather than by assessing within subsamples. Even if a variable is not statistically different from zero within a subsample, it may be statistically different from its counterpart in another subsample. Please see Table 8 and the text for an explanation of which effects are significantly different across subsamples.

	Firm Experience		Type of Buyer Market		Labor Intensity	
	Low	High	Industrial	Consumer	Low	High
	7	8	9	10	11	12
immigrant concentration	0.2847 *** (0.0657)	-0.185 (0.3144)	0.4292 ** (0.2123)	0.2482 *** (0.0545)	0.2098 *** (0.0347)	0.3555 *** (0.1027)
immigrant education	0.0343 (0.0648)	0.2267 * (0.1467)	0.1173 (0.0943)	0.0267 (0.0856)	0.0108 (0.0645)	0.1641 * (0.1082)
immigrant household income	0.0006 * (0.0004)	0.0018 ** (0.0009)	0.0015 ** (0.0007)	0.0007 * (0.0005)	-0.0001 (0.0005)	0.0023 *** (0.0009)
immigrant years in USA	0.0016 (0.0056)	-0.0182 *** (0.0073)	-0.0102 ** (0.0062)	0.0011 (0.0074)	-0.009 ** (0.0052)	0.0005 (0.0090)
real GDP per capita	0.0121 (0.0080)	-0.0046 (0.0117)	0.0088 (0.0102)	0.001 (0.0087)	0.0151 (0.0092)	-0.0084 (0.0084)
median age (state)	-0.0717 ** (0.0333)	-0.0633 (0.0405)	-0.0498 (0.0382)	-0.1059 *** (0.0351)	-0.055 (0.0343)	-0.0993 ** (0.0398)
% other country immigrants	-0.002 (0.0093)	-0.0071 (0.0128)	-0.0094 (0.0108)	-0.0009 (0.0109)	-0.0043 (0.0091)	-0.0071 (0.0128)
state borders ocean	0.009 (0.1084)	0.053 (0.1533)	-0.153 (0.1194)	0.1669 (0.1204)	0.0609 (0.1083)	-0.0294 (0.1474)
% same industry employment	0.0842 *** (0.0099)	0.093 *** (0.0238)	0.0912 *** (0.0116)	0.0759 *** (0.0152)	0.084 *** (0.0111)	0.0951 *** (0.0151)
% same country firms	0.0115 ** (0.0051)	0.0204 (0.0213)	0.0121 ** (0.0058)	0.0146 (0.0096)	0.0124 ** (0.0059)	0.0111 (0.0093)
geographic distance	-0.1292 * (0.0660)	-0.0928 (0.0975)	-0.1539 ** (0.0681)	-0.0576 (0.0849)	-0.1523 ** (0.0649)	-0.0561 (0.0933)
education expenses per student	0.0923 ** (0.0420)	0.067 (0.0692)	0.1188 ** (0.0516)	0.0828 * (0.0474)	0.0417 (0.0431)	0.1595 ** (0.0622)
federal education funds per student	-0.5172 ** (0.2234)	-0.6852 ** (0.3031)	-0.1988 (0.2156)	-0.9203 *** (0.2699)	-0.4803 ** (0.2168)	-0.7365 ** (0.2911)
yearly inches of snow (IV)	-0.0053 ** (0.0022)	-0.0032 (0.0026)	-0.0083 *** (0.0025)	-0.0024 (0.0021)	-0.0028 * (0.0017)	-0.0073 * (0.0040)
republican/democrat vote ratio (IV)	-0.1501 (0.1655)	-0.5044 ** (0.1976)	-0.1861 (0.1805)	-0.4349 *** (0.1670)	-0.2888 (0.1773)	-0.2964 (0.1915)
Pseudo R-Squared	0.1849	0.1946	0.1777	0.2050	0.1908	0.1912
Log Likelihood (LL) (model p-value)	-730.276 ***	-365.737 ***	-533.935 ***	-562.276 ***	-622.542 ***	-474.806 ***
Sample size	8054	2882	5392	5544	5982	4954
# of Parent Firms	150	47	102	99	109	96

* p < 0.10, ** p < 0.05, *** p < 0.01 (one-tailed tests of hypotheses, cluster-robust standard errors in parentheses)

Table 8
Marginal Effects of Selected Variables on Location Choice
Tests of Differences Across Subsamples

Average Marginal Effect (AME): Calculated by obtaining the marginal effect of the focal variable for each observation in the sample (holding all others at their mean) and then averaging across the entire sample.

% Change in Mean P(Entry): Immigration variables divided by the sample's mean probability of entry (2.69 %) to provide a sense of the importance of the observed effects relative to the average likelihood of entry into a state.

Industry Agglomeration Comparison: Immigration variables divided by "% same industry employment" to compare their impact on entry relative to industry agglomeration. **CAUTION:** Immigrant and industry concentration are not on the same scale (share of total state population vs. share of total industry-specific U.S. employment). With that caveat in mind, my purpose is only to provide a general sense of the practical importance of immigration on location choice.

Min-Max Change in P(Entry): The total change in the probability of entry as the focal variable increases from its minimum to its maximum value.

t-test of AME difference: Compares the significance of AMEs across subsamples through a t-test.

