

Skilled returnees as contingent brokers of inter-organizational knowledge transfer

Dissertation Chapter

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Dan Wang^{*}
Ph.D. Candidate

Department of Sociology
Stanford University

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Abstract

The process by which increasing rates of skilled return migration lead to economic growth in developing regions of the world is largely a mystery in empirical research. Using data from interviews and an original survey of 4,108 returnees from the U.S. to 81 different countries over a 13-year period (former J1 Visa holders between 1997 and 2010), I examine how skilled returnees transfer the knowledge they gained abroad to organizations in their home countries. Specifically, I argue that while having strong ties to both *host* and *home* country resources increases the probability of a returnee's knowledge transfer success, the benefit of these 'transnational' and 'local' ties are contingent on the organizational and home country-specific contexts in which the a returnee is situated. A main theoretical contribution of this chapter ties network-theoretic perspectives on employee mobility and inter-organizational knowledge transfer to research on globalization.

Introduction

Knowledge-based industries anchor the economic growth of emerging markets around the world. As countries like India and China pour resources into their knowledge economies, a key aspect of their policy-making focuses on attracting the human capital needed to work in information technology, pharmaceuticals, and other sectors that require specialized training and expertise. Indeed, empirical research on the relationship between economic development and skills has shown that higher levels of education and human capital stock in given country can increase GDP by enhancing the value of a country's industrial output (Brown, et al 2001, Chiswick 2011). Furthermore, the globalization of talent—that is, the growing international mobility of skilled professionals—has opened emerging economies to a global marketplace of human capital. In fact, some describe the international competition over skilled workers as an arms race between countries, calling it a 'global talent war' (Clegg 2007: 10). As a result, 'career mobility' has taken on a new meaning in recent years, referring not just to a rise in professional status, but also in a more literal sense, to the movement across geopolitical borders.

Consequently, traditional accounts of brain drain—which entail moving from a less developed to a more developed region of the world to settle—have given way to narratives of return or circular migration. Many immigrants in countries like the US or UK, who were once committed to living abroad, have begun reevaluating their career paths and considering professional opportunities that have accumulated amid the economic growth in their home countries. Decreasing costs of communication and transportation technologies have also made it possible for many immigrants deciding to return to maintain a closer kinship to their homelands without sacrificing their careers. Moreover, policy-makers in many countries like China and Argentina, view return migrants as critical elements of their national economic development strategies, crafting policies that encourage members of their skilled diaspora populations to

return. Specifically, skilled returnees are seen as important conduits that can channel knowledge and resources from abroad to their home countries.

It should therefore come as no surprise that research on the economic impact of returnees tends to cast them as knowledge 'brokers' (Obukhova 2011, Saxenian 2002, Kuznetsov and Sabel 2006). For example, referring to early waves of returned engineers to China and India, Saxenian (2006: 5) argues that returnees with the "language, cultural, and technical skills to function well in the United States as well as in their home markets have a commanding professional advantage." Furthermore, this ability to span boundaries has allowed many Chinese and Indian returnees to "create dynamic collaborations in distant and differently specialized regional economies" (Saxenian 2006: 6). Similarly, Jonkers and Tussen (2008: 330) suggests that scientific return migrants to China generate value by "strengthening ... ties between the Chinese research system and other countries, thus embedding China more firmly within the global science system." Research on return migration to Colombia, Taiwan, Bulgaria, and other countries also describes skilled returnees as the key brokers that coordinate activity between a home country and its transnational diaspora networks (Meyer, et al 1997; Zweig, et al 2001, Chaparro, et al 2006).

In research on social networks, the term 'broker' refers to individuals that connect dense clusters of other individuals (Burt 1992). The primary benefit of occupying such a position lies in the broker's authority to command diverse flows of information and resources across group boundaries (Burt 1992, 2002). This quality corresponds to what many consider to be the unique advantage of skilled returnees: that is, their ability to solve problems in their home countries through their access to novel information in distant professional communities. Thus, brokerage refers to both a structural position—sitting astride group boundaries—and a function—controlling flows of information and other resources. Past research, however, has generally

failed to specify why the functional definition for 'broker' necessarily follows from its structural specification. That an individual occupies what is structurally a brokerage position does not imply that he or she will be a successful channel of resources and information. Indeed, returnees, by default as described by Saxenian and others, are structural brokers, but many are unwilling or unable effectively facilitate the transfer and exchange of knowledge resources. In this chapter, I ask what features of a returnee's brokerage position—specifically, the context of a returnee's transnational and local ties—affect the success the returnee's knowledge transfer?

First, I examine the assumption that the inter-organizational networks formed through employee mobility necessarily lead to successful knowledge transfer outcomes. I then critically review past case studies of the impact of return migrants on their home countries and theoretical work that characterizes them as brokers. Following this, I develop theory about the contingent value of returnees' brokerage positions (Burt 1997). Using past work and examples from my interview data, I motivate five hypotheses about how the organizational and institutional context of returnee local and transnational ties moderates their effect on knowledge transfer. I then describe the survey data and methods I use for my regression analysis and present the results of my models. Finally, I offer a discussion of the results to clarify and elaborate the mechanisms that govern returnee knowledge transfer.

Mobility, Networks, and Knowledge Transfer: Missing Links

The value that skilled returnees bring back to their home countries lies in their access to specialized institutional and technical knowledge from abroad and their ability to convey or translate it in a relevant and useful way in their home countries. Many developing countries around the world believe that this specialized knowledge is a critical factor in sustaining economic growth. However, while countries like China, India, Argentina, and Mexico construct

policies to encourage the reentry of its skilled diaspora (Jonkers 2008), outside of anecdotal evidence, empirical research has not demonstrated that there exists a systematic link between return migration and successful knowledge transfer. Nevertheless, studies that examine the economic impact of skilled return migration tend to make the assumption that knowledge transfer is the key mechanism that connects the processes of migration and economic development (cite). Whether return migrants uniformly bring back valuable knowledge resources from abroad to apply in their home countries stands as an altogether separate research question worthy of its own investigation.

Empirical work on the relationship between employee mobility, networks, and inter-organizational knowledge transfer generally overlooks the mechanism by which knowledge moves across boundaries. For example, in the analysis of inter-organizational knowledge transfer through employee mobility, successful knowledge transfer is often inferred through proxy measures such as shifting patent citation patterns in technology companies aggregated at the organizational level (Song, et al 2003, Almeida and Kogut 1999) or changes in organizational performance (Uzzi and Lancaster 2003, Ingram and Roberts 2000, Tsai 2002, Zaheer and Bell 2005, McEvily and Zaheer 1999, Dai and Liu 2009).

From an analytical standpoint, however, it is sometimes impossible to know whether some organizational performance outcome or change in organizational practice is attributable to the presence of a new employee, much less the knowledge transfer from that new employee. Whether knowledge is successfully transferred from a source organization to a target organization and whether this newly gained knowledge leads to a performance change in the target organization refer to two separate processes. For example, it is possible that adopting new practices based on new knowledge leads to no discernable improvement in terms of performance while in other cases, performance changes might be attributed to unobserved factors that are not

directly related to knowledge transfer. After all, not all new employees benefit their companies with novel and useful knowledge, and likewise, not all return migrants can generate value for their home countries through their access to knowledge reserves and social capital abroad.

How do return migrants influence their home countries?

To be sure, past work on return migration has documented many examples of how skilled returnees have effectively channeled useful ideas and resources to their home countries. Many of these accounts characterize returnees as intermediaries between markets in their homelands and abroad, directing important technical, financial, and institutional resources toward overcoming basic economic or social problems in their home economies. Saxenian (2007) for example, describes the role of returnee entrepreneurs in Bangalore and Taiwan and venture capitalists in Israel, who during the 1980s and 1990s established the foundations for what are today three thriving regional innovation systems. Specifically, she traces the development of Bangalore's software industry and Taiwan's semiconductor design sector to the initial human and financial capital that early returnees brought back from the United States. Calling them "argonauts", Saxenian (2006: 5) asserts that these returnees embodied the unique combination of abilities that allowed them to "quickly identify promising new market opportunities, raise capital, build management teams, and establish partnerships with specialist producers located far away." In other words, these returnees brokered resources across markets, specializations, and space.

