Combining Community and Structure to Collect Binational Migrant Network Data through a Mixed Methods Approach

Sergio Chávez, Rice University
Heather Edelblute, University of North Carolina Chapel Hill
Ted Mouw, University of North Carolina Chapel Hill
Ashton M. Verdery, University of North Carolina Chapel Hill

ABSTRACT

In this paper, we describe the process for collecting binational social network data that connects an origin community in Guanajuato, Mexico to destination communities in the Research Triangle of North Carolina and Houston, Texas. We begin by discussing the three-stage data collection process that relied on a mix of random and snowball sampling beginning in North Carolina, then extending to Mexico, then extending to Houston, Texas. After outlining the data collection approach, we illustrate strategies community surveyors used to locate respondents of a hard-to-reach population, aid in addressing missing or incomplete data, and successfully asking sensitive questions that could be perceived as being culturally intrusive for a vulnerable population. We also describe how we used ethnographic methods to inform our study design and findings. We conclude by discussing the unique mix of structure and community context in NSIT and future directions for this work. (Word Count: 144)

Key Words: Mexican migration, social networks, hidden population, mixed methods.

Combining Community and Structure to Collect Binational Migrant Network Data through a Mixed Methods Approach

Introduction

Previous research informs us that social networks sustain circular patterns of international migration between origin and destination sites. Migrants, return migrants, and non-migrants are linked to one another through strong interpersonal ties. The social support found in networks has been found to lower the costs and risks associated with moving across international borders (Boyd 1989; Massey 1990; Massey and Espinosa 1997). While we know that migrants are embedded in an intricate web of family and friendship ties that mitigate hardships associated with the migration process, little is known about the actual structure and composition of migrants' social networks. Accordingly, current studies only describe an obvious or presumed importance of social ties, but are incomplete in terms of how the web of social relations links origin and destination communities and the meaning of such ties for migrants.

The literature on *hidden populations* (particularly among immigrants) offers two reasons why few studies have successfully mapped the social networks of immigrants in the US. First, immigrants are fearful that their participation in a research study can expose their undocumented status and subject them to apprehension and deportation (Cornelius 1982; Parrado, McQuiston and Flippen 2005). Second, immigrants represent only a small segment of the total population dispersed over a variety of towns and cities. Hence, a small dispersed population results in a "needle in a haystack" problem, making it difficult to locate and develop a sampling frame (Massey 1987). Accordingly, the fact that this population is vulnerable and hard to locate compromises the generalizability and reliability of the information obtained through standard survey approaches.

In this paper, we describe an innovative approach we developed to collect social network data with 561 members of a transnational migrant community in the Research Triangle of North Carolina, Houston, Texas, and Guanajuato, Mexico named the Network Survey of Immigration and Transnationalism (NSIT).[1] The foundation of this survey approach is based on three years of ethnographic research. During that time, we worked closely with community leaders, religious officials, and migrants to develop trust and rapport in the origin and destination communities. The paper is organized as follows. First, the literature on data collection approaches for migrant populations and social networks is discussed. Then, the study design and locations and are illustrated. Next, the implementation of our data collection approach is outlined with a focus on major findings from the data collection process. Finally, we conclude by discussing the strengths and weaknesses of our work in light of other studies as well as next steps.

Literature Review

To date, the Mexican Migration Project (MMP) is the most comprehensive and widely used data set about international migration and social networks linking origin communities in Mexico to destinations sites in the United States (Massey 1987; Massey and Zenteno 2000). The MMP uses an ethnosurvey instrument and random sampling to gather demographic data, migration and employment histories for heads of household, their spouses and children, and other people living in each surveyed household in origin communities in Mexico. Using a semi-structured interview schedule, trained surveyors—consisting of anthropologists and school teachers—obtain information on employment, migration, marriage, and property ownership. To measure

[1] The Network Survey of Immigration and Transnationalism (NSIT) was made possible with research funding by Ted Mouw of the University of North Carolina and Sergio Chávez of Rice University.

networks, the ethnosurvey collects multilevel data on the household and other household members. Information gathered for various household members allows researchers to estimate family connections to other migrants. The MMP uses a parallel sampling approach. This sampling design consists of surveying Mexican communities initially, then asking respondents to provide the names of friends and relatives in the United States to conduct follow-up interviews (Massey 1987).

A key contribution of the MMP has been to illustrate theoretically that migration is a social process in which social networks play an instrumental role in helping migrants as they move between origin and destination. Studies stemming from the MMP have shown that migrants draw on the support of family, friend, and community members with international migration experience to help facilitate the migration process (Massey, 1987). This support could range from providing information that influences the decision to migrate (Massey and Espinosa 1997) to helping others cross the border (Donato, Wagner and Patterson 2008; Singer and Massey 1998) to locating jobs in the United States (Aguilera 2003). Hence, social networks influence the decision to migrate, aid in the physical process of migration, and can influence labor market opportunities for immigrants.

The MMP is a binational study, but it has a several limitations with regard to network data collection. First, it relies on self-reports of friends' and relatives' characteristics (egocentric data). Second, the MMP sample is uneven as it puts more weight on surveying Mexican households as opposed to immigrant households in the US. Third, the MMP data does not provide data that allows researchers to construct network ties between members at the origin and destination. The ethnosurvey asks migrants and non-migrants if they have family and friends currently living in the United States and about social relations with other immigrants and non-

immigrants. However, the ethnosurvey does not ask how people are connected to one another across international borders, and therefore, the strength and structure of binational social network ties cannot be ascertained from these data. When taken together, these limitations mean that while the dissemination of migration-related information through networks is a key theoretical concern, we have a limited understanding of how social capital related to migration is actually diffused through binational social networks.

