An Analysis of Core Networks among First-Generation Immigrants

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Abstract

Examining core networks has implications for the ability of first-generation immigrants to build social capital and engage in upward mobility in future generations. Using data from the Greater Boston Social Survey, I examine core networks of Puerto Rican and Dominican immigrants to find determinants of having a non-household centered core network, its size, and racial diversity. Ethnicity, organizational membership, and having medium skin tone all had positive effects on core network size. Puerto Ricans fared better in terms of having a core network as well as racial heterogeneity in their networks. Education was an important determinant of network size and diversity for Dominican immigrants. Overall, organizational membership increased the likelihood of having a more racially diverse core network.

Introduction

In this paper, I use social network analysis to investigate the core networks of first-generation Puerto Rican and Dominican immigrants in the Greater Boston Area. More specifically, I examine the potential determinants of having a core network as well as the size and racial diversity of these core networks. By understanding the impact of education, ethnicity, gender, organizational membership, and skin tone on core networks, this paper aims to contribute to the immigration literature by evaluating which individual-level attributes affect the ability of first-generation immigrants to establish networks of people that they can rely on and, hence, their potential to build social capital.

Literature Review

Background on Puerto Ricans and Dominicans

According to the 2000 Census, there are over 3.4 million Puerto Ricans and 800,000 Dominicans living in the U.S. Of these, over 135,000 Puerto Ricans and 53,000 Dominicans live in the Boston area[1.] However, due to the large number of Dominicans in irregular status, their official numbers are most likely underestimated.

Puerto Ricans were the first Latinos to immigrate into New England in significant numbers. In the 1940's, the Migration Division of the Department of Labor of the Commonwealth of Puerto Rico and the Massachusetts Department of Employment Security worked together to recruit Puerto Rican farm laborers to work in agriculture near Boston (Levitt 2001; Uriarte 1992). After the growing season, Puerto Ricans would relocate to the city in search of factory employment and began to settle in Boston's South End. This continued until the

[1] The Boston Area includes the Boston, Lawrence, and Salem Metropolitan Statistical areas and includes cities such as **Worcester, Lawrence, Lowell, Cambridge, Brockton, Waltham and many others in the surrounding areas in Massachusetts.**

1960's when urban renewal and gentrification pushed Latinos into other neighborhoods (Levitt 2001). By 1970, many Puerto Ricans were living in poverty, were not steadily employed, and had a high percentage of households headed by single unmarried women (Small 2004). Unlike some immigrant groups, Puerto Ricans did not develop a job-generating entrepreneurial community (Portes and Truelove 1987).

The first wave of Dominicans into Boston were political refugees that trickled into Boston's Jamaica Plain neighborhood during the period of urban renewal in the 1960's (Levitt 2001). Large-scale migration to the mainland was encouraged through economic development strategies pursued by the U.S. and the Dominican Republic, including import-substitution in the 1970's (Levitt 2001).

The decline of the manufacturing sector disproportionately affected Latinos, with most Puerto Ricans and Dominicans not fairing well in the high tech boom of the 1980's and 1990's (Gilberston and Singer 2003; Levitt 2001). Today, the settlement of first and second waves of Dominican immigrants are still characterized by labor market incorporation into low-paying manufacturing or service jobs (Gilberston and Singer 2003).

Puerto Ricans and Dominicans have similar ethnic backgrounds insofar as they both come from the Spanish-speaking Caribbean and have cultural heritages that are a blend of Spanish, African, and to a smaller extent, indigenous Taíno ancestry. Both groups also have similar experiences with being racialized in the U.S. (Freeman 1999). However, these two ethnic groups have different legal relationships to the U.S. Since Puerto Rico is a U.S. commonwealth, migrants from Puerto Rico are U.S. citizens, facilitating migration to and from the mainland. This is in contrast to the Dominicans who have to deal with issues of immigration status and frequently come to the U.S. undocumented (Bean and Tienda 1987). In fact, data from the 2000 Census demonstrate that 63% of foreign-born Dominicans living in the U.S. are not naturalized. This is possibly due to the proximity of their home country, the ease of transportation from there (Gilberston and Singer 2003), and the growth of transnational ties (Levitt 2001).

Social Network of Immigrants

Social networks are the "sets of recurrent associations between groups of people linked by occupational, familial, cultural, or affective ties (Portes 1995)." For immigrants, the analysis of social networks has revealed how integral they are to the decision to migrate, the place of destination (Boyd 1989), finding housing and employment (MacDonald and MacDonald 1964), and the economic action of immigrants in the host country (Granovetter 1995; Portes and Sensenbrenner 1993). This includes providing immigrants with capital for starting entrepreneurial endeavors (Portes and Sensenbrenner 1993). Hence, being embedded in networks is crucial in obtaining "resources by virtue of…membership" in an immigrant community (Portes 1995).

This ability to draw on the resources of network members is social capital. It is a product of the dense structural relations between people (Coleman 1988). If not for the social capital embedded in the relationships among network members, these same benefits would be unavailable to immigrants or would come at a high cost from non-network members. In the lives of immigrants, social capital is a means of social control, family support, and a way to receive benefits from outside of the immediate family (Portes 1998). Social networks can also constrain the behavior of second-generation immigrants, enabling them to become upwardly mobile in the future (Fernandez-Kelly and Schauffler 1996; Zhou and Bankston III 1998).