Earlier research on return migration and regional development emphasized the novelty of returnee knowledge in solving practical problems in their homelands. In particular, the "returnees as innovators" perspective (King 1986: 18) identified both skilled and unskilled return migrants as key elements of regional economic development. Here, returnees are not portrayed as brokers who facilitate continuous exchange, but rather as ad hoc conduits that channel specific

pieces of knowledge from abroad to their home countries targeted at known problems. For example, Saloutos (1956) details the introduction of new techniques for milk pasteurization brought back to Greece by return migrants from the U.S. Returnees to the Philippines from other parts of Asia brought back more advanced techniques and tools for carpentry, welding, and other uses in construction trades (McArthur 1979). In addition, much research in this tradition chronicles how return migration played an important role in the circulation of new agricultural techniques around the world. In particular, Miracle and Berry (1970) argued that the similarity between the local climates of two different regions enhanced the success of knowledge transfer by returnees. Returnees to New Guinea from South America, for instance, introduced coffee plantations to their homelands (Mayano 1973), while returnee Mexicans brought new farming methods and crops that were native to arid regions of the U.S., like Arizona and Southern California (Wiest 1978).

By comparison, Saxenian's 'brain circulation' view treats return migrants as continuous agents of transnational exchange who establish long lasting connections between distant markets and resource pools. Unlike the 'returnees as innovators' perspective, under the 'brain circulation' hypothesis, return migrants are important because they form long-lasting ties between their homelands and other parts of the world through their persistent cross-national traffic. For example, many returnees come back to their homelands to the promise of jobs that span country borders, such as in global technology management, which requires their presence both in the headquarters of a multinational corporation and its branch offices in their home countries. In other words, their value to the employers and economies in their home countries is that they are able to amphibiously move between distant workplace ecologies, absorbing knowledge in one

locale and translating it into familiar and useful terms in another.¹ Moreover, few returnees themselves view their return as permanent—many seek out ways to maintain their professional ties abroad, either by finding jobs in multinational companies in their home countries or facilitating the flows of information between their home countries and abroad through their transnational networks.

Therefore, whereas the "returnees as innovators" perspective treated returnees as one-way vessels of technical or operational knowledge, skilled returnees today are better seen as embedded in the transnational interstices of production and commerce. As such, they do not just link complementary pools of skills, they serve as the overlap between far-away professional environments and connect diverse communities of practice. Thus, while returnees can be considered structural brokers by virtue of their explicit ties to individuals and resources in distant locations, this network imagery understates their role in connecting the contexts within which these ties were established.² The implication for my work is that in referring to the strength of a returnee's ties abroad, for instance, I mean not only how close a returnee is with individual contacts abroad, but also how strongly embedded the returnee was in his surroundings abroad through activities such as attending conferences, taking classes, and socializing. The more apt conceptual depiction of a returnee is therefore not as a node linking clusters of other nodes, but rather as an overlap of distal contexts of knowledge and practices. They represent intersections of organizational and institutional contexts, wherein they engage in the transformation and reassembly of practical knowledge.

In applying knowledge from abroad to workplaces in their home countries, returnees are often sensitive to subtle differences in work culture and environments that require them to

¹ Portes, et al's (2002) transnational entrepreneur is an example of the type of individual whose economic and professional livelihoods depend on their cross-border activities.

² An important early perspective on the role social ties bridging not simply nodes and other network structures, but their contexts, can be found in Feld (1981).

transform or adapt their knowledge rather than simply copying it to a new context (Iskander and Lowe 2011). The effectiveness of returnee knowledge transfer therefore depends not only on the strength and nature of returnees' ties at home and abroad, but also the environments in which these connections are enacted. The remainder of this chapter focuses on understanding how returnees' globe-spanning ties contribute to their roles as brokers of knowledge in their home countries.

Theory Development

Returnees as structural folds

While scholars often use the language of networks and brokerage to signal the value of returnees to their home countries, not all returnees occupy the same type of brokerage position in their home countries. Gould and Fernandez (1993) remind us that those who bridge clusters can take different types of brokerage roles, which can ultimately affect their ability to control flows of information and resources. In other words, while all brokers, by definition, sit astride a structural hole, not all are ideally positioned to facilitate the exchange of information. Consider how different departments in single workplace communicate with one another, such as the engineer and assembler communities in Bechky's (2003) study of knowledge sharing in a semiconductor manufacturing firm in Silicon Valley. An engineer, for instance, might play the role of a *representative* of his department, communicating designs and plans to a contact in the assembly department. This contact, in turn, serves as a *gatekeeper* controlling, translating, and disseminating the information from engineering to the other assemblers. And still there might be cross-departmental managers in the firm whose jobs are to facilitate communication between engineering and assembly as *itinerant brokers* or *coordinators*. While these are all brokerage roles, they each offer different means of controlling flows of information. In the same way,

while all returnees have familiarity with practices from both abroad and their home countries, they occupy different types of brokerage positions. Some returnees, who have spent longer periods abroad, have better access to resources abroad but less familiarity with their home countries—others are just the opposite. Few returnees develop strong ties both at home and abroad, but for many countries around the world, these are precisely the types of returnees that are valuable as brokers of important institutional and technical knowledge.

Here, Vedres and Stark's (2010) concept of the *structural fold* serves as a helpful construct to think about the 'ideal' returnee. For Vedres and Stark (2010), individuals who occupy structural folds in a network do not simply connect two groups by having weak ties to a few members in either group (evoking imagery traditionally associated with structural holes). Instead, structural folds refer to areas of "inter-cohesion"—where an individual is firmly embedded in both groups, with strong, cohesive ties to many members of both groups. This is important for knowledge transfer, because whereas structural holes simply serve as potential channels of information flow (note, not *knowledge* flow), the strong, boundary-spanning ties of a structural fold enable the active interpretation and innovation of new knowledge.

According to Vedres and Stark (2010: 1184), "knowledge is a practice, bound up with particular sociotechnical ensembles"; therefore, its communication and interpretation across clusters demands a more intimate familiarity with the contexts in which it is acquired and transmitted. Similarly, returnees often rely on their strong cross-border ties to translate the sometimes complex knowledge they gained abroad into relevant and useful terms in their home countries to solve some workplace problem. Returnees, after all, are not simply passive tunnels through which information passes—they are active interpreters and instructors, reconstructing and adapting knowledge drawn from unfamiliar settings (for more on the relationship between agency and returnee knowledge transfer, see Chapter 2). Only through their strong ties abroad

can returnees absorb the nuances and value of important tacit knowledge, and only with the trust engendered by their familiar ties at home can they successfully convey the knowledge in meaningful ways. Therefore, the strength of a returnee's ties abroad are just as important as the strength of a returnee's ties at home in boosting the success of knowledge transfer. [transfer of info vs. transfer of knowledge in returnee context]

Chen (2007) cautions, however, that most returnees are ineffective at channeling important knowledge back to their home countries because few are deeply embedded in both transnational networks and local networks at home. As such, those who are able to strike a balance between both strong local and transnational ties appear to experience the most success. According to Chen (2007: 28) most returnee entrepreneurs in China lack strong ties to both transnational networks and local networks, which means that they often face higher startup costs than their domestic counterparts (local networks would mitigate this) and are usually "locked into low-level repetitive innovation activities" (connections to transnational networks would facilitate the introduction of new ideas). These barriers typically result in the failures of new returnee ventures. Chen's logic reflects my key argument about returnee knowledge transfer. Having strong ties abroad and at home serve two different purposes—being closely connected to transnational networks facilitates a returnee's access to novel ideas, and being embedded in local networks allows a returnee to gain the necessary trust from local contacts, coworkers, and supervisors to successfully implement those ideas. Strong ties at home and abroad therefore exercise independent positive effects on the success of returnee knowledge transfer.