Another social network study that attempts to measure migrant ties is the Nang Rong Study conducted in Thailand (See: Korinek, Entwisle and Jampaklay 2005; Rindfuss et al. 2004). While the Nang Rong study is limited to mostly internal migration in Thailand, this migration stream shares a number of similarities to international migration. Economic disparities between rural Nang Rong and metropolitan Bangkok as well as sharp cultural differences between those from Nang Rong and the Thais of the central plain surrounding Bangkok are just a few of many similarities that can be drawn between internal migration in Thailand and international migration between the US and Mexico (Mills 1999). Hence, the Nang Rong study measures populations similar in some ways to international migrations and informs international migration research.

The Nang Rong Study employs multiple levels of network measurement beginning with social ties among villages in the Nang Rong District and social and economic ties within villages (Korinek, Entwisle and Jampaklay 2005; Rindfuss et al. 2004). Nang Rong is a small district in Northeast Thailand. Surveys undertaken in 51 villages in the district in 1984 and then in 1994 and 2000 revealed that a large fraction of migrants from Nang Rong had migrated to Bangkok and other urban destinations in Thailand, and that a substantial number of those who had left returned to their origin communities (Entwisle et al. 2010). In addition to collecting data in villages of origin, the Nang Rong surveys attempted to find and interview all migrants from a

subset of villages who had moved to Bangkok and other large urban destinations. They were able to locate and interview about 70% of those targeted. Many, but not all, of the others can be assumed to have moved on to other destinations (Korinek et al. 2005). Most importantly, those working with the Nang Rong surveys have reported that finding and interviewing a migrant in the destination is important when looking at migrant social networks. The ability to interview a migrant at destination had positive effects for the cohesion of the migrant's origin village social network and his or her origin household's connectivity to that network. Accordingly, it had negative effects for the amount of isolated households in the origin village even after controlling for potentially important individual level factors (Entwisle et al., 2007).

A key problem which network researchers face when collecting data on migrants is that they form part of a *hidden population*. Heckathorn (1997) identifies two characteristics that make it difficult to recruit *hidden populations* for research studies. First, there is no sampling frame, so researchers cannot estimate the size and location of a hidden population. Second, *hidden populations* often participate in stigmatized and illegal behaviors complicating the process of gaining access to and collecting valid findings about social behaviors. To locate difficult-to-reach populations, previous scholars have used snowball sampling techniques in which subsequent participants are recruited by chain referrals (Cornelius 1982). Building on chain referral sampling methods, Heckathorn (1993) used a respondent driven sampling (RDS) method to locate intravenous drug users. RDS differs from traditional chain referral methods in that respondents in RDS are compensated for participating in a study and also for recruiting additional participants into the study (Abdul-Quader et al. 2006). According to Heckathorn (1997), one major advantage of RDS is the fact that "those best able to access members of a hidden population are their own peers" (178).

When conducting research with immigrant communities, involvement of institutional contacts and key members of the community is critical in fostering relations between researchers and immigrants (Cornelius 1982; Deren et al. 2005). Increasingly, many studies are incorporating community members as a way to help locate respondents, test survey instruments, and interpret results (Parrado et al 2005). Moreover, many studies also report using community members or "insiders" as a way to locate respondents and to improve the overall quality of the data (Parrado et al. 2005; Stepick and Stepick 1990). Although studies recognize the importance of community members in the research process, we know little about how they actually improve the overall data collection process and quality of findings. In other words, what strategies do community members employ to locate respondents? How do they improve the quality of the data collection process for missing information? And in general, what are the main benefits of using community members to collect data?

NSIT Study Design

The Network Survey for Immigrant Transnationalism (NSIT) relies on a mixed methods approach to the study of social network ties connecting an origin community in Guanajuato, Mexico to the Research Triangle in North Carolina and Houston, Texas. In recent years, an increasing number of studies have begun to collect and analyze data from both a qualitative and quantitative approach to inform the process of network data collection and social support (Bernardi 2011; Bernardi, Keim and von der Lippe 2007). One common theme that emerges from these studies is that combining methods allows researchers to provide a more holistic understanding of how networks operate on the ground. In this study, we heed the advice of

Axinn and Pearce (2006) who argue that social researchers should use methods that encourage investigator involvement:

> "The advantages derived from a researcher being present and active in data collection at the field site are a by-product of intensive local knowledge available to her or him and relate to issues of data quality and accuracy. As the investigator grows more familiar with personal and community histories, she or he is increasingly able to ask questions with concrete references and to observe behavior with knowledge of their local context (Axinn and Pearce 2006: 63)."

Using a mixed-methods approach, this study provides an innovative approach to the study of mixed-methods. Following the description of the data collection process, this paper illustrates the importance of combining mixed-methods from the development to the implementation of a survey with *hidden populations* in three different locations.