In his theory of "weak ties," Grannovetter argues that it is not strong social ties that are the most useful in accessing resources and gaining social mobility; instead weak ties are more important in that they acts as bridges between people in a social network (Granovetter 1983). Implicit in this theory is the idea that weak ties and hence, sparse networks, act as a source of social capital. However, most of the empirical literature on U.S. immigration does not support Grannovetter's perspective. Instead, immigrant communities validate Coleman's notion that dense networks act as resources necessary to create social capital (Coleman 1988; Portes 1998).

Segmented assimilation theory problematizes the notion that upward mobility and mainstream assimilation go hand in hand (Portes and Zhou 1992). They demonstrate another trajectory in which second-generation immigrants experience upward mobility by drawing on the dense networks of the immigrant community and utilizing its resources (Gans 1992; Portes and Zhou 1992). The relative success of Cubans in Miami (Portes 1995) and the Vietnamese in New Orleans (Zhou and Bankston III 1998) have established that networks rich in social capital can lead to upward social mobility among second generation immigrants as well as ease their entry into mainstream society.

In 1989, Boyd lamented the lack of rigorous use of network analysis in migration studies (Boyd 1989). Since then, several authors have examined the networks of second-generation immigrant youth, mostly focusing on the enumeration of co-ethnic friends (Fernandez-Kelly and Schauffler 1996; Portes 1995; Zhou and Bankston III 1998). However, a social network analysis among first-generation immigrants has been largely neglected. Since these are the networks, for the most part, that enable social mobility in the second-generation, it is important to understand the individual characteristics of immigrants that enable them to build these networks and the social capital that their offspring can draw on.

Dominicans and Puerto Ricans are two immigrant groups that are disproportionately below the poverty line (Hidalgo 1997). Hence, understanding the survival strategies of people coping with poverty can shed light on the possible importance of social networks for both groups. In general, families coping with poverty often undergo a variety of survival strategies that employ social networks. They may often enter into exchanges of reciprocal gift-giving with members of their communities (Stack 1974). They also tend to learn about supplementary jobs through their networks and even receive money through community groups, local charities, and even directly from people in their social networks (Edin and Lein 1997). The social capital embedded in these ties can also provide access to the structures and social support that are often not available in poorer neighborhoods where many immigrants tend to dwell (Hidalgo 1997).

Evidence of these strategies exists in the few studies that investigate the networks of Dominicans and Puerto Ricans. In one Dominican community, members had intensive interactions with nuclear and extended family members, facilitating patch-work survival strategies such as co-residence and income-pooling (Gilberston and Singer 2003). In a Boston study of Puerto Ricans, social networks provided a buffer between the violent community in which they lived and the well-being of their families (Hidalgo 1997). Hence, an analysis of the presence and size of the social networks of these two immigrant groups has implications for understanding their access to social capital, how it helps them survive, and the possibility for social mobility in subsequent generations.

Unlike other types of social networks, core networks tend to have strong and homophilous, high-density ties; these are network traits that are important in receiving routine transactions of support (Hurlbert, Haines and Beggs 2000; Marsden 1987). Given many immigrants dependency on dense networks to create social capital, core networks are important type of social network to examine. Analyzing whether these immigrants have a core network gives an idea of whether they have a strong support group at their disposal. The more people that are in these groups, the more people they can rely on in times of trouble and the more opportunities to build and draw on social capital.

Particularly for members of disadvantaged minority groups, having large and racially diverse social networks can be associated with a variety of positive outcomes. For example, large social networks can have a positive effect on physical well-being; it is related to knowledge of and participation in health screenings to prevent different types of cancer (Suarez et al. 2000). However, these results also demonstrated that this outcome varied with the ethnic background of the respondents (Suarez et al. 2000). A network analysis of several corporate settings revealed that having racially diverse networks was a characteristic of the “high-potential” minority employees, in contrast to their white counterparts (Ibarra 1995). Also, given ongoing racial segregation in the U.S., having a racially diverse core network could lead to variety in the type of

information available to an individual. Hence, having a core network that is racially diverse is a desirable aspect of an individual's social network.

Although structural qualities (such as neighborhood characteristics) may influence core networks, I have decided to focus on individual-level traits that affect network outcomes. This is not an erroneous assumption to make, since prior research demonstrated that network range tends to be patterned by respondent characteristics (Marsden 1987). In this investigation, I not only attempt to explain the presence and size of core networks, but also the extent of racial diversity among the alters (network members) through individual characteristics.

Schools are one of the few types of institutions in which most people from a very young age have the potential to meet and establish relationships with a large number of people everyday. Since individuals probably come into contact with these alters several times a week, schools create the potential for building strong, dense networks. The longer that a person is integrated into a school system, the more opportunities they have to establish new ties with people. Schools very often also allow people to come into contact with a variety of people they might not have known otherwise, especially in larger school settings, For this reason, I expect that years of education will be positively related to whether or not a person has a core network, the size of the network, and he racial diversity of the network. Previous research gives support to this hypothesis; higher levels of education has proven to be a robust indicator of having larger, more diverse networks as well as being influential overall in terms of network characteristics (Marsden 1987; Moore 1990).