	Average Marginal Effect (AME)	% Change in Mean P(Entry)	Industry Agglom. Comparison	Min-Max Change in P(Entry)	Average Marginal Effect (AME)	% Change in Mean P(Entry)	Industry Agglom. Comparison	Min-Max Change in P(Entry)	t-test of AME Difference
Main Effects (Model #6)									
immigrant concentration	1.38%	51.30%	3.12	74.78%					
immigrant education	0.38%	14.13%	0.86	2.16%					
immigrant household income	0.01%	0.25%	0.01	15.99%					
immigrant years in USA	-0.02%	-0.92%	-0.06	-1.77%					
% same industry employment	0.44%	16.44%		82.08%					
Low Firm Experience (Model #7)					High Firm Experience (Model #8)				
immigrant concentration	1.31%	48.73%	3.38	78.92%	-1.22%	-45.31%	-1.99	-2.07%	65.37 ***
immigrant education	0.16%	5.87%	0.41	1.07%	1.49%	55.53%	2.44	5.17%	-73.11 ***
immigrant household income	0.00%	0.10%	0.01	4.46%	0.01%	0.43%	0.02	31.13%	-80.28 ***
immigrant years in USA	0.01%	0.27%	0.02	0.56%	-0.12%	-4.46%	-0.20	-7.56%	133.39 ***
% same industry employment	0.39%	14.41%		79.79%	0.61%	22.78%		85.53%	
Industrial Market (Model #9)					Consumer Market (Model #10)				
immigrant concentration	2.17%	80.60%	4.71	8.92%	1.29%	47.92%	3.27	66.60%	59.95 ***
immigrant education	0.59%	22.02%	1.29	2.79%	0.00%	0.14%	0.01	0.98%	51.50 ***
immigrant household income	0.01%	0.28%	0.02	20.52%	0.28%	10.39%	0.71	6.39%	-45.55 ***
immigrant years in USA	-0.05%	-1.92%	-0.11	-3.16%	0.00%	0.09%	0.01	0.42%	-81.31 ***
% same industry employment	0.46%	17.13%		86.67%	0.39%	14.65%		57.76%	
Low Labor Intensity (Model #11)					High Labor Intensity (Model #12)				
immigrant concentration	1.12%	41.55%	2.50	54.62%	1.74%	64.86%	3.74	70.77%	-84.13 ***
immigrant education	0.06%	2.13%	0.13	0.44%	0.80%	29.95%	1.73	3.29%	-85.55 ***
immigrant household income	0.00%	-0.01%	0.00	-0.37%	0.01%	0.43%	0.02	45.04%	-170.00 ***
immigrant years in USA	-0.05%	-1.79%	-0.11	-3.33%	0.00%	0.08%	0.00	0.16%	-69.77 ***
% same industry employment	0.45%	16.64%		81.12%	0.47%	17.35%		53.39%	
* p < 0.10, ** p < 0.05, *** p < 0.01									

Table 9
Effects on Subsidiary Survival (2nd Stage)
Estimation Method: Linear Probability Model with Selection Control
Cluster-Robust Standard Errors in Parentheses

The null hypothesis in Model 13 is whether the independent variables are different from zero, so the significance of the coefficients indicates support for a hypothesis. In the rest of the models (14–19), the moderating hypotheses are tested by comparing across subsamples (e.g. industrial vs. consumer goods firms) rather than by assessing within subsamples. Even if a variable is not statistically different within a subsample, it may be statistically different from its counterpart in another subsample. Please see the text, as well as Table 13 in Appendix A, for an explanation of which effects are significantly different across subsamples.

Model #	Firm Experience		Type of Buyer Market		Labor Intensity		
	Main Effects 13	Low 14	High 15	Industrial 16	Consumer 17	Low 18	High 19
immigrant concentration	0.0500 ** (0.0299)	0.0669 ** (0.0392)	0.1658 (0.2123)	-0.1078 (0.1566)	0.0321 (0.0332)	0.0227 (0.0352)	0.1064 ** (0.0634)
immigrant education	0.0654 (0.0578)	0.0409 (0.0573)	0.2535 *** (0.1028)	0.0432 (0.0947)	0.0851 (0.0666)	0.0209 (0.0716)	0.0847 (0.0872)
immigrant household income	-0.0001 (0.0002)	0.0006 (0.0025)	-0.0005 *** (0.0002)	0.0003 (0.0004)	-0.0005 (0.0030)	-0.0004 (0.0026)	0.0001 (0.0004)
immigrant years in USA	0.0038 (0.0036)	0.0004 (0.0038)	0.0124 ** (0.0065)	0.0061 * (0.0042)	-0.0014 (0.0046)	0.0039 (0.0038)	0.0029 (0.0065)
real GDP per capita	-0.0075 (0.0072)	-0.0052 (0.0120)	-0.0128 (0.0100)	0.003 (0.0094)	-0.0136 (0.0116)	0.0037 (0.0066)	-0.0536 *** (0.0173)
median age (state)	-0.007 (0.0170)	-0.034 (0.0264)	0.0064 (0.0235)	-0.0369 (0.0300)	-0.0007 (0.0257)	0.0122 (0.0227)	-0.0757 *** (0.0280)
% other country immigrants	-0.0006 (0.0052)	0.0015 (0.0064)	-0.0033 (0.0071)	-0.0143 (0.0087)	0.0057 (0.0072)	0.0032 (0.0057)	0.0052 (0.0097)
state borders ocean	0.0177 (0.0397)	0.0388 (0.0624)	0.0544 (0.0630)	0.0466 (0.0716)	0.0373 (0.0551)	-0.0009 (0.0443)	0.0444 (0.0678)
% same industry employment	-0.0006 (0.0057)	0.0209 (0.0136)	-0.0134 * (0.0078)	0.0144 (0.0136)	-0.0029 (0.0064)	-0.0003 (0.0040)	-0.001 (0.0160)
% same country firms	-0.0042 (0.0056)	-0.0001 (0.0070)	-0.0006 (0.0158)	0.0143 * (0.0085)	-0.0136 * (0.0075)	-0.0118 * (0.0071)	0.0057 (0.0076)
geographic distance	0.0154 (0.0183)	-0.0076 (0.0165)	0.0603 * (0.0359)	0.0304 (0.0221)	-0.0306 * (0.0173)	-0.0182 (0.0142)	0.0476 (0.0325)
education expenses per student	-0.0111 (0.0225)	0.0143 (0.0329)	-0.0022 (0.0360)	0.0054 (0.0368)	-0.0204 (0.0301)	-0.0266 (0.0238)	0.0679 (0.0468)
federal education funds per student	-0.1535 (0.1889)	-0.2172 (0.2338)	-0.4322 (0.3474)	-0.3374 (0.2974)	-0.1205 (0.2610)	-0.1652 (0.1562)	-0.4665 (0.4246)
inverse mill's ratio (IMR)++	-0.0138 (0.0742)	0.3866 * (0.2306)	-0.1579 ** (0.0615)	0.2921 (0.2102)	-0.1175 ** (0.0506)	-0.0686 * (0.0407)	0.1504 (0.2067)
IMR based on 1st Stage Model	6	7	8	9	10	11	12
constant	0.8780 (0.7018)	0.8836 (1.0467)	-0.9670 (1.1173)	0.9090 (1.2447)	1.3595 (1.1830)	0.6280 (0.9266)	3.5661 *** (1.2389)
R-Squared	0.0434	0.0737	0.2389	0.1137	0.1169	0.0806	0.2039
Sample Size (subsidiaries)	294	188	106	139	155	169	125
# of Parent Firms	196	149	47	101	99	109	95
Model F statistic	1.10	0.73	2.18 **	0.86	1.26	1.34	3.06 ***