Study Locations

To examine the social structure of transnational networks, we chose a community located in the Mexican state of Guanajuato. Over the past century, Guanajuato has been one of the leading suppliers of migrant laborers to the United States (Durand, Massey and Capoferro 2005). According to the 2005 Mexican census, the origin community we studied had a population of approximately 38,000 residents (54% female, 46% male) and 8,500 households.[2] In the origin community, we met men who began migrating as early as the Bracero Program Era (1942-1964) as well as young migrants who had experience in the southeast. Today, this origin community has migration streams that stretch to Houston, Austin, and Dallas/Forth Worth, Texas as well as other cities in Minnesota, Florida, Arkansas, North Carolina, and Indiana.

We focused on the migration stream to the Research Triangle of North Carolina because it is a new Mexican immigrant destination that has a large undocumented migration stream

[2] Source: http://www.inegi.org.mx/inegi/

(Durand et al. 2005). According to the Pew Hispanic Center (2007), the population of Latina/os grew fastest (394%) in North Carolina when compared to other southern states. North Carolina became a popular destination for migrants because of its booming service and construction industry (Hagan, Lowe and Quingla 2011; Johnson-Webb 2002). We chose Houston, Texas to conduct surveys because it has an older migration stream comprised of mostly documented immigrants who received legal status during the Immigration Reform and Control Act of 1986.

---Insert table 1---

NSIT Survey Instrument

The survey collected information on family and friendship ties, employment and migration history, acculturation and emotional well-being, and communication frequency. The network questions were placed at the beginning of the survey, and took an average of 10 minutes to complete. We asked respondents to nominate network members who were eligible to be in the survey and to whom they could refer us. To maintain confidentiality and establish trust with participants, we collected data on only the first four letters of the first name and last name of the respondent's network members, along with key social and demographic information that network members were likely to know and which we could use for identification: nickname, gender, approximate age, occupation, and number of children living in the household. [i] In order to identify unique individuals in the resulting network data, we wrote a matching program in Stata that allows for a range of error in the demographic and name variables in determining whether two network nominations (from different interviews) represent the same person. We used the Levenshtein edit distance (the number of edits needed to match two strings, cf. Reif [2010]) to allow for reporting and coding errors in the first name, last name, and nickname. Hence, the

structure of these questions along with the statistical program we developed allowed us to construct binational social networks between origin and destination communities.

The North Carolina sample asked for up to 10 friends and 5 family members currently living in NC, up to 6 total family and friends currently living in the origin city in Mexico, and up to 5 returned migrants currently living in the origin. In both the Mexico and U.S. surveys, we asked for family members not living in the respondent's current residence. Each survey was developed to obtain an exhaustive list of network members in North Carolina, Houston, and Guanajuato to obtain a true picture of the transnational network. The Mexican-based survey asked respondents to name as many as 6 friends and family living in the research triangle in North Carolina and Houston, Texas. By collecting name data at the origin, we were able to create a list of Houston-based network members. All of the network surveys contained standard questions on migration patterns, employment history, social and cultural adaptation, frequency of communication, and birth outcomes for women. The network questions informed out sampling approach to be discussed in further detail in the next section.

Sampling process

Stage 1: North Carolina

The first step of the survey consisted of a snowball sample with immigrants in North Carolina in spring 2010. We began the US survey by interviewing 10 original "seeds" and asking them to nominate 5 family members and 10 friends currently residing in North Carolina (NC). The selection of these seeds was based on prior ethnographic fieldwork with this community. We also asked them to nominate as many as 6 additional family and friends living in Guanajuato and also 5 migrants who had returned to the origin community. We used this information to generate a list of Guanajuato "seeds" which we would use in second stage of the

study. After those who were nominated by the seeds were interviewed, we used the seeds' nominee's list of US friends and family to locate other network members. We then instructed trained interviewers to randomly select nominees who had not been located and interviewed. This sampling process continued until we exhausted the list of US network members that was generated or we could not locate participants.

Stage 2: Mexico

After one month of data collection in North Carolina, we randomly selected 17 family and friends from the NC list including non-migrants and return migrants to begin the Mexico portion of our study. The first stage of data collection in Mexico mirrored the first stage in NC, and used a snowball sampling approach based on the 17 randomly selected seeds (Level 1 nominators). Approximately 150 surveys were completed in this first stage of data collection in Mexico. The second stage of our sampling approach in Mexico is illustrated in Figure 2 and is a tree structure approach. Based on data collected from our 17 Mexican "seeds," community surveyors were instructed to use a dice to randomly select two of their friends (FR) and family (FA) members who had not yet been interviewed and attempted to collect data from these individuals listed in the seeds' social networks. Second, we selected one friend and one family member for Level 2 nominators (people who were nominated by the 17 seeds) and interviewed them.

----Insert Figure 1 about here---

Third, community surveyors once again used a dice to randomly chose either a friend or a family member for Level 3 nominators who had not yet been interviewed and interviewed these individuals. Thus, we sampled four levels and two *branches* (a friendship and family branch) for

each of the Mexican seeds (Level 1 nominators). Altogether, we collected a list of 21 network members for each and every randomly selected seed. This tree-structure approach illustrated in Figure 1 allowed us to investigate the multiple social network layers of the North Carolina, Houston, and Guanajuato social network. Thus, the network data that we gathered represents social ties across family and friendship ties connecting a broad range of migrant and non-migrants in origin and destination communities.