In the case of Puerto Ricans and Dominicans, the two Latino immigrant groups under examination here, Puerto Ricans have a longer history of living in Boston as well as a longer history of community-building and organizing. This history may allow recent immigrants from Puerto Rico to tap into already existing networks both inside and outside of the community that would give them more exposure to potential alters than Dominicans would have. Furthermore, social networks may have different characteristics depending on the background of the ethnic

group (Fernandez-Kelly and Schauffler 1996; Portes and Sensenbrenner 1993; Zhou and Bankston III 1998). For these reasons, I expect that ethnicity will have an effect on core network characteristics with Puerto Ricans being more likely to have core networks as well as have core networks that are larger and more racially diverse.

Women often have to work a double shift, both working outside of the home as well as managing the household. This double shift probably limits women's ability to foster non-familial relationships with people outside of their household. On the other hand, men would probably have more opportunities to meet new people and reinforce existing relationships with people that they meet outside of the home. In a Houston study of Maya immigrants, , the isolated nature of Maya women's work as domestics hindered the development of social ties whereas the men's workplace facilitated the building of social networks (Hagan 1998). In another study, the composition of men's and women's networks were different with men's tending to be more focused on non-kin and women's networks being comprised predominantly of kin and neighbors (Moore 1990). Hence, in the case of Dominicans and Puerto Ricans, gender may have an influence on core networks of Latino immigrants with males being rewarded with more ties than their female counterparts for spending less time in the home.

Being a member of an organization expands the number of people that an immigrant may not have known otherwise. By attending organizational meetings or activities, people have opportunities to meet others with similar interests and outlooks on life. Empirical work indeed demonstrates that Puerto Ricans in Boston use churches as a part of their support systems (Delgado and Rivera 1997). Also, participation in recreational associations is understood to promote having larger social networks (Menjivar 2000). Hence, there is strong evidence to suggest that being a member of an organization may impact the core networks of the two groups under study.

One of the reasons this investigation is novel is that it incorporates empirical observations of skin tone with social networks to determine its possible effect on core network characteristics.

Darker-skinned Puerto Rican and Dominican immigrant may frequently experience U.S.-style negrophobia in which non-blacks avoid social situations with those perceived as Black. Hence, I expect that in comparison to lighter-skinned Latinos, having medium or dark-skin will have a negative effect on core network characteristics. A number of studies have already assessed the influence of skin tone on life chances, showing that having darker skin was associated with lower earnings (Telles and Murguia 1992) and lower occupational status among Mexicans and Cubans (Espino and Franz 2002). Overall, having darker skin and a non-European phenotype has been linked to lower life chances for blacks and Latinos (Arce, Murguia and Frisbie 1987; Gómez 2000; Hughes and Hertel 1990; Keith and Herring 1991; Telles and Murguia 1992). Therefore there is reason to believe that skin color may be related to a perceived truncation in network size and racial diversity.

In sum, my first hypothesis is that I expect that the individual characteristics of years of education, ethnicity, gender, organizational membership, and skin tone will influence whether or not a respondent has a core network. More specifically, *a higher level of education, being Puerto Rican, being male, being a member of an organization and having lighter skin will predict having a core network.* In reference to the two ethnic groups I am investigating, I expect that *the effects of education, organizational membership, and skin tone on having a core network will vary across the two ethnic groups.* Thirdly, I expect that *higher levels of education, being of Puerto Rican ethnicity, male, a member of an organization, and light skin tone will be associated with having a larger network size*. Finally, my fourth hypothesis is *that these factors will also lead to having a racially diverse core network.*

Data and Methods

Data

Part of the reason that there have been few network analysis studies among Puerto Ricans and Dominicans is the lack of data. There are few surveys with adequate minority populations for drawing conclusions that are statistically significant and even fewer that collect data on social networks. The Greater Boston Social Survey (GBSS) is one of the rare household surveys that accomplishes both tasks. It was conducted in 1993 and 1994 and is one component of The Multi-City Study of Urban Inequality (MCSUI), a four-city (Atlanta, Boston, LA, and Detroit) investigation of racial attitudes, residential patterns, and labor market participation among Blacks, Whites, and Latinos (Bluestone and Stevenson 2000). Although the data are dated, it is a valuable resource for studies on minority groups since it used a stratified sampling procedure based on census block data and over-sampled people from poor and minority communities. The questionnaire also asked respondents about their core networks. Interviews with Latinos were conducted either in Spanish or in English, depending on the preference of the respondent.

In order to determine the characteristics of the immigrant's core network, the interviewer used the following name generator: *"From time to time, most people discuss important matters with other people. Looking back over the last six months-- who are the people, other than people living in your household*[2]*, with whom you discussed matters important to you?"* If the person mentioned less than 3 people, the interviewer probed further by asking *"Anyone else?"* Questions on core networks were restricted to those in the sample under age 65 and the person was allowed to respond with a maximum of three alters. The survey gathered information about each alter, including their race and ethnicity.

While the limit of three alters on the name generator appears to constrain the elicitation of responses, in a study using data from the 1985 GSS, three alters was both the modal and mean response among the respondents, including both kin and non-kin alters (Marsden 1987). In the MCSUI data, the people that the respondent named as network members could only live outside

[2] In order to determine who comprises the household, the interviewer asked *"To help us understand your living situation, I would like to make a list of persons who usually live here. Please include the adults as well as the children. Let's start with you, then continue with the other adults, then the children."*

of the household. Hence, the network question probably elicited fewer family members as alters in the core network than if it had included household members as possible network alters. This hypothesis is supported by the fact that over 50% of the people in the sample did not name any alters in their core network (see Table 1).