* p < 0.10, ** p < 0.05, *** p < 0.01 (one-tailed tests of hypotheses, cluster-robust standard errors in parentheses)
++ The IMR for each model is calculated based on the correspondingly numbered probit model from the 1st stage

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Appendix A

Selected Robustness Tests

Table 10
Effects on Location Choice (1st Stage)
Estimation Method: Conditional Logit

The sign and significance of the variables in these conditional logit models are nearly identical to those of the fixed effect probit reported in the main tables, consistent with the results of Monte Carlo simulations comparing conditional and unconditional models with large choice sets (Coupé, 2005; Greene, 2004; Katz, 2001). The magnitude of the coefficients, however, will be different because logit and probit models are scaled differently (Cameron & Trivedi, 2009). To compare magnitudes, the coefficients should be transformed into marginal effects.

Compare to Probit Model #	Main Effects 6	Firm Experience		Type of Buyer Market		Labor Intensity	
		Low 7	High 8	Industrial 9	Consumer 10	Low 11	High 12
immigrant concentration	0.4804 *** (0.1159)	0.5011 *** (0.1386)	-0.4236 (0.6601)	0.8918 ** (0.3932)	0.4289 *** (0.1154)	0.3486 *** (0.0511)	0.6989 *** (0.2129)
immigrant education	0.1428 (0.1358)	0.0569 (0.1466)	0.4763 * (0.3132)	0.261 (0.2176)	0.03 (0.1824)	0.0122 (0.1402)	0.3505 * (0.2478)
immigrant household income	0.0027 *** (0.0011)	0.0013 * (0.0009)	0.0033 *** (0.0014)	0.003 ** (0.0013)	0.0015 (0.0012)	-0.0005 (0.0017)	0.0044 *** (0.0012)
immigrant years in USA	-0.0132 * (0.0100)	0.0003 (0.0123)	-0.0351 ** (0.0156)	-0.0229 ** (0.0134)	-0.0024 (0.0145)	-0.0211 ** (0.0110)	-0.0049 (0.0180)
real GDP per capita	0.0072 (0.0142)	0.0235 (0.0168)	-0.0101 (0.0238)	0.0142 (0.0216)	0.0009 (0.0185)	0.026 (0.0190)	-0.0168 (0.0183)
median age (state)	-0.1955 *** (0.0603)	-0.2183 *** (0.0838)	-0.1363 (0.0862)	-0.1601 * (0.0904)	-0.2455 *** (0.0818)	-0.1605 ** (0.0775)	-0.2595 *** (0.0976)
% other country immigrants	-0.0156 (0.0158)	-0.0118 (0.0209)	-0.0227 (0.0263)	-0.0263 (0.0226)	-0.0054 (0.0234)	-0.0182 (0.0193)	-0.0175 (0.0281)
state borders ocean	0.0675 (0.1886)	0.0499 (0.2436)	0.113 (0.3241)	-0.2841 (0.2646)	0.342 (0.2694)	0.1769 (0.2465)	-0.1505 (0.3176)
% same industry employment	0.1529 *** (0.0172)	0.1496 *** (0.0186)	0.1647 *** (0.0472)	0.1658 *** (0.0225)	0.1322 *** (0.0278)	0.1501 *** (0.0207)	0.1707 *** (0.0273)
% same country firms	0.0232 ** (0.0091)	0.021 ** (0.0093)	0.0466 (0.0382)	0.0232 ** (0.0111)	0.0244 (0.0160)	0.0248 ** (0.0110)	0.0172 (0.0143)
geographic distance	-0.2265 ** (0.1121)	-0.2685 * (0.1373)	-0.1906 (0.2121)	-0.2926 ** (0.1397)	-0.1532 (0.1800)	-0.3085 ** (0.1350)	-0.129 (0.1925)
education expenses per student	0.2267 *** (0.0695)	0.2449 *** (0.0828)	0.1478 (0.1414)	0.2909 *** (0.1047)	0.194 ** (0.0920)	0.1282 (0.0875)	0.3801 *** (0.1193)
federal education funds per student	-1.3759 *** (0.3973)	-1.3116 *** (0.5028)	-1.5763 ** (0.6881)	-0.683 (0.4942)	-1.9603 *** (0.6100)	-1.3175 *** (0.4960)	-1.4479 ** (0.6732)
yearly inches of snow (IV)	-0.0103 *** (0.0038)	-0.0124 *** (0.0048)	-0.0075 (0.0061)	-0.0176 *** (0.0053)	-0.0059 (0.0048)	-0.006 (0.0038)	-0.019 ** (0.0082)
republican/democrat vote ratio (IV)	-0.796 *** (0.2878)	-0.5698 (0.3982)	-1.1008 *** (0.3925)	-0.6352 (0.4252)	-1.0058 *** (0.3454)	-0.8274 ** (0.3684)	-0.8116 * (0.4476)
Pseudo R-Squared	0.1756	0.199	0.1474	0.1821	0.1792	0.1707	0.1964
Log Likelihood (LL) (model p-value)	-876.845 ***	-572.564 ***	-297.355 ***	-421.69 ***	-449.814 ***	-496.918 ***	-373.219 ***
Sample Size	10,980	8054	2882	5392	5544	5982	4954
# of Parent Firms	197	150	47	102	99	109	96

Table 11
Location Choice and Survival Results
Number of Immigrants Instead of Percentage of Immigrants

The two tables below show the results using the number of co-national immigrants (in thousands), whereas the main results use the percentage of each state's population born in the home country of the focal firm. Since the number of immigrants is not scaled by total state population, I include total population (in millions) as a control in all models. I only show the variables of interest for simplicity of presentation, but all controls are included in these models.

Panel A: Location Choice

The effects of immigrant concentration remain as before when it comes to location choice. The three measures of assimilation exhibit the same sign as in the primary results, though some of the variables are not different from zero within their respective models. However, the comparisons across relevant subgroups (firm experience, type of buyer market, and labor intensity) remain significant.