Stage 3: Mexico

In the Guanajuato-based survey, we asked Mexican respondents to name as many as six friends or family members residing in Houston, Texas. We used this data to identify network-based members who we then visited during the early part of 2011. We used three main seeds identified by Mexican participants to locate network members in Houston, Texas. In all, we conducted 50 surveys which identified a total of an additional 130 potential network members from the Guanajuato origin community.

Preliminary Findings on Networks from the NSIT

We conducted 561 interviews in North Carolina, Texas, and Guanajuato (see Table 1). For the study to be successful, we had to obtain name data from respondents' friends and family. In North Carolina, immigrants nominated an average of 21.2 friends and family on both sides of the border. In Houston, immigrants nominated only about 11.7 network members. The survey instrument we used in the US asked for up to 26 friend and family members. In Mexico, the average network size was 12.1. This difference may be reflective of the different instruments used in the US and Mexico and our US-based approach. We only asked for 18 friends and family in Mexico as opposed to 26 for the US sample since this two-stage approach initially relied on data collected in the US. Once the survey was completed, we found more than 8,000

overall nominations by network members on both sides of the border. We found that members of the Guanajuato, North Carolina, and Houston, Texas communities form a tight-knit community across international borders as illustrated by Figure 2. The green dots denote members in North Carolina, blue dots in Guanajuato, and black dots in Houston. Although members live distantly from each other, the social network picture reveals that people at origin and destination sites are socially integrated to one another. In forthcoming papers, we will examine how communication helps to sustain these links.

---Insert Figure 2 about here---

Although the respondents that we interviewed formed part of a hard-to-find population, we were successful in locating network members and mapping their social relations across international borders. In regard to data collection, we were successful on two fronts. First, we obtained a high response rate of 85% in the US and 97% in Mexico due in part to using a structured approach to data collection with community surveyors (Houston response rate not yet available). Second, respondents provided us with the most crucial and sensitive piece of information needed to continue the study: name data for friends and family stretching across international borders. That data allowed us to construct social networks across international borders. The key to successful implementation of the survey lie in the mixed methods approach we used to collect sensitive data for a hidden population. These aspects of our approach are discussed in more detail in the following section.

NSIT in Practice:

Preliminary Work informing the Study Design

The NSIT team is comprised of three demographers and one ethnographer with interests in social networks, labor markets, migration, and health. The two primary investigators originally began the project in August 2007 by conducting ethnographic observations among immigrants residing in the Research Triangle of North Carolina and then in Guanajuato, Mexico. We began our introduction into the community by conducting ethnographic observations in a day labor hiring site and apartments where immigrants lived. Informal interviews and observations in public places with many immigrants were conducted to identify the major migration streams to North Carolina. Participation in the community events such as birthday parties, weddings, sports events, and dinners with network members in North Carolina also informed our study design. During the summer of 2008, we extended our ethnographic observations to Mexico. On our first visit, we visited the family and friends of immigrants who we had established contacts with in North Carolina. The purpose of ethnographic observations was to document and identify migration streams from Guanajuato to North Carolina. Through this initial fieldwork in Mexico, we identified three main migration streams from Guanajuato to North Carolina, each of which had its own distinct migration history and network structure.

After approximately three years of ethnographic observations, we chose one transnational network to test the feasibility of conducting research with a transnational network. The Guanajuato-North Carolina network we selected was based on our familiarity with this specific migration stream and particularly the labor market history and tight network structure of this group. Through ethnographic work, we established contacts with community, religious, and business leaders, and families on both sides of the border. Additionally, whenever we met residents from the communities in our study, we introduced ourselves as sociologists and

explained to them that we were in the preliminary stages of developing a study that would examine transnational social connections.

Implementing survey data collection

Methodological studies on data collection with immigrants recommend using ethnographic observations to help inform quantitative studies and increase the rate of response (Stepick and Stepick 1990; Massey 1990). In our study, we initially used ethnographic observations to help identify the social ties between network members in North Carolina. Besides gaining the trust of the community, we also used ethnographic observations throughout the duration of the study to identify key contacts and community members that could help us to implement our survey. We worked closely with a community leader to identify a diverse pool of surveyors who could interview network members from all families including settled families and recent immigrants. With the help of the community leader and other network members, we identified immigrants who belonged to different families and could locate network members scattered throughout the Research Triangle in North Carolina and Guanajuato. We hired a total of 9 community members in North Carolina and 10 in Mexico and 3 in Houston.

Once we identified community members to conduct the study, the primary investigators held workshops in North Carolina, Texas, and Guanajuato in which community residents received training on ethics, informed consent, and the process of conducting research. Because of the sensitive nature of collecting network information, community members were instructed to always stress to participants that their *participation was voluntary* and that they could withdraw at any point. In North Carolina, participants received a raffle ticket for their participation in the

study. In Mexico, they received $50 pesos (roughly $4.50 cents). In the Houston study, we paid participants $10 dollars for their participation.

Methodological Benefits of Community Surveyors

Strategies for Locating Respondents

Some studies argue that well-known community members who have inside access to a "hidden population" can facilitate data collection and help improve the overall quality of findings (Deren et al 2005; Cornelius 1982). While studies suggest that members with inside knowledge can play an integral role in the research process, we know little about the methodological benefits of using community based members in the data collection process and in particular how it increases the data collection process. These studies suggest that using community members (i.e., priests, Spanish speaking merchants, public school teachers, or members of social service agencies) help gain access to immigrants, but other methodological benefits are not assessed. In our review of the literature, we could not locate any study which identified the methodological benefits of using actual network members themselves as data collectors. Therefore, this study provides one of the first attempts to explain the potential benefits of using network members.