H1: Having stronger transnational and local ties increase the success of a returnee's knowledge transfer.

The organizational context of transnational and local ties

The extent to which returnees can rely on their transnational and local ties depends on the organizational or workplace context in which they share knowledge. In other words, not all returnees take positions in their home countries that allow them to apply the knowledge they gained abroad effectively, regardless of how strongly embedded they are in their local or transnational networks. For example, based on my interviews with returnees, it became clear that in some workplace environments, having strong ties abroad would have little effect on the success of a returnee's knowledge transfer whereas in other settings, the strength of a returnee's local ties had little bearing. In particular, two chief organizational barriers stood out as factors that affect the degree to which a returnee's transnational and local ties enhanced knowledge transfer—the international experience of a returnee's coworkers and the returnee's workplace authority.

Coworker international experience. It would be a mistake to assume that when returnees go back to their home countries, they prefer to work for local companies that rely primarily on local resources. Indeed, many policy-makers in developing countries envision returnees as important intermediaries of foreign knowledge and resources precisely because they can connect domestically-rooted organizations to global markets. For the most part, these local companies stand to benefit from returnee knowledge. However, because of their experience abroad, many returnees find that their skill sets are far more applicable in work environments that conduct business internationally or have ties to the countries in which the returnee has worked before coming home. Viktor, a returnee to Bulgaria who worked at Google as a software engineer in the United States for two years, compared his experiences working for a local start-up in Sofia to working in VMWare's branch office after returning to his home country:

At Prosist [the start-up in Sofia] I had to teach people the principles of unit-testing, which was very useful and common technique for software development in the US, which I learned at Google, but it took time for them to learn. At VMWare in Sofia, I felt much more comfortable because there was already a unit-testing procedure in place, which my colleagues were used to

because they also worked abroad. In some ways, it was easier for me to adapt to. (interview with Viktor, October 3, 2011)

Viktor's comments highlight two key differences between a returnee's experiences working in domestically- and internationally-oriented companies. First, returnees in domestic companies typically have more to contribute, but often face challenges in conveying their new and potentially useful knowledge. Second, while returnees in international companies can apply their knowledge from abroad more effectively since they are familiar with global workflow standards, they also have fewer novel ideas to contribute in the workplace. In effect, the returnee's brokerage role becomes devalued in a more international workplace in his home country.

Learning to work on large-scale projects at Google was definitely useful for my projects at VMWare since the software development processes were similar. But I don't think I was able to bring anything new or different to the team. (interview with Viktor, October 3, 2011)

Specifically, a returnee's value to a company in his home country diminishes if there are other returnees in the workplace—i.e. other individuals who can provide the same transnational connections and access to knowledge that would otherwise give the returnee an advantage in his home country's domestic labor market. A broker's advantage derives from his ability to monopolize control over information flows between different groups (Burt 1992, 2005). As the number of alternative paths of resource flow increase between two groups, a broker loses his authority in being able to command this exchange (Reagans and Zuckerman 2003). The two groups engaging in information or resource exchange, in turn, benefit by lowering their transaction costs in choosing between these alternative paths. Results from empirical and simulation studies bear out the prediction that the structural advantages of a broker disappear as a network becomes saturated with structural brokers (Burt 1997, 2005, Buskens and van der Rijt 2008). The implication for Viktor is that having strong transnational and local ties are only important for knowledge transfer if he is the only member of a workplace who possesses them. If there are others who have had similar experiences from abroad and possess equally strong ties

to a home country, they might also be able to share relevant knowledge from abroad. This, in turn, renders any single returnee's ideas appear less novel and likely, less useful in the workplace. Moreover, if an office in a given home country is composed almost entirely of individuals with international work experience, then a returnee's knowledge from abroad would likely not be considered novel at all. Thus, no matter how strong a returnee's ties are to local or transnational networks, if there are others who are embedded in the same communities,

H1a: The positive effects of a returnee's transnational and local ties diminish if there are other returnees in the workplace.

Workplace Authority. Even though all returnees can potentially draw on their experience from abroad and their familiarity with work practices in their home countries to transfer knowledge, they often lack the authority to do so. Given the opportunity to contribute to solving problems in companies in their home countries, they often must operate within micro-hierarchies that can diminish their influence. If returnees come back to companies in entry-level positions, they are usually not expected to bring novel ideas to the workplace. For example, in the experience of young returnee architects to Latin American countries, many are hired as more efficient helping-hands in the workplace because of their superior training in countries like the US or UK. Thus, while their extensive international experience potentially allows them to bring greater vision to their projects and work, many of their ideas are rejected because they are simply not in charge. In this respect, having lower workplace authority mitigates the positive effect that having strong transnational ties would have in facilitating returnee knowledge transfer.

H1b: The positive effect of a returnee's transnational ties on knowledge transfer success diminishes if the returnee reports to a supervisor.

On the other hand, entering a supervisory role in a workplace can also serve as a substitute for having strong ties at home. In other words, when returnees lack strong ties to their home country, occupying a higher position in the workplace can facilitate their knowledge

transfer. In essence, authority and strong home country ties serve as two different manifestations of trust, which is an important condition for successful knowledge transfer. Trust between parties facilitates the sharing and understanding of complex information between them (Levin and Cross 2004). A returnee can develop trust with his coworkers either by demonstrating that they have shared experiences—i.e. through strong ties to his home country—or more formally, by being appointed to a position of authority. In a supervisory role, a returnee's coworkers are likely to put more faith in his expertise, which fulfills the trust mechanism in the absence of strong ties to a returnee's home country. Marco, an interviewee who had never worked in Mexico before going abroad, recounts his experience working as a manager in an aircraft manufacturing plant after working and studying abroad as mechanical engineer in the U.S.:

In the U.S., I did a lot of engineering work. In Chihuahua [Mexico], I do much more management... it wasn't really important that I never worked in Mexico before. My workers listen to me because I am their supervisor. Basically, I think my role helps me as an instructor or teacher... [especially] when my workers don't know how to read blueprints or measure certain parts that come from orders from American companies. These are all things I know how to do from working in the U.S. If I was not a manager, though, they probably wouldn't listen to me. (Interview, September 19, 2011)

Marco's statement implies that his ties to his home country are not important to improving the quality or success of his knowledge sharing because he commands authority as a supervisor. In other words, gaining an authoritative role in a workplace as a returnee diminishes the need for strong ties to his home country in facilitating knowledge transfer. [add more here: citations, etc.]

H1c: The positive effect of a returnee's local ties on knowledge transfer success diminishes if the returnee occupies a supervisor role.

The country-institutional context of transnational and local ties

In addition to different organizational contexts, returnees encounter vastly different institutional contexts, depending on their home countries. Little research, however, has taken a comparative approach in analyzing the experiences of returnees. And in work that does incorporate samples of returnees to multiple countries, settings are intentionally selected to

emphasize their similarities.³ Examples of how home country surroundings can impact workplace interaction and activity independent of organizational context tend to come from work on international assignments (Black, et al 1999). An international assignment refers to the process in which a worker is temporarily relocated to a branch of office of a company that is located in a different country. While some elements of company's norms are similar between international offices, in many cases, the activity and culture of a branch office of a multinational company resemble that of other local companies more than its headquarters. James, a returnee to South Africa who worked for the local office of the consulting firm Monitor Group before and after working in its Boston headquarters, remarked that he was surprised at the differences between the two sites.