	Main Effects	Firm Experience		Type of Buyer Market		Labor Intensity	
		Low	High	Industrial	Consumer	Low	High
immigrant count (thousands)	0.0007 *** (0.0002)	0.0007 *** (0.0002)	0.0034 (0.0039)	0.0050 ** (0.0020)	0.0006 *** (0.0001)	0.0006 *** (0.0001)	0.0022 ** (0.0011)
state population (millions)	0.0068 (0.0073)	0.0045 (0.0086)	0.0079 (0.0183)	-0.0011 (0.0113)	0.0122 (0.0113)	0.0061 (0.0094)	0.0061 (0.0141)
immigrant education	0.0434 (0.0570)	-0.0010 (0.0585)	0.2188 * (0.1461)	0.1048 (0.0908)	-0.0185 (0.0764)	-0.0043 (0.0615)	0.1186 (0.0993)
immigrant household income	0.0013 ** (0.0006)	0.0006 * (0.0004)	0.0017 ** (0.0009)	0.0014 ** (0.0007)	0.0007 * (0.0005)	-0.0001 (0.0005)	0.0023 *** (0.0009)
immigrant years in USA	-0.0045 (0.0048)	0.0020 (0.0055)	-0.0199 *** (0.0073)	-0.0106 * (0.0060)	0.0015 (0.0074)	-0.0088 * (0.0052)	0.0004 (0.0088)

Panel B: Survival

The survival results generally remain as before, with the exception of the labor intensity comparisons. The number of immigrants is not significant for low or high labor intensity firms. This could be explained by weak identification of the second stage results, because the two instruments in the location choice (1st stage) models for low and high labor intensity are not as strong as before: snowfall is only marginally and negatively significant ($p < 0.10$) and voting patterns are not significant.

	Main Effects	Firm Experience		Type of Buyer Market		Labor Intensity	
		Low	High	Industrial	Consumer	Low	High
immigrant count (thousands)	0.0001 * (0.0001)	0.0002 ** (0.0001)	0.0001 (0.0020)	-0.0009 (0.0010)	0.0001 (0.0001)	0.0001 (0.0001)	-0.0003 (0.0010)
state population (millions)	-0.0091 (0.0058)	-0.0129 * (0.0077)	-0.0098 (0.0116)	-0.0054 (0.0126)	-0.0047 (0.0070)	-0.0212 ** (0.0088)	0.0006 (0.0085)
immigrant education	0.0222 (0.0462)	0.0170 (0.0421)	0.2362 ** (0.0995)	0.0393 (0.0987)	0.0383 (0.0491)	-0.0012 (0.0591)	-0.0214 (0.0780)
immigrant household income	-0.0001 (0.0002)	-0.0005 (0.0025)	-0.0006 *** (0.0002)	0.0002 (0.0003)	-0.0010 (0.0029)	-0.0013 (0.0023)	0.0003 (0.0004)
immigrant years in USA	0.0031 (0.0035)	-0.0003 (0.0037)	0.0143 ** (0.0066)	0.0063 (0.0042)	-0.0038 (0.0049)	0.0049 (0.0035)	-0.0007 (0.0061)

Table 12
Effects on Subsidiary Survival (2nd Stage)
Estimation Method: Linear Probability Model with Selection Control
Homoskedastic Standard Errors in Parentheses

The coefficients in this model are virtually the same as those in Table 9. The difference is in the standard errors. To get the results in Table 9, I manually calculated the Inverse Mill's Ratio (IMR) and used standard errors clustered by parent firm in both the 1st stage probit model and in the 2nd stage linear probability model. The results in this table were calculated using Stata's "heckman" command with the "twostep" option, which adjusts the standard errors in the second stage based on Heckman's (1979) formula, but cannot calculate cluster-robust standard errors in either stage. The heteroskedastic standard errors in Table 9 are superior for two reasons. First, linear probability models are by definition heteroskedastic. Second, some firms make more than one investment in the sample and the investing firms vary widely in size and other important attributes. While some of the variables become marginally significant ($p < 0.10$) using Heckman's (1979) standard errors, the substantive conclusions remain the same as those I reach from the results in Table 9.

	Main Effects	Firm Experience		Type of Buyer Market		Labor Intensity	
		Low	High	Industrial	Consumer	Low	High
Compare to Table 9 Model #	13	14	15	16	17	18	19
immigrant concentration	0.0499 * (0.0336)	0.0667 * (0.0469)	0.1658 (0.1921)	-0.1093 (0.1562)	0.0321 (0.0371)	0.0227 (0.0342)	0.1059 * (0.0690)
immigrant education	0.0653 * (0.0490)	0.041 (0.0643)	0.2535 *** (0.0991)	0.0431 (0.0894)	0.0851 * (0.0576)	0.0209 (0.0547)	0.0846 (0.0866)
immigrant household income	-0.0001 (0.0004)	0.0006 (0.0026)	-0.0005 (0.0004)	0.0003 (0.0005)	-0.0005 (0.0025)	-0.0004 (0.0021)	0.0001 (0.0005)
immigrant years in USA	0.0038 (0.0026)	0.0003 (0.0034)	0.0124 *** (0.0048)	0.0061 (0.0042)	-0.0014 (0.0035)	0.0039 (0.0029)	0.0029 (0.0044)
real GDP per capita	-0.0074 (0.0072)	-0.0053 (0.0107)	-0.0128 (0.0110)	0.003 (0.0110)	-0.0136 (0.0098)	0.0037 (0.0072)	-0.0537 *** (0.0164)
median age (state)	-0.007 (0.0184)	-0.0339 (0.0267)	0.0064 (0.0268)	-0.0365 (0.0333)	-0.0007 (0.0217)	0.0122 (0.0208)	-0.0755 ** (0.0336)
% other country immigrants	-0.0006 (0.0048)	0.0015 (0.0066)	-0.0033 (0.0080)	-0.0141 * (0.0081)	0.0057 (0.0064)	0.0032 (0.0053)	0.0052 (0.0090)
state borders ocean	0.0176 (0.0547)	0.0406 (0.0832)	0.0544 (0.0764)	0.0475 (0.0904)	0.0373 (0.0693)	-0.0009 (0.0618)	0.0455 (0.0905)
% same industry employment	-0.0007 (0.0052)	0.0209 ** (0.0103)	-0.0134 (0.0089)	0.0143 (0.0101)	-0.0029 (0.0075)	-0.0003 (0.0052)	-0.0011 (0.0108)
% same country firms	-0.0042 (0.0049)	-0.0002 (0.0067)	-0.0006 (0.0106)	0.0142 (0.0097)	-0.0136 ** (0.0058)	-0.0118 ** (0.0054)	0.0056 (0.0089)
geographic distance	0.0154 (0.0135)	-0.0077 (0.0188)	0.0603 *** (0.0201)	0.0302 (0.0196)	-0.0306 (0.0194)	-0.0182 (0.0156)	0.0476 ** (0.0218)
education expenses per student	-0.0111 (0.0202)	0.0147 (0.0297)	-0.0022 (0.0298)	0.0057 (0.0323)	-0.0204 (0.0270)	-0.0266 (0.0226)	0.068 * (0.0399)
federal education funds per student	-0.1528 (0.1851)	-0.2192 (0.2739)	-0.4322 (0.2672)	-0.3355 (0.3216)	-0.1205 (0.2417)	-0.1652 (0.2036)	-0.4673 (0.3418)
inverse mill's ratio (IMR)	-0.0148 (0.0630)	0.3854 ** (0.1541)	-0.1579 ** (0.0760)	0.2885 ** (0.1430)	-0.1175 * (0.0687)	-0.0686 (0.0654)	0.1475 (0.1239)
constant	0.8803 (0.7601)	0.8818 (1.1069)	-0.967 (1.1787)	0.9032 (1.2978)	1.3595 (0.9590)	0.628 (0.8420)	3.569 ** (1.4365)
N	294	188	106	139	155	169	125
chi2	13.0598	9.8032	29.5027 ***	13.6113	19.3001	14.3303	29.2635 ***