In our study, we used network members to collect help locate network members. In North Carolina, the community that we studied was comprised of long-term settlers, circular migrants, and recent arrivals that were scattered throughout the Research Triangle of North Carolina. Nonetheless, the community surveyors knew where to find difficult to find network members in North Carolina by identifying key places. The surveyors in the study knew the home addresses and apartment complexes which housed large numbers of Mexican immigrants. In addition, they also knew the work locations and parties where network members congregated on a frequent basis. They visited these spaces in an effort to gain access to network members as we initially did when we first started working with this community. Because network members

knew the business owners, they were able to ask for permission to conduct interviews during their lunch breaks.

Network members were much more difficult to locate in Houston, the fourth largest city in the US. They were more difficult to locate because the network ties of Houstonians were more diverse and no longer encompassed only people from the origin community. This made it more difficult to find network members from the same origin community because they did not keep in contact with origin-based community members to the same level as North Carolina residents. Nonetheless, community surveyors drew on their social ties to help locate hard-to-find network members. During the data collection process in Houston, the main strategy employed by community surveyors consisted of talking to Mexican households to identify those who had family in Texas. Once they identified potential seeds in Texas, the community surveyors asked those people at the origin to directly contact Houstonians by phone to explain the purpose of the study and to also encourage participants who may otherwise decline participation.

In the origin community in Guanajuato, community members were especially helpful in locating the original 17 network member seeds during the first phase of the Mexico portion of the study. As noted earlier, to protect the confidentiality of research participants and their network roster, we only collected the first name, the first four letters of the last name, a nickname, and the age of the person who they nominated. Table 2 shows a partial list of the type of information that we took with us to Mexico for the second phase of the study. When we arrived in Mexico, we handed the list to community members we hired and trained to help us decode the information that we had obtained from North Carolina respondents. With the help of community members, we not only decoded the data but also located the friends and family of North Carolina immigrants in Guanajuato. This portion of implementing the survey entailed

extensive work. To locate the randomly selected 17 seeds in Mexico, we consulted local leaders as well as well-known community members, and also called immigrants in North Carolina for assistance in identifying people who could provide clues to locating network members.

---Insert Table 2 about here---

To locate network members, surveyors relied on and contacted family and friends on both sides of the border to help locate network members. In other words, the network data collection process was shaped by network structure and the information that flowed between immigrants and their friends and family ultimately helped to locate network members. From our focus groups with surveyors, we learned that they frequently communicated back and forth between Mexico, North Carolina, and Texas via text messages and by phone. One of our Mexican-based surveyors, for example, texted her husband in North Carolina to ask him to help decipher the names of the 17 network seeds that we arrived with initially in Mexico. When the husband received the text message, he provided her with the information requested when he could otherwise he too would contact other network members. When he did not have answers, he asked his co-workers or the extended family that he lived with for assistance in locating hard to reach network members. Additionally, the surveyors in Mexico also texted their family members in the United States asking them to put them in direct communication with a particular network member. Text messages, which were an inexpensive form of communication, were frequently used to communicate across the international border as a means of locating network members on both sides of the border.

Addressing missing or incomplete data

Another benefit that found from using community surveyors is that they provided direct assistance to research participants when they could not recall information about a person who they nominated in the questionnaire. For example, if a research participant knew the name of a friend but not their age, the community surveyor helped them ascertain the age of a person. These strategies included calling on other members of the household, providing data on the age if the data collector knew the age, or asking questions about schooling or other things that are useful to assess the age of a respondent.

When we conducted focus groups with the data collection teams in the U.S. and Mexico once the study had been completed, we learned how data collectors employed various techniques to help respondents complete the survey. Surveyors reported that sometimes respondents only reported the nicknames of their friends because that was the only way by which they knew certain individuals. In anticipation of this potential problem, we selected surveyors who had extensive knowledge about the social network in which the respondents were embedded. Thus, when they came across people who only provided the nickname of a person, the surveyor would help to provide missing data whether it be the "name" or "age" of the nominee as the following surveyor explained to us during one of our focus groups. When asked for the benefits of using network members, one respondent explains how she helped respondents during the data collection process.

> I would help them remember. In fact there were times when they only knew a person's nickname and they did not know the real names so I would help them to remember [the name] or I would help them with the age.

As we have seen data collectors played an intricate role in the data collection process, however, in conducting focus groups the transcripts revealed that one of the most important benefits of using network members was one of trust.

Strategies for Collecting Sensitive Data from a Vulnerable Population

Without the help of community members, we believe that the project would not have been feasible given that previous studies show that immigrants are often distrustful to participate in research studies because they fear that their participation could lead to detention and deportation (Parrado et al 2005). We currently live in an era of mass deportations in which Mexican immigrants are increasingly criminalized (Nevins 2010). Through our fieldwork, we found that this anti-immigrant climate at times instilled fear in the lives of immigrants and immigrant families. These respondents were cautious at times to initially participate in the study and to then provide network data for friends and families. They were fearful that participation in the study would result in that data could eventually be used to deport those friends or family members who were residing without documents in the United States.