You would think that since we collaborate on the same projects, and since I even knew some of those guys [from Boston] quite well, I would have gotten used to things in Boston pretty quickly. But things just moved faster in Boston...in Jo-burg [Johannesburg], I was used to meeting with my coworkers face-to-face and really holding our clients' hands in our projects. In Boston, things were much less personal. My supervisor cared more about efficiency and would have rather communicated by email than seeing me in person. It felt like a totally different company. (Interview, October 4, 2011)

The implication therefore, is that even controlling for organizational context, differences in the cultural and institutional surroundings of a returnee's home country can affect their readjustment, learning, and knowledge transfer outcomes in the workplace.

In what ways can one observe the effect of a home country environment on returnee's ability to effectively apply knowledge from abroad? I argue that certain conditions of a returnee's home country can moderate the relationship between a returnee's transnational and local ties and his knowledge transfer success. Specifically, in some countries, returnee ties

³ For example, Saxenian (2002, 2006) primarily analyzes returnees to China, India, and Taiwan. Although they have many cultural and political differences, they have a great deal in common in terms of economic development. The purpose of choosing these three regions is to emphasize the similar functions that returnees served in institution building. Other comparative cases can be found in Tung and Tung and Lazarova's (2006) work on Eastern Europe, and Meyer and Brown's (1999) research on Colombia, Chile, and Argentina, in which the settings chosen had a great deal in common.

abroad help can boost can help boost their the amount of knowledge they can direct back to their home countries more than in other countries. In other countries, pervasive attitudes native to the local culture in a given home country can make domestic workers and colleagues less receptive of ideas from abroad. In particular, 'xenophobic responses' are common in some countries (Adler 1981), which can, in turn, reduce the value of returnee knowledge contributions. Maria, a returnee architect to Uruguay (whose story forms one of the focal points in Chapter 2), illustrates the trouble she had in implementing some of her ideas in small-scale construction projects for local clients,

Uruguayans like to keep to themselves, they don't really like new things from the outside. When I first tried to tell my client my ideas came from my experience working on rural schools in the US, they were very much against them. I learned that if I wanted to use any of my new skills, I always had to hide that I learned them in the United States. (Interview with Maria, October 4, 2011)

Specifically, pervasive xenophobia in a returnee's home country can erase the positive effect that a returnee's strong ties abroad can have on his knowledge transfer for two reasons. First, the resistant attitudes that a local culture expresses are directed against anything foreign. Domestic individuals might therefore perceive knowledge, technologies, and other resources from beyond their country's borders to potentially threaten the familiarity of domestic social and professional life. Second, the xenophobic response can be a returnee-specific—that is, returnees are sometimes seen defectors and turncoats. Here, domestic workers sometimes perceive returnees with even more disapproval than entirely foreign intrusions because they view returnees as actively abandoning their home countries only to return with sanctimonious attitudes.

Thus, the culturally-informed attitudes of a returnee's home country surroundings can effectively nullify the access to novel information and techniques that returnees could potentially bring to their home countries. Pervasive xenophobia in a given home country, in effect, serves as a socio-cognitive barrier to knowledge transfer (Millar and Choi 2009). Under such

conditions, returnees therefore cannot rely on their ties to resources and knowledge from abroad, no matter how strong they are. In fact, it is even possible that having stronger ties abroad can hinder returnee knowledge transfer as in Maria's case.⁴

At the same time, to overcome these resistant, xenophobic attitudes, returnees can demonstrate to their domestic coworkers and supervisors that they have strong ties to their home countries. In other words, in home countries that value shared local identities, strong ties at home can be more important for effective knowledge transfer than strong ties abroad. In this scenario, while any experience abroad might be negatively perceived by a returnee's home country peers, his ability to relate knowledge from alien contexts to home country organizational settings is more contingent on exhibiting a close kinship with his home culture. Kane, et al (2005) illustrate the importance of shared identity for knowledge transfer using an experiment in a small group context. Specifically, they show that when a worker from one type of group moved to a different type of a group, the latter group was less likely to adopt suggestions from the new worker than if the latter group had been the same type of group. Moreover, the effect remained even controlling for the quality of the suggestions that the new workers made.

Building on these results, it is entirely possible to conceive of shared identity as a being a more important determinant of knowledge transfer in some contexts than in others. Therefore, in countries with monocultures that exhibit high levels of nationalistic pride, like South Korea and Uruguay, it is possible that a returnee's home country ties matter more than his transnational ties for successful knowledge transfer.

⁴ China stands as a clear example of decoupling between official policy regarding skilled returnees and popular attitudes toward them. Whereas many policies in China grant returnees social services, professional opportunities, and even tax breaks (for entrepreneurs), many domestic Chinese are resistant to the influx of returnees. In fact, while returnees are largely known by the nickname, *haigui*, which is a pun on the Chinese term for 'sea turtle' and 'to return across the sea', more pejorative terms have emerged such as 'haidai' ('seaweed') and 'haipao' ('sea foam') from groups with negative attitudes toward returnee presence in Chinese business. This negative sentiment is emblematic of the xenophobic response that some returnees face upon coming back to their homelands (Adler 1981).

H1d: The positive effect of a returnee's transnational ties decreases as the level of xenophobia in the returnee's home country increases.

H1e: The positive effect of a returnee's local ties increases as the level of xenophobia in the returnee's home country increases.

Data

Insights about the influence of return migrants on their home countries have primarily come from research based on anecdotes, interviews, and case studies. These studies have offered a nuanced understanding of the motivations and actions of some returnee groups, but little research attends to generalizing the experience of returnees across country, industry, organizational settings. Establishing existence proofs of broad processes related to the influence of return migration requires systematic data about returnee career activity. Ideally, such data would include skilled migrants from a broad set of professions from many different countries. However, absent these data, research on skilled migration has yet to develop a coherent set of theoretical propositions to describe the relationship between migration and knowledge transfer. Based on case studies and anecdotal evidence alone, it is difficult to conclude with any certainty that returnees are a universal source of novel knowledge for home countries worldwide.

Two key methodological issues persist in the collection of such a data on skilled returnees. First, skilled returnees constitute a difficult-to-reach population. Gathering uniform data on return migrants is challenging because they are a globally mobile group. Unlike employees of a company or members of a given community, skilled migrants are not bound territorially, and there exists no centralized source of information about the whereabouts of international workers, much less return migrants. While some government agencies and large

organizations keep careful records of migrant inflows and outflows, they almost always lack data on individuals once they leave a country.⁵

Second, the definition of a return migrant is ambiguous (Dumont and Spielvogel 2008). While many scholars agree that return migrant must be an individual who has spent a non-trivial amount of time abroad, debates concern the length of stay in the host country, length of stay in the home country before and after going abroad, and the migrant's activities at home and abroad (UNSD 1998). Thus, it is often unclear whom to include for a sample of returnees.

To address these challenges, my data on returnees come from a survey I administered to individuals who came to the United States to work under a J1 Visa sponsored by non-profit cultural exchange organization called CDS International (CDS). Since 1997, CDS has been designated by the U.S. State Department to sponsor the J1 Visas for two specific subcategories of skilled foreign nationals—the trainee and intern. These two subcategories of the J1 Visa allow individuals from abroad, who have post-secondary education and training in a professional field (such as software engineering) to work for a host company in the US for between 3 and 24 months. Between 1997 and 2011, CDS sponsored the J1 Visas of over 11,000 individuals from over 90 different countries, who have worked in such US-based companies like Google, Apple, and Merrill Lynch, in addition to over 2,000 different small- to medium-sized companies. A key stipulation of the J1 Visa is that these workers must return to their home countries after their US work experience if they cannot extend their stay through another visa like the H1-B or permanent residency. Therefore a key advantage of using CDS-sponsored J1 Visa recipients is that all potential returnees have had some meaningful professional experience in the United States that lasted a non-trivial amount of time.

⁵ Few existing survey datasets focus on return migrants in particular. Most samples of return migrants are subsets of surveys given to larger pools of immigrant respondents (MMP, other cites). Other surveys targeted at return migrants were gathered through convenience or snowball sampling, such as Wadhwa, et al's (2007) study of returned technical professionals through the online social network, LinkedIn.