* p < 0.10, ** p < 0.05, *** p < 0.01 (one-tailed tests of hypotheses, homoskedastic standard errors in parentheses)

Table 13
Effects on Subsidiary Survival (2nd Stage)
Estimation Method: Linear Probability Model with Selection Control
Simplified Models with Fewer Control Variables

The estimation procedure for these results is identical to that for the results reported in Table 9, but includes fewer variables in an attempt to reduce some of the noise in the comparisons made to assess the moderating effects of firm experience, type of buyer market, and labor intensity. This is useful given that the rate of survival is quite high in my sample and thus creates little variance to compare surviving and non-surviving subsidiaries. The comparisons *across* industrial and consumer goods firms, and across low and high labor intensity firms (even though the coefficient of immigrant concentration is not different from zero in Model 19), lead to the same conclusions as in Table 9.

The main difference is in the comparison of immigrant concentration across firms with low and high experience. In Table 9, the coefficient of immigrant concentration was noisy—not significant but larger in magnitude than for low experience firms—which made it challenging to compare with the significant effect of concentration on firms with little experience. In this table with fewer controls, immigrant concentration remains insignificant for highly experienced firms but is now smaller in magnitude than the significant coefficient for low experience firms (4.44% vs. 7.07%, respectively). The difference from a one-tailed t-test across subsamples is significant ($p < 0.05$), as predicted by H4a(2).

	Firm Experience		Type of Buyer Market		Labor Intensity	
	Low 14	High 15	Industrial 16	Consumer 17	Low 18	High 19
immigrant concentration	0.0707 ** (0.0378)	0.0444 (0.2050)	-0.0558 (0.1418)	-0.0011 (0.0419)	0.0129 (0.0277)	0.0872 (0.0690)
immigrant education	0.0319 (0.0532)	0.2010 ** (0.1184)	0.0772 (0.0901)	0.0667 (0.0645)	0.0176 (0.0637)	0.1065 * (0.0805)
immigrant household income	-0.0002 (0.0026)	-0.0005 ** (0.0002)	0.0001 (0.0003)	-0.0015 (0.0030)	0.0002 (0.0025)	0.0001 (0.0005)
immigrant years in USA	0.0006 (0.0034)	0.0078 (0.0056)	0.0033 (0.0041)	0.0044 (0.0055)	0.0056 (0.0034)	0.0006 (0.0056)
% other country immigrants	0.0032 (0.0054)	-0.0077 (0.0064)	-0.0055 (0.0057)	-0.0062 (0.0066)	-0.0035 (0.0046)	-0.0071 (0.0085)
% same industry employment	0.0253 * (0.0138)	-0.0147 (0.0101)	0.0149 (0.0135)	-0.012 (0.0149)	-0.0041 (0.0033)	0.0072 (0.0176)
inverse mill's ratio (IMR)	0.4209 * (0.2326)	-0.1805 *** (0.0553)	0.2241 (0.2020)	-0.2079 (0.2265)	-0.0868 ** (0.0370)	0.0887 (0.2421)
constant	-0.5233 (0.8023)	-0.4897 (1.0780)	-0.3841 (1.0005)	0.8874 (0.6474)	0.8041 (0.5815)	-0.2573 (1.1011)
r2	0.0502	0.1325	0.0483	0.021	0.0384	0.0272
N	188	106	139	155	169	125
N_clust	149	47	101	99	109	95
F	0.7131	2.6596 **	0.6764	0.6493	1.7338	0.9452

Appendix B
City Level Analysis

In this appendix, I describe an analysis of the effects of immigrants on location choice at the city level, along with some important caveats. The main results of my dissertation use U.S. states as the geographic unit of analysis. The reasons for focusing on states are compelling for both theoretical and practical purposes, as research on FDI and immigration into the U.S. demonstrate that states play a key role in drawing firms and clusters of immigrants for legal, economic, and historical path-dependent reasons (e.g. Coughlin et al., 1991; Massey & Zenteno, 1999; Portes & Rumbaut, 2006; Shaver, 1998).

Nevertheless, research focused on regional economic analysis, as well as a recent body of work on foreign investment, proposes that economic activity can be best understood at the city level because metropolitan areas have distinct characteristics that are masked by within state heterogeneity (e.g. Alcacer & Chung, 2010; Krugman, 1998; Sassen, 2002). For example, some states include many cities with different economic profiles (e.g. San Diego, Los Angeles, and San Francisco in California) and some cities exert economic influence across multiple state boundaries (e.g. New York City stretches its influence into New York, Connecticut, and New Jersey). This could affect patterns of location for both firms and immigrants. While using states or cities as location options does not modify my theoretical arguments or hypotheses, whether immigrant social capital exerts a similar effect at the city or state level (in the U.S.) becomes an empirical question which I address in this appendix.