Dependent Variables

In the measures for the dependent variables, I used dummy variables to code whether a respondent had a core network or not. If they were able to name one or more alters in their network, they were coded as 1 and if they were unable to name anyone, they were coded as 0. The size of the core network was calculated by enumerating the people that each respondent named as an alter in their core network. In order to measure whether or not the people in my sample had a non-Hispanic Black or non-Hispanic White alter, I created a dummy variable for whether one of the three alters was a non-Hispanic Black or White person[3]. When I solely looked at having Black alters, I created a dummy variable for whether either of the three alters was a black person. The variable was coded as 1 if they had a Black alter. I then coded having a separate White alter the same way. To determine whether the ego respondent had both black and white alters, I created a dummy variable for whether there was at least one Black **and** one White person in the network.

Independent Variables

My main independent variables of interest are education, ethnicity, gender, organizational membership, and skin tone. Education was measured by the highest year of schooling completed, ranging from zero to seventeen. Gender and ethnicity were dichotomous variables with female

[3] The options for race of alter were "White, Non-Hispanic," "Black/African-American," "Hispanic," "Asian," and "Other." There were very few respondents who identified Asians and people classified as Other in their network (together, .6% of the cases). Hence, I limit this part of the analysis to those having non-Hispanic Black or White alters, excluding respondents with alters who were identified as Asian and Other.

and Puerto Ricans as the respective reference categories. The GBSS asked respondents if they were members of several organizations[4], with membership coded as 1 and non-membership as 0. For the purpose of this investigation, I created a dummy variable for organizational membership with any organizational affiliation coded as 1 and 0 otherwise. Skin tone was perceived and coded by the interviewer in terms of dark, medium, and light.[5] For this analysis, I created three dummy variables, one for each category of skin tone.

This investigation is concerned with the personal characteristics of respondents that influence their core networks. Hence, in an effort to prevent some of the non-personal attributes from occluding the effects of years of education, being a member of an organization, and gender on social networks, I controlled for the family income of the respondent, the number of years the respondent had lived in the U.S., and the number of adults living in the household.

For this analysis, it is unclear in which direction the causality runs between family income and core network characteristics. If a person has more people in their social network, they would probably have more access to job opportunities which may lead to a higher income. If a person has a higher income, they may be more self-sufficient and hence not need to draw on the resources of their network members, leading to a smaller network outside of their household. It was also for this reason that I controlled for family income in the models.

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4 The organizations that were considered were tenant groups, business and professional organizations, PTA/school groups, social club or sports teams, political organizations, church-related groups, ethnic and cultural organizations.

[5] While the data included a variable on the respondent's own racial identity, I've decided to rely on the interviewer's trained perception. First of all, a discrepancy exists between the ways that immigrants from the Spanish-speaking Caribbean view themselves and how they are perceived in the U.S. in terms of race and skin tone. In addition, a Latin American's self-perception changes with extended exposure to U.S. norms of race. Finally, repercussions due to skin color are contingent on the perception of others. Hence, interviewer observation was really the most reliable basis for measurement of skin color. For more discussion on Dominicans, see Duany, Jorge. 1996. "Transnational Migration from the Dominican Republic: The Cultural Redefinition of Racial Identity." *Caribbean Studies* 29:253-282. For discussion on racial identity among Puerto Ricans, see Falcón, Angelo. 1995. "Puerto Ricans and the Politics of Racial Identity." in *Racial and Ethnic Identity: Psychological Development and Creative Expression*, edited by Herbert Harris, Howard C. Blue, and Ezra E. H. Griffith. New York: Routledge.

Family income was initially measured in intervals of $5,000 until $80,000. I recoded the family income variable to $10,000 increments and used the midpoint for each interval for the new variable. Hence, those with a family income of up to $9,999 was recoded as having a family income of $5,000 and people with a family income interval of $10,000 to $19,999 were recoded as having a family income of $15,000, etc. The few respondents with an income of over $80,000 were top-coded at $80,000.

In order to calculate the years that the respondent had spent in the U.S., I created a new variable that subtracts the respondent's year of entry from the year that the GBSS was completed (1994). I also controlled for the number of years that a person lived in the U.S. because spending more time on the mainland would lead to more chances to join organizations and more opportunities to expand their social network in general.

I control for the number of adults in the household for several reasons. When the respondents were asked about their core network, they were not allowed to include household members. Consequently, the number of adults in the household should not directly affect their core networks. However, Latinos in the U.S. tend to have households that are slightly larger, depending on the country of origin (Bean and Tienda 1987). Hence, having more adults in their household with whom they discuss important matters may create a downward bias in their network size. On the other hand, respondents may be connected to alters in their core network through the adult members of their household (with the relationship between the household member and the network alter acting as a bridge to the respondent). This would lead to a possible upward bias in network size not accounted for in the individual level characteristics of the immigrant. Since the direction of causality between core networks and the number of adults in the household is questionable, I include this as a control variable in the analysis. Due to the slight difference in households between Hispanics and non-Hispanics, controlling for this factor will enable future comparisons with other racial/ethnic groups.

The number of adults in the household size was derived by summing the number of adults that the respondents gave demographic information on in the survey. The maximum number of adults for which the respondent could answer questions was 3, so the variable was coded as numbers from 0 to 3.

Missing Cases

Missing cases amounted to 8% of the sample. I used a variety of methods to account for the missing data, depending on the nature of the variable and other responses of the survey participants. These included recoding the missing values to the mean as well as introducing a dummy variable into the model to account for the cases with and without missing values.