While CDS recorded background, career history, and up-to-date contact information for its J1 Visa 'alumni', it lacks any information about their activity after their US work experiences. Collaborating with CDS, I designed and administered a survey of all 11,434 CDS alumni who worked in the US between 1997 and 2010.⁶ 4,183 alumni responded to the survey, which constitutes a 38% response rate. I found no significant biases comparing respondents to non-respondents in terms of basic demographic characteristics, such as country-of-origin, gender, age, and length of stay in the US; however, technology workers are slightly overrepresented in the respondent sample (see methodological appendix). The 38% response rate to my survey is higher than similar large-scale surveys of skilled workers, which typically average 15% to 20% (MIT founders study, cite others). Table 1 reports descriptive statistics for the respondent sample.

[Table 1]

The survey itself took respondents an average of 43 minutes to complete. Respondents answered questions about their career activity in the US and home countries, non-work related activity, attitudes about future migration, and their experience adjusting back to their home countries if applicable.⁷ In addition, all respondents were asked a battery of questions about their knowledge transfer activities. Specifically, if respondents indicated that they had shared knowledge in their home countries based on their experience abroad, they answered questions specific to this experience—a closer analysis of this part of the survey data can be found in Chapter 3.

I also merged my survey dataset with data from the World Bank, which contains country level economic and social indicators, such as GDP and FDI measures. I obtained these measures

⁶ Details about survey design and distribution can be found in the methodological appendix.

⁷ Returnee entrepreneurs also answered questions about their experience establishing their ventures. Chapter 5 focuses entirely on returnee entrepreneurs.

for the home countries in my survey dataset for the most recent years available (up to 2010). These country-level data can be found as part of the World Bank's Development Indicators, which provide data on a country's political, social, and economic conditions compiled using sources such as the United Nations, the IMF, and other research institutions.

Measurement and Variables

Dependent Variable. The dependent variable in my analysis is returnee knowledge transfer success. Specifically, if a returnee shares knowledge based on his professional experience abroad in an organizational in his home country, I observe knowledge transfer success if the organization adopts the returnee's knowledge by changing some practice (Argote 1999). Past quantitative studies have paid close attention to this at the organizational level by taking as a evidence of knowledge transfer the change in some organizational practice or strategy as a result of contact with another organization or the hiring of a new employee (Tsai, et al 2003, Almeida and Kogut 1999). However, it is sometimes impossible to tell whether the change in some organizational practice can be causally attributed to knowledge transfer. Other studies, in turn, measure the extent of an individual's knowledge *sharing* activity in an organization, but not the success or result of that sharing (Reagans and McEvily 2003).

I empirically separate knowledge sharing from knowledge transfer success in my survey. Specifically, for those returnee respondents who indicate sharing knowledge based on their overseas professional experience, I measure the success of their knowledge transfer by their yes/no answer to the following question, "Did you company implement any of your suggestions [which were based on your experience and training in the US]?"⁸

⁸ For respondents who indicated that they shared knowledge, I asked them to describe in detail the nature, setting, and aftermath of the knowledge transfer. As a check for the dependent variable, I then compared these open-ended responses to their yes/no responses to the knowledge transfer success question. Almost

Independent variable—Strength of transnational and local ties. As mentioned, how close a returnee is to his contacts in his home or host country constitutes only part of my conception of the strength of a returnee's ties at home and abroad. I measure the strength of a returnee's transnational ties—or ties to the United States—by creating an index out of the following 10 survey questions about the returnee's experience in and affinity to the US (*HI*):

1. Before coming to the U.S. under your J1 Visa, did you have any relatives living in the U.S.?
2. Before coming to the U.S. under your J1 Visa, did you have any friends living in the U.S.?
3. Before coming to the U.S. under your J1 Visa, had you ever studied in the U.S.?
4. Before coming to the U.S. under your J1 Visa, had you ever worked part-time in the U.S.?
5. Before coming to the U.S. under your J1 Visa, had you ever worked full-time in the U.S.?
6. Have you ever completed an educational degree in the U.S.?
7. During your stay in the U.S. under your J1 Visa, did you attend any work-related conferences?
8. During your stay in the U.S. under your J1 Visa, how often did you socialize outside of work? (dichotomized)
9. During your stay in the U.S. under your J1 Visa, how often did you have contact with your coworkers? (dichotomized)
10. During your stay in the U.S. under your J1 Visa, how often did you have contact with your supervisor? (dichotomized)
- 11.

This set of questions captures not only the level of professional immersion the returnee had in the US, but also the strength of his personal ties and involvement in non-work related activities abroad. For each 'yes' answer to the questions above, the strength of the respondent's transnational tie (index) increases by 1. I dichotomized questions 8, 9, and 10 by taking any response above the median response category as 'yes'. I use an index to combine these questions rather than principal components or other means of multidimensional scaling to facilitate interpretation.⁹

For the strength of a returnee respondent's local ties, I combined the following 10 survey questions into an index similar to above:

all open-ended responses did indeed reflect a change in organizational practices if the respondent indicated 'yes'.

⁹ Using these alternative means of dimensionality reduction, however, led to similar results in my model estimation.

1. Before coming to the U.S. under your J1 Visa, were you married in your home country?
2. Before coming to the U.S. under your J1 Visa, did you have children in your home country?
3. Before coming to the U.S. under your J1 Visa, did you have work experience in your home country?
4. During your stay in U.S. under your J1 Visa, were there coworkers in your company from your home country?
5. During your stay in U.S. under your J1 Visa, did you interact with these home country coworkers about professional opportunities in your home country?
6. During your stay in U.S. under your J1 Visa, how often did you maintain contact with friends and family in your home country? (dichotomized)
7. Did you work in a home country office of your host company before coming to the U.S. under your J1 Visa?
8. Are you working in a company in which you worked before coming to the U.S. under your J1 Visa?
9. Did you come back to your home country after your J1 experience because of personal reasons in your home country? (example: family, friends)
10. Have you completed a post-secondary degree in your home country since coming back?

Other independent variables. Regarding hypothesis 1a, I measure the presence of other returnees in a returnee respondents' workplaces with respondent answers to the question, "Do any of your co-workers have US career experience?"¹⁰ Hypothesis 1b and 1c concern the interaction of returnee's workplace authority and his transnational and local tie strength. On the survey, returnees indicated whether or not they have a supervisor (*H1b*) and the number of other workers they supervise (*H1c*). I dichotomize the latter variable by assigning a value of 1 to any respondent who indicated that they supervisor one or more workers.

Finally, I measure the level of a returnee home country's xenophobia (*H1d* and *H1e*) using a proxy based on past research. While there exists no reliable universal index of xenophobic attitudes for various countries around the world, in a cross-country analysis, Hjerm (2001) found a strong negative relationship between xenophobic attitudes and levels of education at the country level using data from the International Social Survey Programme, a yearly cross-sectional comparative survey of attitudes. Specifically, Hjerm suggests that education, while affirming nationalist values, also serves the important function of ingratiating a populace to

¹⁰ The survey also contained the question, "Do any of your co-workers have career experience in the United States?" Including this variable did not dramatically alter the results of model estimation.

multicultural values. Another explanation of the strong link between higher educational attainment and decreased xenophobia is that individuals who are predisposed to more open, multicultural thinking are also more likely to select into higher education. The strength of Hjern's (2001) study is that this finding holds across not only the different educational systems in the countries under investigation, but also their political and economic systems. I therefore adopt a country's average level of education as an indicator of country-wide xenophobia.¹¹

Control Variables. I include basic demographic controls in my models such as the returnee respondent's gender, age, and educational attainment. I also include the total amount of time the respondent has lived in his home country since coming back from the US, and the total amount of time that the respondent spent living and working in the US.¹² Controlling for these variables is important because the length of time spent at home and abroad can be confounded with the strength of the respondent's transnational and local ties. Regarding workplace variables, I include a categorical variable for the size of the organization in which the returnee currently works, and whether the returnee occupies a position in the company, which by design, is meant to be a liaison role between his company and clients or markets in the US. I also add a dummy variable for whether or not returnee's currently works in a technology-based industry to account for sector differences. Finally, I include the returnee's home country's GDP per capita and region of the world to control for any unobserved country-contextual factors. Summary statistics for all variables can be found in Table 2.