Follow-up interviews and focus groups with study participants and data collectors revealed that fear was a common theme that people shared when they conducted surveys. When asked about her participation in the survey, one woman in Mexico at first thought, "I wonder what they want that information for?" When we asked her why she finally decided to participate in the study she commented, "Yes, at first I did not really want to participate because I said to myself, 'I hope they do not use that to round-up [immigrants] who are over there.' That is why I did not want to participate. But I had a lot of trust in Señora Ana [community surveyor]." Since community surveyors were embedded in these social networks, they were able to convey a sense of trust and confidentiality with respondents. One interviewer in North Carolina echoed the same sentiments; he found many people he interviewed initially felt uncomfortable providing name data. He commented, "(About the survey) there were people who had doubts about it.

They thought that maybe it was for the US government and that they would come and get them. However, when we explained to them that it was a study for the university with researchers we knew, then they changed their minds." This interviewer was able to convince the respondent to participate after they had explained that the survey was being conducted by two sociologists who had spent more than three years conducting ethnographic fieldwork in the origin community. Another surveyor also stated that she felt that many participants felt uneasy about participating in the study because "it has to do with the government. . . there has been so much discrimination with [immigrant] raids and all that." To ease the situation, she explained to her participants that the study's main purpose was academic and to understand how immigrants were connected to one another. Since this potential respondent knew the data collector and this surveyor was able to use a strategy to put the respondent at ease, the responded agreed to be interviewed and shared sensitive data.

Conducting a survey which gathered data from one participant was one thing but getting them to release the information of friends and family on both sides of the problem was particularly challenging especially in an era where immigrants are suspect of providing information that may compromise their status in the United States. Not surprisingly, we found that research participants felt uneasy about releasing the names of friends and relatives. One of our community surveyor based in Mexico commented that an interviewee told her, "I was really scared to tell you the name of my son because he is in North Carolina." The woman later explained that she was scared to release the information because her son was living without legal documents in the United States and feared that by releasing information about his presence, he could ultimately be deported. Even though fear was a common theme that emerged, people continued to participate as they knew the surveyors had gained the trust of participants. One

Mexican resident with family in North Carolina explained to us that he did not only feel comfortable being interviewed, but also called his friends and family in the US before the survey arrived so they would feel comfortable and participate in the study. The reason why this particular respondent participated in the study was because he had known one of the female surveyors since she was 6 years old. Moreover, we found that potential respondents felt more comfortable providing the names of friends and relatives because they too recognized that the surveyors themselves also had family members in the United States and would not compromise them in anyway. Migrants have long used social network ties to gain access to knowledge, assistance, and resources which facilitate their international migration. However, networks by themselves provide few benefits unless social ties can be transformed into concrete resources which can help to facilitate some action (Aguilera and Massey 2003; Coleman 1988). In our case, we found that migrants used their network ties as resources to reinforce trust and cooperation during the data collection process.

Conclusion

Although the literature has established that social ties play an important role in the migration process, little is actually known about the social structure of networks across international borders. In this paper, we have presented two innovations for collecting data with a hidden population of Mexican immigrants in the Research Triangle of North Carolina, Houston, Texas, and Guanajuato, Mexico. To map the social networks of immigrants spanning these three research sites, we collected the first name and last name of respondent's network members along with key social and demographic information. Using a matching program in Stata that identifies the range of error in demographic and name variables in differentiating names, we were able to

locate and construct a social network structure connecting an origin and destination communities.

Three main methodological benefits emerged by using network members as surveyors. First, network members help overcome the "needle in the haystack" problem by drawing on the benefits of the network structure to locate members. In this particular situation, community surveyors relied on other network members to help locate network members using multiple strategies. Second, some community surveyors were able to provide missing data when respondents did not have complete demographic information about a particular nominee. Finally, community surveyors were also important because they had obtained trust from network members which facilitated the process of collecting sensitive information. This aspect of our data collection strategy was crucial since some respondents felt uneasy about releasing the names of friend and relatives living abroad not knowing what the legal ramifications of releasing such information.

In closing, we want to emphasize how combining a focus on community and structure was essential to getting our pilot study off of the ground and then implemented across three diverse study locations. Our experience showed that community surveyors played a critical role in helping to locate network members, tackling issues of fear associated with collecting data from a vulnerable population, and ultimately contributing to obtaining complete network data from respondents. By applying a mixed methods approach to binational social network data collection, we were able to successfully implement the Network Survey of Immigrant Transnationalism. Next steps include developing more substantive aspects of the research and conducting a thorough evaluation of the method through a more intensive mixed methods approach.

References

Abdul-Quader, A.S., D.D. Heckathorn, K. Sabin, and T. Saidel. 2006. "Impementation and Analysis of Respondent Driven Sampling: Lessons Learned from the Field." *Journal of Urban Health: Bulletin of the New York Academy of Medicine* 83(7):1-5.

Aguilera, M.B. 2003. "The Impact of the Worker: How Social Capital and Human Capital Influence the Job Tenure of Formerly Undocumented Mexican Immigrants." *Sociological Inquiry* 73(1):52-83.

Aguilera, M.B.and D.S. Massey. 2003. "Social Capital and the Wages of Mexican Migrants: New Hypotheses and Tests." *Social Forces* 82(2):671-701.

Axinn, W.G.and L.D. Pearce. 2006. *Mixed Method Data Collection*. Cambridge: Cambridge University Press.