Data and Variables

To capture the economic activity surrounding cities in the U.S., the BEA has identified a set of economic areas defined as “one or more economic nodes—

metropolitan or micropolitan statistical areas that serve as regional centers of economic activity—and the surrounding counties that are economically related to the nodes. The economic areas...are based on commuting data from the ... decennial population census ... and on newspaper circulation data from the Audit Bureau of Circulations.”²¹ Prior work has found that economic areas exhibit significant variance in characteristics that affect the location choices of non-U.S. firms (Alcacer & Chung, 2010; Chung & Alcacer, 2002). I utilized the 179 redefined economic areas released in November 2004, which are based on data from the same 2000 population census from which I gathered the immigration variables.

Since the basic building blocks of economic areas are counties, the two main challenges in constructing the dataset for a city-level analysis were obtaining county-level data to reconstruct all the variables used in the state-level analysis and finding a suitable set of exclusion restrictions (instruments) for the survival estimation. I was able to do this with mixed success: I obtained sufficiently good data to test the location choice hypotheses but not to test the survival effects, for reasons I explain next in describing the variables and results.

Entry. I used the same 294 entries identified in the 2003 edition of the *Corporate Affiliations* directory that I utilized for the state level analysis, but coded the location by economic area based on the zip code of each subsidiary.

²¹ Downloaded from <http://www.bea.gov/regional/docs/econlist.cfm> on April 14, 2011. More information on the characteristics of economic areas (including maps) can be found on the same website. I thank Wilbur Chung for suggesting the use of economic area data, and for pointing me to multiple data sources that proved valuable in conducting this analysis.

Immigration Variables. Due to privacy concerns, the U.S. Census Bureau reports counts of foreign born individuals by county only for a limited set nationalities and does not report county-level characteristics of foreign born individuals (such as education, year of immigration, and income). To obtain such data for all nationalities in my sample, I relied on a 5% representative sample from the Census Bureau, which allowed me to identify data by Public Use Microdata Area (PUMA). PUMAs contain at least 100,000 individuals to protect confidentiality. Generating immigration variables for the nationalities in my sample at the economic area level required three steps.

First, I tabulated data by country of birth at the PUMA level. Second, using the concordance of PUMAs to counties provided by the Census, I aggregated the PUMA tabulations at the county level. Finally, I aggregated county data to economic areas based on the mapping provided by the BEA²². The second step required some judgment because PUMAs do not always correspond with county boundaries. If a county contained multiple PUMAs, it was straightforward to aggregate all PUMAs within a county. However, some PUMAs span more than one county (usually no more than two), in which case I followed a simple rule to divide up the immigrant population across counties: since the total population (regardless of place of birth) of a PUMA that comes from each county is publicly available, I divided the immigrant population by nationality based on the ratio of total PUMA population comprising each county.

²² The PUMA to County concordance can be found at <http://usa.ipums.org/usa/volii/2000pumas.shtml> (downloaded on March 23, 2011). The County to Economic Area mapping was downloaded on March 15, 2011 from <http://www.bea.gov/regional/docs/econlist.cfm>.

For example, assume that PUMA 1 spanned Counties A and B, that it had a total population of 100,000, and that of the total population of PUMA 1 40,000 (40%) came from County A and 60,000 (60%) came from County B. Further, suppose that there were 1,500 immigrants from Canada in PUMA 1. Since the Census does not reveal how the Canadian population in PUMA 1 is distributed across counties A and B, I assigned 600 Canadians to County A (40%) and 900 to County B (60%). While this approach may admittedly create measurement error, I note that I only had to make such a judgment call in very few cases, as the vast majority of PUMAs fall within a single county.

Following the procedure just described, I created four variables of interest to describe the co-national immigrant population. As in the state level analysis, *immigrant concentration* was the percentage of an economic area's population born in the focal firm's home country, *immigrant income* was the median household income of the co-national population, and *immigrant tenure* was the median number of years the co-national group had resided in the U.S. The measure of immigrant education differed from that in the state level analysis, capturing instead the percentage of co-national immigrants that had obtained a *college degree or higher*.

Moderating Variables. The three moderating variables—firm experience, type of buyer market, and labor intensity—were the same as in the state level of analysis. The only difference was that firm experience was measured as the number of economic areas (instead of states) the parent firm had previously entered.

Control Variables. The set of control variables used in this city-level analysis differed in several cases from those used in the state-level analysis because of differences

in what I could obtain at the county level. I created a measure of the percentage of *other country immigrants* using the same procedure just described in creating the four immigration variables of primary interest. Since there is no measure of GDP at the county level, I instead included a measure of median household income for each economic area. Since I did not have a good count of *same country firms* at the county level, I assigned to each economic area a state-level percentage of same country firms based on the state in which the city with the largest population within each economic area was located (e.g. the economic area comprising greater New York City was assigned the same variable as I used for New York state in the state level analysis, even though the economic area includes other states). This is admittedly less than ideal, and the lack of significance of this control is likely due to imperfect measurement.

To get at the educational achievement of each economic area, I included the percentage of the population with a *college degree or higher*. This differs from the state-level analysis, in which I was able to include two measures of expenditures on public education which were not available by county. I also included measures of whether the economic area *borders the ocean* and of the *geographic distance* between each parent firm's headquarters city and the core city in each economic area. To capture the physical size of each economic area, I included its *square miles* (I did not include a similar variable in the state analysis). Finally, I added the two exclusion restrictions used in the first stage of the state-level analysis: *yearly inches of snow* for the major city within each economic area (or the closest city for which data was available) and the ratio of *republican to democratic votes* by economic area.

City Level Results for Location Choice

The results of the city level analysis for location choice are reported in Table 13 at the end of this appendix, and lead to the virtually the same conclusions as before. While the table reports marginal effects for more substantive interpretation, I summarize only the statistical significance of the findings in what follows to preserve space. When assessing the entire sample, I find a positive effect of immigrant concentration on entry choice ($p < 0.01$), no effect for immigrant education, a marginally positive effect of income ($p < 0.10$), and a negative influence of tenure ($p < 0.05$). Regarding the moderating effect of firm experience, immigrant concentration has a more positive effect on less experienced firms ($p < 0.01$), whereas more experienced firms are more likely to invest in locations with immigrants of higher income and shorter tenure ($p < 0.01$). Contrary to expectations, educated immigrants are more attractive to firms with low experience.