¹¹ While this is an imperfect measure of xenophobia, it avoids the issues of internal national conflict raised by other measures such as the ethnic fractionalization of a given country. Other possible measures that rely on past immigrant outflows and inflows, which might serve as an indicator of a country's political openness to foreign influences, do not distinguish between skilled and unskilled migration; moreover, such measures reflect differences between countries' political systems whereas education remains closely (negatively) correlated to xenophobia regardless of variation in the political apparatus of a country.

¹² Note that I do not include the age at which the returnee left his home country to go abroad because the respondent's current age is equal to a linear combination of the age of departure, the length of time abroad, and the length of time since return, which in turn would result in multicollinearity.

[Table 2]

Methods

Because the outcome variable in this analysis is dichotomous—whether or not a returnee respondent successfully transferred knowledge based on his experience abroad to his current workplace—I estimate logistic regression models that include the variables mentioned above. To adjust for survey response bias, I take advantage of the data available for all potential respondents by estimating the logistic regression as part of a two-stage sample selection model (Heckman 1979). Heckman's two-stage model deals explicitly with selection bias which results in censored data by accounting for the probability that an observation does not suffer from censoring. In the context of my survey, I first estimate a probit model using all J1 Visa participants who received the survey, with the dependent variable as the probability of a survey recipient completing the survey. I then use the results of this model to calculate an inverse Mills ratio for each respondent (individuals in the selection sample for analysis), which I include as an independent variable in the logistic regression models predicting knowledge transfer success for returnee respondents. While Heckman's original specification assumed the second-stage model as a linear regression model (estimated by OLS), Dubin and Rivers (1989) showed that the same procedure yielded unbiased and efficient results using a second-stage logistic or probit regression model instead.

An important condition that Heckman's two-stage strategy must satisfy is the exclusion restriction. The exclusion restriction states that the first-stage probit model must contain at least one independent variable that is not present in the second-stage models. Moreover, this variable must predict selection in to the second-stage model's sample, but must not be correlated with second-stage model's outcome variable—similar to an instrumental variable. The purpose of the exclusion restriction is to show that the processes related to selection and the ultimate outcome

variable are different; if they were the same, the outcome model would be considered endogenous (see Sartori 2003 for a relevant discussion).

In the first stage probit model, I include a dummy variable for the department that handled a CDS J1 participant's visa application file. '1' signals that the application was handled by the Professional Development Program department (PDP), which has different standards for keeping in touch with J1 participants than other departments. Other departments of CDS handle certain host company clients in the US or individuals from certain home countries. J1 participants from PDP tend to receive less CDS communication after their J1 work experiences in the US, and thus are also less likely to respond to a survey. Because returnee respondents' knowledge transfer success depends more on their professional experience at home and abroad, rather than their administrative, immigration-related contact with CDS, there is little reason to suspect that their affiliation with the PDP department affects the knowledge transfer outcome variable in the second stage model.

Results

Figure 1 contains a visualization of the bivariate relationships between knowledge transfer success rate and transnational/local tie strength, not controlling for other variables. According to the left-hand side graph in Figure 1, there appears to be a positive but curvilinear relationship between transnational tie strength and returnee knowledge transfer success. Of those respondents who had a transnational tie strength index of 0 (out of 10), only 33% reported that their employers in their home countries adopted a suggestion based on their knowledge from abroad. However, the success rate rises to over 60% if the respondent's transnational tie strength index increases to just 1. Knowledge transfer success then rises slowly, albeit non-monotonically, as the transnational tie strength increases. By contrast, the right-hand side graph

indicates a more steady, linear relationship between local tie strength and returnee knowledge transfer success. This difference indicates, that returnees need to only achieve a moderate amount of embeddedness abroad to demonstrate their expertise as means to transfer knowledge from abroad. Having ties abroad that are any stronger does not appear to boost knowledge transfer success rate by much more. On the other hand, the positive relationship between returnee knowledge transfer and returnee local tie strength appears to be incremental. There appears to be no threshold for local tie strength as a facilitator of knowledge transfer success.

Models. The estimated coefficients from the first stage selection model (probit) and five outcome models (logit) are reported in Table 3. I standardized all scale or metric right-hand-side variables before model estimation; therefore, the coefficients of these variables represent beta weights. Model 1 contains just controls, model 2 adds the transnational and local tie strength variables, model 3 contains the interactions between the tie strength and coworker international experience variables, model 4 adds interactions with workplace authority variables, and model 5 contains interactions between tie strength and home country education levels (proxy for xenophobic attitudes).

[Table 3]

Transnational and local tie strength (H1). According to Hypothesis 1, the strength of a returnee's transnational and local ties increase knowledge transfer success. Model 2 in table 3 supports this claim. Specifically, model 2 indicates that a standard deviation increase in a returnee's transnational tie strength increases the odds that he will successfully transfer knowledge in his home country workplace by 28%, while a standard deviation increase in the respondent's home tie strength increases the same odds by 16%. In other words, a returnee's ties abroad have almost twice the positive effect as his ties at home in boosting knowledge transfer success. This suggests that returnees who were more deeply embedded in professional and

social life abroad tend to offer ideas and knowledge that are more useful and valuable to organizations when they return to their home countries. While having strong ties to one's home country can still boost returnee knowledge transfer success, most of a returnee's advantage as a broker of knowledge comes from being able to access novel information and resources abroad.

Coworker international experience and transnational tie strength (H1a). Results from model 3 indicate that having strong ties abroad gives returnee respondents less of an advantage in terms of being able to transfer knowledge if the returnee's workers also have experience working in the US. Specifically, by virtue of their negative and significant interaction effect, a standard deviation increase in transnational tie strength increases the odds of knowledge transfer success by 38% in environments in which the returnee is the only work with US career experience. By contrast, in workplaces with other employees who have US work experience, returnees can only expect a boost of 15% in the odds of their knowledge transfer success with a standard deviation increase in their transnational tie strength. This finding lends credence to the notion that that returnees tend to offer less useful, and likely less novel knowledge, in more international workplaces in their home countries. When returnees do not serve as the sole links to resources abroad for an organization, their structural advantage as transnational brokers disappears, and thus, they become less effective at knowledge transfer.

Workplace authority and tie strength (H1b and H1c). Model 4's results show support for hypotheses 1b and 1c. According to table 3, the positive effect of having strong ties abroad on returnee knowledge transfer diminishes if the returnee has a supervisor in the workplace. In particular, a standard deviation increase in transnational tie strength increases the odds of a returnee respondent's knowledge transfer success by almost 45% when the respondent does not have a supervisor. However, the same increase leads to only 20% higher odds of knowledge transfer success if the respondent reports to a supervisor in his home country. Thus, returnees

are less able to apply their knowledge and experience from abroad in their home countries if they occupy lower levels of workplace authority.

I also find support for a trade-off between the positive effects of workplace authority and strong local ties on returnee knowledge transfer. In particular, the negative and significant interaction between these two variables shows that the having strong local ties boost knowledge transfer success the most when the returnee has low workplace authority. On the other hand, occupying a supervisory role in the workplace increases knowledge transfer success more if the returnee lacks strong home country ties. This suggests that having strong domestic ties help returnees in adapting their knowledge from abroad only when they occupy non-supervisor positions in their home countries.