In the data, family income had the most missing cases. The majority of the cases (72%) were people who had responded that they did not know what their family income was while the remaining 28% of the respondents refused to give that information. Upon closer inspection of the data, I found that almost half of the respondents who were missing family income information were unemployed (40% respondents) whereas another 28% were homemakers. The remaining 32% of respondents who had family income missing included mostly part-time workers, permanently disabled, and a few full-time workers.

In order to correct for missing family income data, I contingently recoded the missing values to the midpoint of the mean interval for those who were not employed but had income information. The respondent who were not missing family income information but were not employed had a mean family income of $8,093.46. Hence, I recoded the missing values as $5000, the midpoint for that income bracket. I then included a missing value dummy variable in the model with those respondents who were missing family income information coded as 1 and those who had family income information coded as 0.

Another variable with several missing cases was the control variable for years that a respondent had lived in the U.S. Most of the respondents who had this information had a low

level of English-speaking ability and had their interviews conducted in Spanish. Most of the respondents said that they were not born in the U.S., yet when asked where their mother was living when they were born, they provided the name of a U.S. state where the mother had been living. At the same time, when asked where they lived most of their life before they were 16, their responses were outside of the mainland U.S. There was a discrepancy between their responses, leading me to believe that a variety of situations may have been the case. First of all, the respondents' mothers may have resided in the U.S. while they were pregnant, but decided to give birth to the respondent in Puerto Rico or the Dominican Republic. Another scenario may have been that there was a problem of translating the interview questionnaire or that there was a mistake with the coding.

Similar to the problem of missing data on the family income variable, I coded the respondents with the average length of time the sample had lived in the U.S. and included a dummy variable in the model to account for the recoding. For the few respondents who were missing values on the skin color variable (1.2% of the sample), I dropped them from the analysis. Finally, for the respondents who were missing values on the member of an organization variable, I simply recoded them as non-members. I assumed that the reason that they did not have a value for being a member of the aforementioned organizations was because they did not participate in any of them.

Methods

I use Binary Logistic Regression to examine whether or not the immigrants have a core network. For the regressions, I omitted the *lightskin* variable, which serves as the reference category, from the equation. Hence, the effects of having medium and dark skin tone are in relation to having lighter skin.

I also used Logistic Regression for my second hypothesis concerning how the education, organizational membership, and skin tone on having a core network would vary with ethnicity. I

pooled the Puerto Rican and Dominican samples and fit several models, each containing a different interaction variable. For example, in the first of these models, along with all of the other variables of my analysis, I included an interaction term for education to vary with ethnicity. I did the same for the interaction with organizational membership and skin tone. I then tested the significance of these interactions using a Wald test to determine which model was the best.

My third hypothesis explores how the size of a person's network is affected by my independent variables. One of the main assumptions of the multiple regression model is that the error terms are normally distributed. Since the respondents could only name up to three alters in their core network, it would be erroneous to attempt to predict network size using a regression model based on ordinary least squares since the outcome variable is not linear. My outcome variable— the number of alters—is not a continuous variable, but rather a count variable. Hence, it requires the use of a count-based model. For these reasons, I used Negative Binomial Regression, a method based on maximum likelihood, to measure the influence of the independent and control variables on network size. Unlike other count-based models (such as a Poisson Regression), the Negative Binomial Regression does not underestimate the amount of dispersion in the outcome category. I then calculate the predicted probabilities for the dependent variable when ethnicity is coded 1 for Puerto Rican and 2 for Dominican and the other variables are held constant at their mean.[6]

In examining racial diversity in network alters, I conducted a multinomial logit regression to evaluate whether the ego's (respondent's) core network includes only Hispanic alters, at least one non-Hispanic black alter, at least one non-Hispanic white alter, or both non-

[6] I could have feasibly conducted a tobit regression with right hand censoring or an ordinal logit regression since the outcome variable is truncated at 3. I did both in order to compare results and had the same results as when I used the negative binomial regression. I decided to use the negative binomial regression for this analysis since it is easier to interpret than the other two methods. I also decided not to use a tobit regression with left hand censoring since my control variables in the model (especially years in the U.S.) probably control for situations that would create differing underlying propensities among those who have no one in their core network. Also, the members of the core network did not have to live in Boston, so respondents could have named network members that had recently moved away or lived in another country, hence there are probably not that many underlying distinctions among those coded as having no core network.

Hispanic black and white alters. For my dependent variable, I used a dummy variable to code for the ethnicity or race of the network alters. If they had neither black nor white alters (only Hispanic) in their network, the respondent's network was coded as 0. If they had at least one non-Hispanic black person in their network, they were coded as 1. If they had at least one non-Hispanic white alter, they were coded as 2. If they had both non-Hispanic white and black alters, they were coded as 3. Having neither blacks nor whites in the core network was the base category for the model. For this part of the analysis, I did not include the few respondents (.62% of the sample) who had alters that were Asian or coded as "Other."

In all of the models, I included a person weight variable that was available in the data set. The person weight is used to adjust for non-response so that the weighted counts of respondents reflect the distribution of adults by race, age, and sex according to the 1990 Census. Due to the use of clustering in the probability sample procedures, the significance tests that I used would have underestimated the standard errors in my estimates, erroneously producing results statistically significant more often than it should. The use of clustering produces more homogenous samples since people who live in the same neighborhoods and census tracts tend to be more similar than if they had been chosen through a simple random sample. This is because survey estimation procedures in statistical packages, unless otherwise corrected, assume simple random samples. In order to correct for this, I adjusted the standard error of my estimates for design effects to compensate for clustering during data collection, utilizing the "surveyreg" option in STATA in combination with the within city "cluster" variable already in the data.