When comparing across industrial and consumer goods firms, I find the expected positive effect of immigrant concentration on both types of organizations ($p < 0.05$). Also as predicted, the effects of concentration, education, and income are more positive for industrial goods firms ($p < 0.01$), and the effect of immigrant tenure is more negative for industrial firms as well ($p < 0.01$). Finally, I find that firms of high labor intensity are more likely to invest in areas with more co-national immigrants, as well as those who are more educated and have shorter tenure ($p < 0.01$). The strong jump in importance of immigration education for high labor intensity firms is noteworthy and consistent with the argument that such firms benefit most from highly skilled co-national workers. While

the main effects of immigrant income are not different from zero in the models split by low and high labor intensity, the difference in marginal effects is statistically distinguishable ($p < 0.01$) though small in magnitude. In conclusion, the substance of the findings for location choice at the city level is the same as that for the state analysis: immigrants have a meaningful impact on the entry choices of foreign firms, especially for those who strategically would benefit the most from immigrant social capital.

Caveats regarding survival analysis. While the independent and control variables generally produced the expected results in this alternative analysis, the instrumental variables did not show as robust behavior as in the state-level analysis. The measure of political voting patterns was not significant in any of the models, which most likely reflects that presidential voting patterns are best captured at the state rather than the city level—which is reasonable given that the presidential election system in the United States relies on electoral votes determined by state outcomes. A voting variable at the city level (e.g. mayoral elections) may be more appropriate. The variable capturing snowfall was at least marginally significant ($p < 0.10$) in some models, but not in the low and high experience subsamples.

Since the significance of these two instruments is vital for the second-stage analysis of subsidiary survival to be well identified, I do not believe it is appropriate to report such results at this point. While some of the survival results at the city level were consistent with those reported at the state level, they were also more unstable because of weak identification. At the time of writing this dissertation, I was in the process of searching for stronger instruments to use in the city level analysis. Despite this limitation,

the location choice results using economic area data are robust and consistent with my hypotheses, providing a reasonable degree of assurance that the results at the state level—at least in terms of location choice—are credible.

Table 14
Effects on Location Choice at the Economic Area (City) Level
Estimation Method: Linear Probability Model with Selection Control

	Main Effects	Firm Experience		Type of Buyer Market		Labor Intensity	
		Low	High	Industrial	Consumer	Low	High
immigrant concentration	0.0761 *** (0.0168)	0.316 ** (0.1831)	0.1002 *** (0.0250)	0.3683 ** (0.1839)	0.0596 *** (0.0173)	0.0759 *** (0.0136)	0.0818 ** (0.0399)
AME	0.24%	0.88%	0.41%	1.15%	0.18%	0.25%	0.24%
AME/Sample Entry Mean	16.07%	59.20%	27.33%	77.36%	12.43%	16.62%	16.32%
AME/Industry Agglom. AME	0.72	3.19	0.68	3.42	0.57	0.66	0.99
% immigrant college degree	0.2221 (0.1829)	0.37 ** (0.2264)	0.096 (0.2705)	0.2908 (0.2626)	0.1601 (0.2456)	0.1061 (0.2311)	0.4442 ** (0.2789)
AME	0.70%	1.03%	0.39%	0.91%	0.50%	0.35%	1.32%
AME/Sample Entry Mean	46.89%	69.33%	26.19%	61.09%	33.40%	23.25%	88.58%
AME/Industry Agglom. Mean	2.10	3.73	0.65	2.70	1.52	0.92	5.39
immigrant income	0.0005 * (0.0004)	0.0003 (0.0004)	0.0008 * (0.0006)	0.0008 ** (0.0004)	-0.0004 (0.0006)	0.0004 (0.0005)	0.0007 (0.0006)
AME	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AME/Sample Entry Mean	0.11%	0.05%	0.22%	0.17%	-0.09%	0.09%	0.13%
AME/Industry Agglom. Mean	0.00	0.00	0.01	0.01	0.00	0.00	0.01
immigrant tenure	-0.0092 ** (0.0050)	-0.004 (0.0045)	-0.0204 ** (0.0123)	-0.0181 *** (0.0051)	0.0006 (0.0085)	-0.0064 (0.0060)	-0.0152 ** (0.0078)
AME	-0.03%	-0.01%	-0.08%	-0.06%	0.00%	-0.02%	-0.05%
AME/Sample Entry Mean	-1.95%	-0.75%	-5.56%	-3.81%	0.13%	-1.40%	-3.03%
AME/Industry Agglom. Mean	-0.09	-0.04	-0.14	-0.17	0.01	-0.06	-0.18
% other country immigrants	0.6774 (0.5443)	0.8355 (0.7142)	0.0831 (0.8838)	0.4064 (0.7784)	0.9073 (0.7941)	-0.0502 (0.8141)	1.7593 ** (0.7513)
population income	0.0185 ** (0.0074)	0.0221 ** (0.0094)	0.0106 (0.0126)	0.0317 *** (0.0104)	0.0058 (0.0107)	0.0166 * (0.0098)	0.0279 ** (0.0111)
% same industry employment	0.1056 *** (0.0112)	0.0992 *** (0.0123)	0.1466 *** (0.0298)	0.1077 *** (0.0136)	0.105 *** (0.0187)	0.1153 *** (0.0134)	0.0823 *** (0.0174)
AME	0.33%	0.28%	0.59%	0.34%	0.33%	0.38%	0.24%
% same country firms	-0.0015 (0.0043)	0.0012 (0.0043)	-0.0155 (0.0128)	-0.0022 (0.0062)	-0.0012 (0.0060)	0.003 (0.0048)	-0.0118 * (0.0066)
% population college degree	2.3571 *** (0.8463)	1.3789 (1.0848)	3.8484 *** (1.4352)	-0.5768 (1.2636)	5.2486 *** (1.2353)	2.9694 *** (0.9865)	1.414 (1.5196)
economic area borders ocean	-0.157 ** (0.0792)	-0.1959 ** (0.0938)	-0.0983 (0.1612)	-0.2111 * (0.1139)	-0.1351 (0.1108)	-0.1535 # (0.1034)	-0.1871 # (0.1202)
geographic distance	-0.2108 *** (0.0601)	-0.2161 *** (0.0674)	-0.2132 ** (0.1066)	-0.1704 ** (0.0713)	-0.2755 *** (0.0955)	-0.2259 *** (0.0784)	-0.2082 ** (0.0832)
economic area sq. miles	0.0053 *** (0.0017)	0.0063 *** (0.0020)	0.0029 (0.0031)	0.0056 ** (0.0024)	0.0058 ** (0.0024)	0.0051 ** (0.0022)	0.0064 ** (0.0025)
yearly inches of snow (IV)	-0.0041 ** (0.0017)	-0.0048 ** (0.0023)	-0.0025 (0.0024)	-0.0023 (0.0023)	-0.0068 ** (0.0029)	-0.0037 * (0.0022)	-0.0059 ** (0.0025)
republican/democrat vote (IV)	-0.0641 (0.0712)	-0.014 (0.0859)	-0.1443 (0.1266)	-0.0725 (0.0910)	-0.072 (0.1089)	-0.0215 (0.0761)	-0.1386 (0.1381)
constant	-2.4661 *** (0.4206)	-2.5906 *** (0.4563)	-2.0484 *** (0.7775)	-3.0522 *** (0.3552)	-2.5205 *** (0.6764)	-2.5062 *** (0.5405)	-2.1389 *** (0.6711)
Pseudo R-squared	0.1996	0.2109	0.184	0.1689	0.2439	0.1937	0.2164
Log Likelihood	-1,205.92	-794.57	-403.72	-603.59	-589.84	-704.89	-495.46
Sample Size	19,125	14,093	5,032	9,575	9,550	10,787	8,338
Number of Parent Firms	197	153	46	102	99	113	92