Home country xenophobia and tie strength (H1d and H1e). The results in model 5 give evidence for hypothesis 1d, which asserts that the positive effect of a returnee's transnational ties on knowledge transfer diminish as the level of xenophobia in country increases. As mentioned, I approximate the level of xenophobia in a country using the average educational attainment of a country's citizens. Specifically, I use the proportion of a country's adult population who have been enrolled in tertiary (post-secondary) educational institutions. I dichotomize this variable to facilitate interpretation by classifying countries the first quartile of tertiary enrollment as xenophobic. According to model 5 in table 3, the interaction between the returnee respondent's transnational tie strength and the country xenophobic dummy variable is negative and significant. Specifically, in a non-xenophobic home country, a standard deviation increase in a returnee respondent's transnational tie strength increases the odds of knowledge transfer success by approximately 33%, while in a xenophobic home country, the same standard deviation increase in transnational tie strength *decreases* the odds of knowledge transfer by 5%.

Hypothesis 1e also receives support in model 5 as the interaction between the home country xenophobic dummy and local tie strength is positive and significant. In particular, increasing a returnee's local tie strength by a standard deviation in a non-xenophobic country leads to a 13% boost in the likelihood of knowledge transfer success whereas the same standard deviation increase in local tie strength in a xenophobic country amplifies the odds of knowledge transfer success by over 41%. Together, the findings in model 5 suggest that the importance of transnational and local ties vary by the pervasive cultural attitudes in a returnee's home country. Whereas strong local ties are more important than strong transnational ties for returnee knowledge transfer in more mono-cultural, xenophobic countries, just the opposite is true in more culturally diverse and open countries.

Conclusion

I began this chapter by asking why some returnees better brokers of knowledge than others, given that, by design, all returnees appear to enjoy the professional advantages of having transnational and local ties? Phrased in more theoretical terms, why are skilled returnees—who by definition, are structural brokers—not all functional brokers? The answer lies in understanding the contexts in which they are connected to their host and home countries. In essence, certain features of a returnee's surroundings can erase or enhance the benefits of being connected at home and abroad when it comes to knowledge transfer. Thus, while having both stronger transnational and local ties can both increase returnee knowledge transfer success, transnational ties generally appear to be more important than local ties. In terms of organizational settings, returnees in workplaces saturated with international talent tend to experience fewer benefits from having strong ties abroad than returnees in work environments that employ mostly domestic workers. In addition, the positive effect of having strong ties

abroad on knowledge transfer diminishes if the returnee occupies a low position on the workplace hierarchy. However, if a returnee enters a supervisory position in his home country, the strength of his local ties become less important because he gains trust from his coworkers through his default authority. Finally, as the level of xenophobia of a returnee's home country increases, having strong ties abroad can begin to hurt a returnee's knowledge transfer success. At the same time, strong local ties in more xenophobic country settings are more important for knowledge transfer than strong transnational ties.

These findings underscore a need for a clearer theoretical understanding of the context of diffusion through network processes like brokerage. While Burt (1997) revised his own theory of brokerage to be contingent on certain qualities of the broker, little research has systematically investigated different contexts of brokerage. A chief theoretical contribution of this chapter is the analytical separation between the structural and functional definitions of a broker. While others have shown how a broker's structural advantages erode under certain structural conditions (Reagans and Zuckerman 2003, Buskens and van der Rijt 2008), I have shown how cultural and normative features of a broker's surroundings and ties can moderate his effectiveness in commanding flows of knowledge and resources. Thus, while all returnees have the potential to conduct resource exchanges between their host and home country settings, key non-structural features of their positions can hinder and enhance their ability to do so.

This study also makes several important empirical contributions to work on return migration and knowledge transfer. First, while other studies of migration and knowledge transfer focus on the different types of knowledge that returnees can bring to their home countries (e.g. tacit vs. explicit, general vs. domain), they have brought little attention to the correlates of knowledge transfer success. This chapter makes clear that there exist organizational and environmental barriers that can erode the structural advantages that scholars assume

returnees possess. Whether returnees can effectively rely on their access to knowledge reserves abroad or their familiarity with their home countries' work cultures depends on the settings in which they make use of these local and transnational ties. This suggests a more complex understanding of how returnees take advantage of their unique positions as transnational workers.

Second, the analysis in this chapter makes use of data from a novel survey that analytically distinguishes between the act of knowledge sharing and knowledge transfer success. In many studies, these two processes are often combined under the singular concept of knowledge transfer, but they in fact, refer to two different phenomenon. I avoid the use of proxy measures of knowledge transfer success by asking respondents directly whether their knowledge transfer led to some change in organizational practices. In addition, I use respondents' open-ended answers about knowledge transfer scenarios to validate their responses. This clearer operationalization of an important and pervasive outcome variable in organizational research serves as a foundation upon which future research can build.

The analysis in this chapter, however, documents only one aspect of returnees' knowledge transfer experience. It reveals the conditions under which they can effectively use their transnational and local ties to direct knowledge resources to their home countries. The process of how they share, reconstruct, and implement their knowledge still stands at a black box. Economists and sociologists alike have assumed that the main value that returnees bring to their home country lies in their knowledge resources. How they actually apply this knowledge, however, remains a mystery. The following chapter investigates the negotiated and sometimes contentious process of returnee knowledge transfer.

Table 1. Descriptive statistics of survey population

| | Mean | SD |
|---|--------|----------|
| Female | .36 | |
| Age | 30.02 | (4.37) |
| <i>Education Level (in years of tertiary education)</i> | | |
| < 1 Year | .07 | |
| 1 Year | .05 | |
| 2 Years | .19 | |
| 3 Years | .26 | |
| 4 Years | .20 | |
| 5 Years | .11 | |
| > 6 Years | .10 | |
| <i>Home Country Region</i> | | |
| East Asia & Pacific Island | .12 | |
| Europe & Central Asia | .56 | |
| Latin America & Caribbean | .04 | |
| Middle East & North Africa | .01 | |
| North America | .25 | |
| South Asia | .01 | |
| Sub-Saharan Africa | .01 | |
| <i>Field</i> | | |
| Engineering and Natural Sciences | .51 | |
| Finance, Management, Marketing | .35 | |
| Architecture | .06 | |
| Arts and Culture | .03 | |
| Communications Media | .03 | |
| Other | .02 | |
| Average Duration in U.S. (in Days) | 226.07 | (176.44) |
| Previous U.S. Visa | .13 | |

N = 11,434 participants

Table 2. Descriptive statistics for analysis (outcome) sample of returnees

| Variable | Mean | SD | Description |
|---|--------|----------|--|
| Successfully Transferred Knowledge (Dependent Variable) | .65 | | = 1 if respondent indicated that company in home country adopted respondent's suggestion based on professional experience abroad |
| Female | .34 | | = 1 if respondent is female |
| Age | 29.00 | (3.84) | Age of respondent (in years) |
| Education | | | |
| Some undergrad | .01 | | Respondent is completing undergrad. degree |
| Undergraduate degree | .15 | | Respondent completed undergrad. degree (e.g. B.A., B.S.) |
| Some graduate school | .51 | | Respondent is completing graduate degree |
| Graduate degree | .33 | | Respondent completed graduate degree (e.g. M.A., Ph.D., MBA) |
| Years since return | 3.71 | | Number of years since respondent has returned to home country |
| Total days in U.S. | 220.70 | (140.51) | Total number of days spent working in US under J1 Visa |
| Current company > 500 employees | .57 | | = 1 if total number of employees in respondent's organization in home country exceeds 500 |
| Does business in US | .26 | | = 1 if respondent's current job is to help organization do business or communicate with markets, clients, or partners in US |
| Tech Industry | .51 | | = 1 if respondent's organization in tech industry |
| Home Country GDP | 3.02 | (1.26) | Respondent home country's Gross Domestic Product per capita in \$10,000s, 2009 adjusted |
| Home Country in Europe | .62 | | = 1 if respondent's home country in Europe |
| Transnational tie strength | 3.28 | (1.42) | Index of respondent's transnational tie strength, range: 1-10 (see <i>Measurement and Variables</i>) |
| Local tie strength | 3.71 | (1.58) | Index of respondent's local tie strength, range: 1-10 (see <i>Measurement and Variables</i>) |
| Coworkers have US work experience | .41 | | = 1 if coworkers in respondent's current organization have US work experience |
| Has supervisor | .82 | | = 1 if respondent reports to supervisor |
| Is supervisor | .36 | | = 1 if respondent supervises other workers |
| 1st quartile education | .23 | | Indicator of xenophobic home country, = 1 if respondent's home country is in 1 st quartile of countries of the world in terms of proportion of student enrollment in tertiary education |