Results

Descriptive Statistics

As seen in Table 1, over half (54%) of the respondents said that they did not discuss important matters with alters outside of their household, so they did not have any alters in their

core network. Table 1 also shows that an especially large percentage of the Dominican respondents (64%) did not have anyone in their core network. Among Puerto Ricans, on the other hand, slightly less than half of their respondents did not have a core network (47%).

Table 2 gives an overall picture of the sample's characteristics. My sample is comprised of 486 first-generation immigrants from Puerto Rico and the Dominican Republic. The average respondent had attended school for slightly more than 10 years; hence, he/she did not have the equivalent of a high school diploma. The overwhelming majority of respondents were females, about 74% of the sample. The sample was comprised of 42% Dominican and 58% Puerto Rican immigrants. More than half of the respondents were members of organizations. The majority of the sample was made up of people who were identified as having a medium complexion (56%), followed by people identified as light (29%) and then by people with a dark skin tone (15%). The average household income was $14,876.54. The mean time spent living in the United States was sixteen and a half years. The average respondent did not have another adult living in the household with them and had slightly less than one person in his/her core network. The average respondent also had more Hispanics in their network than blacks and whites combined.

The characteristics of Dominican and Puerto Rican immigrants are also compared in Table 2. We see that Puerto Ricans and Dominicans have comparable years of education and similar percentages of women in each ethnic the group. The Puerto Rican sample has slightly more women. The two ethnic groups have similar levels of participation in organizations and perceived skin tone, although Puerto Ricans seem to be lighter. Dominicans have slightly lower family incomes than Puerto Ricans ($14,702.97 and $15,000 respectively), but they are both in family income categories that fall under $20,000. Puerto Ricans have lived in the United States for more than seven years longer than Dominicans. They both have comparable numbers of adults in their households, although Puerto Ricans average about one person (1.04) in their core network in comparison to Dominicans who have less than 1 person (.66).

Table 2 also describes the characteristics of immigrants who have no alters in their core network and those who have at least one alter in their network. In comparing the groups, we see that those who had at least one alter had more years of education on average than those without a core discussion group outside of the household. The people without a core network had the equivalent of almost completing their second year of high school (9.78) and those with one alter or more had almost two more years of high school (11.13). Both groups had similar proportions of females. Those with a network had a higher percentage of Puerto Ricans (68%) than those without a network (51%) and were also more likely to be a member of an organization (70% in comparison to 57% of non-network respondents). Both groups were mostly comprised of people with medium skin tone, followed by light, and then dark skin tones. People who had one or more alters were had similar rates of citizenship in comparison to those with no core network outside of the home. Those with a network had household incomes of $3,000 a year more than those without a network ($16,667 and $13,371 respectively). Also those with a network had lived in the U.S. for almost two years longer. On average, those with one or more alters had close to two people in their network.

Consistent with prior research (Marsden 1987), most of the respondents in this sample had alters that were ethnically homophilous. The respondents in this study mostly had other Latinos as alters. Only slightly more than a quarter of those with a network cited alters of a different ethnic background (Table 2). On average, those with a core network had more than one Hispanic in their core network. They also tended to have double the number of whites in their network than blacks; only 17% of those with a network had a non-Hispanic white alter and 9% had a non-Hispanic Black alter. Hence, people were more likely to have Whites in their networks than Blacks.

Multivariate Analyses

Table 3 addresses my first research question– which factors influence whether or not the respondent has a core network? Ethnicity was a significant predictor of having a core network with Puerto Ricans being more likely to have a core network as Dominicans. Puerto Ricans have a .91 increase in the log odds of having a core network, increasing the odds of having a network by almost 150% over Dominicans (Table 3).

In addition, immigrants who were members of an organization had an increase of .66 in the log odds of having a core network (Table 3). Hence, organizational members saw almost a 100% increase in their odds of having a core network. Years of education and gender were not significant predictors. However, with respect to skin tone, those with a medium skin tone experienced an advantage over light-skinned people in being more likely to have a core network (Table 3). One of the control variables, family income, was nearly significant in terms of predictive power.

My second research question concerned whether years of education, organizational membership, skin tone, and family income varied with ethnicity to predict having a core network. After conducting the Wald test on the interaction terms, I found that indeed the effect of these variables did vary with ethnicity and needed to be included in the model. As seen in Model #2 of Table 4, of all the interaction terms, having medium skin tone (in comparison to having lighter skin) was statistically significant in terms of having a core network for Puerto Ricans, whereas it was not for Dominicans. However, in terms of substantive significance, the advantage for Puerto Ricans having medium skin color diminished after adding the coefficients for the interaction and the main effects. Likewise, family income was statistically a good predictor of having a core network for both Dominicans and Puerto Ricans (Table 4). However, the coefficients were zero, hence family income had no effect on having a core network for people of both ethnicities.

Also seen in Model #2 of Table 4, years of education and organizational membership were both good predictors of having a core network for the Dominicans. For every year of education, Dominicans had an increase of .13 in the log odds of having a core network. In

addition, Dominicans who were organizational members saw an increase of 1.04 in the log odds of their having a core network (Table 4, Model #2). Having darker skin in comparison to lighter skin was nearly significant for Dominicans, whereas it was not for Puerto Ricans. Nevertheless, controlling for all of the variables and interactions in the model, Puerto Ricans still enjoyed a 4.20 advantage over Dominicans in the log odds of having a core network.