Bernardi, L. 2011. "A Mixed-Methods Social Networks Study Design for Research on Transnational Families." *Journal of Marriage and Family* 73:788-803.

Bernardi, L., S. Keim, and H. von der Lippe. 2007. "Social Influences on Fertility: A Comparative Mixed Methods Study in Eastern and Western Germany." *Journal of Mixed Methods* 1(23):23-47.

Boyd, M. 1989. "Family and Personal Networks in International Migration." *International Migration Review* 23(3):638-670.

Coleman, J.S. 1988. "Social Capital in the Creation of Human Capital." *American Journal of Sociology* 94:S95-S120.

Cornelius, W.A. 1982. "Interviewing Undocumented Immigrants: Methodological Reflections Based on Fieldwork in Mexico and the U.S." *International Migration Review* 16(2):378-411.

Deren, S., M. Shedlin, C.U. Decena, and M. Mino. 2005. "Research Challenges to the Study of HIV/AIDS Among Migrant and Immigrant Hispanic Population in the United States." *Journal of Urban Health: Bulletin of the New York Academy of Medicine* 82(2):13-25.

Donato, K., B. Wagner, and E. Patterson. 2008. "The Cat and Mouse Game at the Mexico-U.S. Border: Gendered Patterns and Recent Shifts." *International Migration Review* 42(2):330-359.

Durand, J., D.S. Massey, and C. Capoferro. 2005. "The New Geography of Mexican Immigration." Pp. 1-20 in *New Destinations: Mexican Immigration in the United States*, edited by V. Zúñiga and R. Hernández-León. New York: Russell Sage Foundation.

Entwisle, B., A.M. Verdery, R.R. Rindfuss, and K. Faust. 2010. "Social Networks and Migration: A View from Places of Origin." Paper in review, Department of Sociology, University of North Carolina at Chapel Hill

Hagan, J., N. Lowe, and C. Quingla. 2011. "SKills on the Move: Rethinking the Relationship between Human Capital and Immigrant Economic Mobility." *Work and Occupations* 38(2):149-178.

Heckathorn, D.D. 1993. "Collective Action and Group Heterogeneity: Voluntary Provision Versus Selective Incentives." *American Sociological Review* 58:329-350.

Heckathorn, D.D. 1997. "Respondent-Driven Sampling: A New Approach to the Study of Hidden Populations." *Social Problems* 44(2):174-199.

Jampaklay, A., K. Korinek, and B. Entwisle. 2007. "Residential Clustering among Nang Rong Migrants in Urban Settings of Thailand." *Asia and Pacific Migration Journal* 16(4):485-510.

Johnson-Webb, K.D. 2002. "Employer Recruitment and Hispanic Labor Migration: North Carolina Urban Areas at the End of the Millennium." *The Professional Geographer* 54(3):406-421.

Korinek, K., B. Entwisle, and A. Jampaklay. 2005. "Through Thick and Thin: Layers of Social Ties and Urban Settlement Among Thai Migrants." *American Sociological Review* 70(5):779-800.

Massey, D.S. 1987. "The Ethnosurvey in Theory and Practice." *International Migration Review* 21(4):1498-1522.

Massey, D.S. 1990. "Social Structure, Household Strategies, and the Cumulative Causation of Migration." *Population Index* 56(1):3-26.

Massey, D.S.and K.E. Espinosa. 1997. "What's Driving Mexico-U.S. Migration? A Theoretical, Empirical, and Policy Analysis." *The American Journal of Sociology* 102(4):939-999.

Massey, D.S.and R. Zenteno. 2000. "A Validation of the Ethnosurvey: The Case of Mexico-U.S.-Migration." *International Migration Review* 34(3):766-793.

Mills, M.B. 1999. *Thai Women in the Global Labor Force: Consuming Desires, Contested Selves*. Bangkok: Chaunpim Pres.

Nevins, J. 2010. *Operation Gatekeeper and Beyond: The War on "Illegals" and the Remaking of the U.S.-Mexico Boundary*. New York and London: Routledge.

Parrado, E.A., C. McQuiston, and C. Flippen. 2005. "Participatory Survey Research: Integrating Community Collaboration and Quantitative Methods for the Study of Gender and HIV Risk Among Hispanic Migrants." *Sociological Methods and Research* 34:204-239.

Pew-Hispanic-Center. 2007. "Construction Jobs Expand for Latinos Despite Slump in Housing Market." Fact Sheet, March 7, 2007. http://pewhispanic.org/files/factsheets/28.pdf.

Rindfuss, R.R., A. Jampaklay, B. Entwisle, Y. Sawangdee, K. Faust, and P. Prasartkul. 2004. "The Collection and Analysis of Social Network Data in Nan Rong, Thailand." Pp. 175-200 in

Network Epidemiology: A Handbook for Survey Design and Data Collection, edited by M. Morris. Oxford: Oxford University Press.

Singer, A.and D.S. Massey. 1998. "The Social Process of Undocumented Border Crossing among Mexican Migrants." *International Migration Review* 32(3):561-592.

Stepick, A.and C.D. Stepick. 1990. "People in the Shadows: Survey Research among Haitians in Miami." *Human Organization* 49(1):64-77.