* p < 0.10, ** p < 0.05, *** p < 0.01 (one-tailed tests of hypotheses, cluster-robust standard errors in parentheses)

Appendix C

Additional Information

Table 15
Frequency of Industries in the Sample (by Subsidiary)

code	industry name	count	%
4200	Wholesale trade	24	8.14
3270	Nonmetallic mineral product mnf.	13	4.41
2213	Water, sewage and other systems	12	4.07
3333	Commercial and service industry machinery mnf.	12	4.07
52A0	Monetary authorities, credit intermediation etc.	11	3.73
5415	Computer systems design and related svc.	11	3.73
3110	Food mnf.	10	3.39
5230	Securities, commodity contracts, investments, etc.	9	3.05
5418	Advertising and related svc.	8	2.71
3391	Medical equipment and supplies mnf.	7	2.37
2130	Support act. for mining	6	2.03
3254	Pharmaceutical and medicine mnf.	6	2.03
3339	Other general purpose machinery mnf.	6	2.03
3344	Semiconductor and other electronic component mnf.	6	2.03
3345	Electronic instrument mnf.	6	2.03
5170	Telecommunications	6	2.03
2123	Nonmetallic mineral mining and quarrying	5	1.69
3222	Converted paper product mnf.	5	1.69
331A	Iron and steel mills and mnf. from purchased steel	5	1.69
336A	Motor vehicle body, trailer, and parts mnf.	5	1.69
6210	Ambulatory health care svc.	5	1.69
2301	New nonresidential construction	4	1.36
2302	New residential construction	4	1.36
3230	Printing and related support act.	4	1.36
332B	Other fabricated metal product mnf.	4	1.36
3332	Industrial machinery mnf.	4	1.36
334A	Audio, video, and communications equipment mnf.	4	1.36
336B	Other transportation equipment mnf.	4	1.36
48A0	Scenic and sightseeing transportation, etc.	4	1.36
4920	Couriers and messengers	4	1.36
4A00	Retail trade	4	1.36
5112	Software publishers	4	1.36
5240	Insurance carriers etc.	4	1.36
5413	Architectural, engineering, and related svc.	4	1.36
2122	Metal ores mining	3	1.02
331B	Nonferrous metal production and processing	3	1.02
3323	Architectural and structural metals mnf.	3	1.02
3331	Agriculture, construction, and mining machinery	3	1.02

Table 15 (Continued)

code	industry name	count	%
5180	ISPs, web search portals, and data processing	3	1.02
5412	Accounting, tax, bookkeeping, and payroll svc.	3	1.02
3130	Textile mills	2	0.68
3210	Wood product mnf.	2	0.68
3221	Pulp, paper, and paperboard mills	2	0.68
3251	Basic chemical mnf.	2	0.68
3341	Computer and peripheral equipment mnf.	2	0.68
3399	Other miscellaneous mnf.	2	0.68
5120	Motion picture and sound recording industries	2	0.68
5152	Cable networks and program distribution	2	0.68
5310	Real estate	2	0.68
5613	Employment svc.	2	0.68
561A	All other administrative and support svc.	2	0.68
8120	Personal and laundry svc.	2	0.68
1110	Crop production	1	0.34
2211	Elect. power generation, transmission, and distr.	1	0.34
3150	Apparel mnf.	1	0.34
3252	Resin, rubber, and artificial fibers mnf.	1	0.34
3253	Agricultural chemical mnf.	1	0.34
3260	Plastics and rubber products mnf.	1	0.34
3315	Foundries	1	0.34
3321	Forging and stamping	1	0.34
3334	HVAC and commercial refrigeration equipment mnf.	1	0.34
3335	Metalworking machinery mnf.	1	0.34
3336	Engine, turbine, and power transmission mnf.	1	0.34
3353	Electrical equipment mnf.	1	0.34
3359	Other electrical equipment and component mnf.	1	0.34
3364	Aerospace product and parts mnf.	1	0.34
4830	Water transportation	1	0.34
4840	Truck transportation	1	0.34
4930	Warehousing and storage	1	0.34
5111	Newspapers, periodicals, books, and directories	1	0.34
5250	Funds, trusts, and other financial vehicles	1	0.34
5417	Scientific research and development svc.	1	0.34
5615	Travel arrangement and reservation svc.	1	0.34
5620	Waste management and remediation svc.	1	0.34
7220	Food svc. and drinking places	1	0.34