My third research question concerned which factors lead to an increase in the size of the core network for both Dominican and Puerto Rican immigrants. As seen in Table 5, I found that ethnicity, organizational membership, and medium skin tone all had positive effects on network size. One of the control variables, family income, also appeared to have a positive influence on core network size. In terms of the predicted probabilities, when holding all other variables constant at their mean, Dominicans have a higher probability of not having a core network (Table 5). On the other hand, Puerto Ricans have a higher probability of having one, two, and three people in their network than Dominicans.

My fourth research question was to examine predictors of having non-Latino alters in the core networks. Table 6 shows that being an organization member increased the log odds of having a non-Hispanic Black alter by 3.81 in comparison to having neither Black nor White alters. In addition, having dark skin (in relation to having light skin) was statistically significant, although it was not substantively significant in affecting whether a person had at least one Black person in their network. Apparently those who were missing information on income and years living in the U.S. had a significant difference in having a Black alter from the average person in the sample. This is in comparison to those who have only Hispanics in their core networks.

Although it was not a primary variable of interest, every year that a person lived in the U.S. increased their log odds of having a white alter by .07 or their odds by 7% when controlling for all other variables (Table 6). As was the case for Blacks, those missing information on their family income appeared statistically different from the average person in the sample. However,

substantively, there was no affect of missing income information on having a white alter in the core network.

Finally, being Puerto Rican dramatically increased a person's log odds of having both Black and White alters in their network. There were two secondary variables of interests that also demonstrated an effect on racial diversity of the core network. One of these, years in the U.S., increased the log odds of having both Black and White alters by .12 (Table 6). Also, the number of adults in the household decreased the log odds of having a Black and White alter by 48.11. However, judging from the odds ratios, it appears that the number of adults in the household has no substantive effect on having people of both of these races in the core network.

Discussion and Conclusions

Among my hypotheses was that years of education would be correlated with both having a core network and having a more diverse network. This was only the case for Dominicans who demonstrated an increase in the likelihood of having a core network with every year of education. It is possible that school systems differ in the sending areas of Dominicans versus the sending areas of Puerto Rico. Perhaps in the Dominican Republic, grammar schools and high schools are much larger than in Puerto Rico, allowing people to have contact with more people. This may especially be the case if people from Puerto Rico tend to migrate from a variety of areas whereas those from the Dominican Republic have a tendency to migrate from larger cities which probably have larger schools.

Surprisingly, gender was not a significant predictors of the network characteristics that I examined. As foreseen previously, ethnicity did have a positive impact on having a core network with Puerto Ricans being more likely to have a core network than Dominicans, even after assessing the effects of ethnicity interacting with other variables. Being a member of an organization was a significant predictor of having a core network when looking at the sample as a whole. However, when allowed to vary with ethnicity, it is clear that organizational membership

has a larger impact on Dominican immigrants than on Puerto Ricans. This may be due to the fact that many Puerto Rican community organizations have lower participation rates than they did when they first started in the 1970's and '80's (Small 2004). Dominican-based organizations may be newer with higher immigrant participation. Having a medium skin tone, as opposed to having lighter skin was a factor as to whether a person had a core network when controlling for all of the other variables. This was an unexpected finding, since my hypothesis was that dark skin would have been negatively correlated with having a core network and, by default, that lighter skin would have been positively associated. However, upon further analysis, this was the case for Puerto Ricans, not Dominicans, and substantively, the effect cancelled out once the coefficient for the main variable was accounted for.

Although the control variable of family income was statistically significant for Dominicans in terms of predicting having a core network, as mentioned earlier, it is difficult to ascertain the causal direction between higher income and having a core network of alters outside of the household. Many empirical studies have cited the importance of social networks in finding higher status jobs (Granovetter 1974) and other forms of status attainment, particularly when the status positions of the alters and/or network structure is considered (Lin, Dayton and Greenwald 1978). However, there is conflicting evidence regarding whether strong ties lead to higher income for members in a network (Bian 1997; Volker and Flap 1996). Furthermore, there is a lack of research on elites, making it difficult to ascertain if the causal direction is from higher income to having a core network. More work on income and specifically strong ties is needed to understand the causality between income and networks.

Regarding network size, it is clear that many of the factors that determine whether or not a person has a core network also influences the number of people that are in it. Despite the fact that higher levels of education are associated with having larger networks, this was not a finding in this study.

Also, in terms of racial diversity of the core network, it appears that different factors affect the type of person that an ego has as an alter. Organizational membership was important for fostering relationships with Blacks. It may be that the Dominicans, particularly, but also Puerto Ricans to some extent, may be involved in organizations geared towards the issues of all people of color in Boston. Another explanation may be church membership: since Dominicans and Puerto Ricans experience segregation similar to African Americans, they may be attending the same churches in the same area of the city.

Having alters that were white or of both races was largely conditioned on the number of years that a person had spent in the U.S. As immigrants improve their English-speaking abilities and venture out of their local neighborhoods, they may come into more contact with non-ethnics, increasing the chances of having them as close friends. Related to this is why Puerto Ricans have a larger probability of having non-ethnic core network alters; being a U.S. Commonwealth, they probably have a higher level of English-speaking ability than their Dominican counterparts, facilitating their connections with non-ethnics.