Figure 1: Selection of Friend and Family Members in Mexico

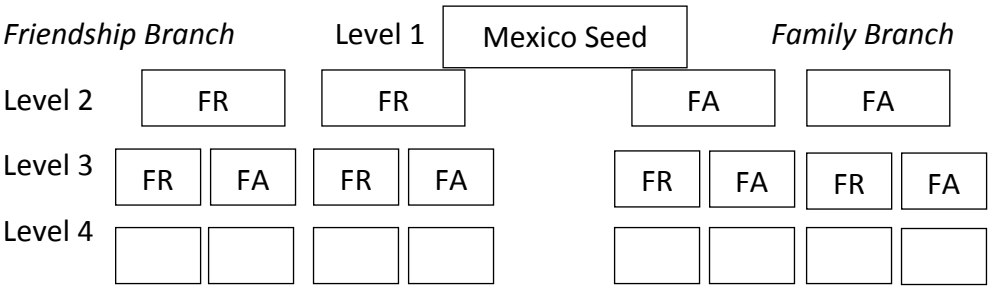
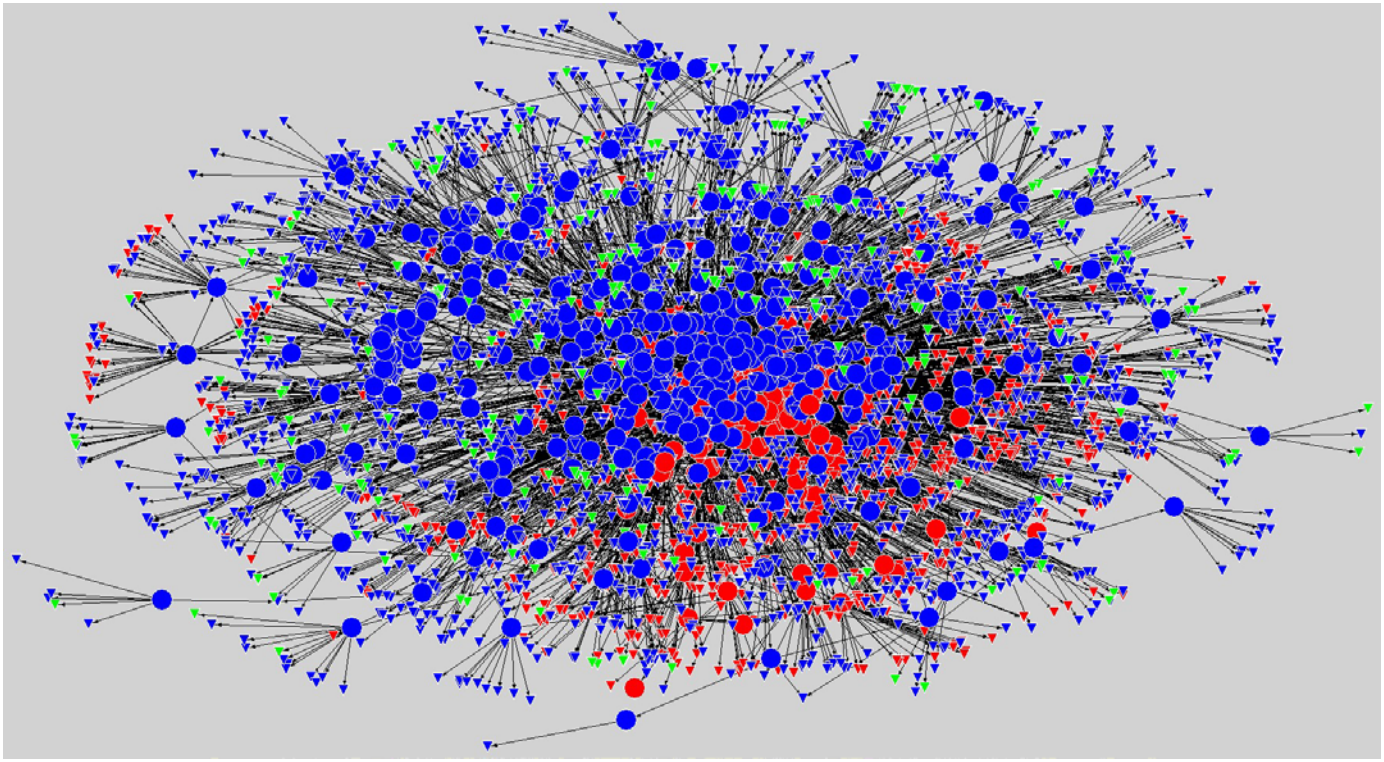


Figure 2: The binational network of sampled and nominated individuals in the 2010 Network Survey of Immigrant Transnationalism.



Notes: Red nodes are located in North Carolina, green nodes are located in Houston, and blue nodes are located in Mexico. Large circles indicate interviewed cases, and small triangles indicate nominated but not interviewed cases.

Table 1: Select descriptive statistics for NSIT respondents

Location	n	Mean Age	(SD)	% Female	Mean Arrival Year in US	(SD)2
North Carolina	121	35.1	(12.5)	44.5%	1998	(7.2)
Houston	50	40.3	(12.9)	57.1%	1986	(9.8)
Mexico	390	40.2	(19.5)	55.7%	-	-

Table 2: Network Roster

First name	Last name	Nickname	Age
Alma		Flaca	28
Martin	Visc	“The Cat”	45
Adela	Delg		42
Elivira			34