N = 2,881

Table 3. Estimated coefficients from outcome logistic regression models of successful knowledge transfer

| Variable | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 |
|---|----------------------|----------------------|----------------------|----------------------|----------------------|
| Female | -0.267*** (0.090) | -0.294*** (0.091) | -0.292*** (0.091) | -0.257*** (0.092) | -0.318*** (0.092) |
| Age | 0.133* (0.100) | 0.136* (0.100) | 0.141* (0.101) | 0.086 (0.102) | 0.093 (0.101) |
| <i>Education</i> | | | | | |
| Undergraduate degree | -0.138 (0.858) | -0.678 (0.876) | -0.725 (0.879) | -0.552 (0.882) | -0.681 (0.878) |
| Some graduate school | -0.064 (0.433) | -0.222 (0.438) | -0.247 (0.441) | -0.184 (0.439) | -0.216 (0.44) |
| Graduate degree | 0.058 (0.827) | -0.411 (0.843) | -0.449 (0.846) | -0.288 (0.849) | -0.437 (0.845) |
| Years since return | -0.018 (0.051) | 0.033 (0.052) | 0.032 (0.052) | 0.046 (0.053) | 0.057 (0.052) |
| Total days in U.S. | 0.125*** (0.051) | 0.147*** (0.052) | 0.141*** (0.052) | 0.156*** (0.052) | 0.131*** (0.053) |
| Current company > 500 employees | -0.235*** (0.084) | -0.263*** (0.086) | -0.266*** (0.086) | -0.217*** (0.088) | -0.269*** (0.086) |
| Does business in US | 0.578*** (0.101) | 0.524*** (0.102) | 0.522*** (0.103) | 0.509*** (0.103) | 0.511*** (0.103) |
| Tech Industry | 0.024 (0.087) | 0.014 (0.089) | 0.011 (0.089) | 0.003 (0.089) | -0.005 (0.09) |
| Home Country GDP | -0.232*** (0.061) | -0.198*** (0.062) | -0.194*** (0.062) | -0.214*** (0.062) | -0.147** (0.071) |
| Home Country in Europe | -0.343** (0.18) | -0.413** (0.183) | -0.421** (0.183) | -0.408** (0.184) | -0.315* (0.194) |
| Transnational tie strength | | 0.24*** (0.042) | 0.319*** (0.053) | 0.364*** (0.107) | 0.309*** (0.047) |
| Local tie strength | | 0.181*** (0.047) | 0.18*** (0.047) | 0.207*** (0.049) | 0.135*** (0.053) |
| Coworkers have US work experience | | | -0.012 (0.087) | | |
| Transnational tie strength × Coworker US work exp | | | -0.21*** (0.085) | | |
| Has supervisor | | | | -0.011 (0.136) | |
| Is supervisor | | | | 0.780*** (0.232) | |
| Transnational tie strength × Has supervisor | | | | -0.166* (0.117) | |
| Local tie strength × Is supervisor | | | | -0.484*** (0.187) | |
| 1st quartile education | | | | | 0.222 (0.18) |
| Local tie strength × 1st quartile education | | | | | 0.205** (0.107) |
| Transnational tie strength × 1st quartile education | | | | | -0.379*** (0.112) |

| | | | | | |
|---------------------|-------|--------|-------|-------|--------|
| Inverse Mills Ratio | 0.004 | -0.325 | -0.35 | -0.22 | -0.362 |
| Intercept | 1.015 | 1.873 | 1.953 | 1.588 | 1.824 |
| df | 14 | 16 | 18 | 20 | 19 |
| Log-Likelihood | -1740 | -1717 | -1714 | -1689 | -1708 |
| n | 2841 | 2841 | 2841 | 2822 | 2841 |

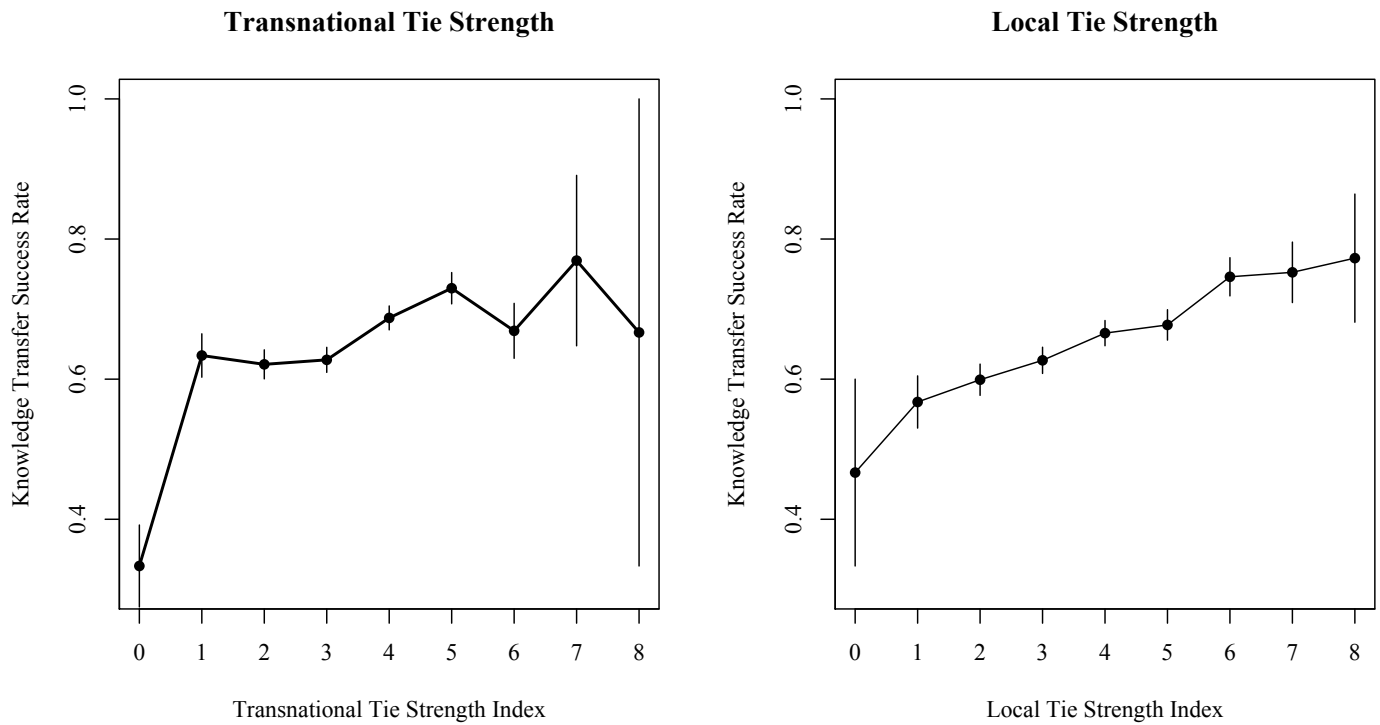


Figure 1. Transnational/Local Tie Strength vs. Knowledge Transfer Success Rate

Note: Error bars reflect one standard error above and below the mean knowledge transfer success rate for a given tie strength value.

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