In qualitative studies, there are many references to the strength and resilience of Latino families. These families are characterized by close bonds of familial affection, informal support networks, and extended family membership. (Delgado and Rivera 1997; Hidalgo 1997). In this study, over half of the respondents could not name a close tie to someone outside of their household which, at first glance, seems to question the idea of strong networks in these ethnic groups. However, the wording of the networks question may have prevented respondents from naming their family members. There may have been an incongruency between the respondents' and the questionnaire's ideas of "household," especially given that the majority of the interviews were conducted in Spanish. My speculation is that the way the survey was translated into Spanish (for example, using *hogar, casa*, or *familia* to refer to household) may have elicited different types of responses. Furthermore, considering that there are regional variations of Spanish, the way that "household" was translated on the survey might have had conveyed

different notions depending on the ethnic group. Hence, the wording of the question may have caused the underestimation of alters in the respondent's core network.

In line with Portes' argument, it is necessary to look at the character and not just the number of ties among immigrants in order to determine the potential for building social capital (1995). Further information about the alters of the respondents would illuminate the extent to which their networks are useful. For instance, if alters are located in strategic places in the overall network, having a few alters who are key nodes/members in the network may provide equal or more access to social capital than simply having many network alters. Unfortunately, very little of this information was on the survey. Further qualitative research in this area may reveal more characteristics of the alters of Puerto Ricans and Dominicans.

Although this is beyond the scope of this project, it is important to keep in mind the social structure in which Puerto Ricans and Dominicans are embedded. According to Torres and Bonilla (Torres and Bonilla 1993), Puerto Ricans in the Northeast have "[lost] in the competition for scarce resources and job opportunities… the social decomposition and disarray so visible within the Puerto Rican community and family continue to hamper labor force participation and upward mobility." This also seems to be the case for Dominicans as well. The effects of this social context may constrain the capacity for constructing an immigrant network outside of the household and its ability for tie reproduction.

Given that many Dominicans live in this same socioeconomic context, have smaller networks as found in this study, have little political participation, and have lower levels of income, social mobility in this group appears unlikely into the second generation. Hence, an implication for further research would be a qualitative comparison between the core networks of Puerto Ricans and Dominicans. This may reveal the social processes that create the differences between these ethnic groups.

Many sociological studies on immigration today tend to focus on prospects for upward mobility in the second-generation. This is because, as aforementioned, dense network ties have

the potential to positively influence the opportunities presented to the second generation, leading them to upward social mobility and ease of entry into mainstream society. However, the apparent lack of a strong core network in the Dominican and Puerto Rican communities may preclude this process. By turning more of our attention towards the socioeconomic status of first-generation immigrants, we can examine the extent to which upward social mobility will be a reality for future generations. In the end this will contribute to understanding the quality of life of first generation immigrants, their immigration patterns, as well as the potential for upward mobility in the second generation.

Table 1: Percentage Distribution of Number of People in the Core Discussion Group by Ethnicity

Hispanic Group	Number in Core network					
	0	**1**	**2**	**3**	**Total**	**N**
% of Sample	54%	18%	14%	14%	100%	486
By Ethnicity						
Puerto Rican	47	19	17	17	100	284
Dominican	64	15	10	10	99	202

Table 2: Means for Selected Immigrant Characteristics by Ethnicity and by Alter Characteristics (Number and Race)

		Ethnicity		Number of Alters	
Predictor	**Total**	**Puerto Ricans**	**Dominicans**	**0**	**1+**
Years of Education	10.40	10.58	10.13	9.78	11.13
Gender (1=Female)	0.74	0.75	0.72	0.75	0.72
Ethnicity (1=Puerto Rican)	0.58	-------	0.00	0.51	0.68
Organization Member	0.63	0.61	0.65	0.57	0.70
Skin Tone					
Light	0.29	0.36	0.20	0.31	0.27
Medium	0.56	0.52	0.60	0.53	0.59
Dark	0.15	0.12	0.20	0.16	0.14
Family Income (in $)	14,876.54	15,000.00	14,702.97	13,371.21	16,666.67
Years in the U.S.	16.59	19.71	12.20	15.88	17.42
No. Adults in Household	0.37	0.39	0.35	0.41	0.33
No. in Network	0.88	1.04	0.66	0.00	1.93
No. Hispanics in Network	0.76	0.85	0.62	-------	1.65
No. Non-Hispanics in Network	0.12	0.17	0.04	-------	0.26
No. Whites in Network	0.08	0.11	0.03	-------	0.17
No. Blacks in Network	0.04	0.06	0.01	-------	0.09
N=	486	284	202	264	222

Table 3: Logistic Regression Predicting Having a Core Network

Predictor	Having a Core network			
	Coeff.	**Standard Error**	**Odds Ratios**	**Design Effect**
Years of Education	0.06	0.06	1.06	0.67
Gender (1=Female)	-0.05	0.26	0.95	1.23
Ethnicity (1=Puerto Rican)	0.91***	0.24	2.49***	1.28
Organization Member	0.66**	0.23	1.93**	1.30
Skin Tone[7]				
Medium	0.57*	0.26	1.76*	1.27
Dark	0.33	0.35	1.39	1.33
Family Income	0.00 †	0.00	1.00 †	1.03
Missing Income	-0.43	0.71	0.65	1.19
Years in the U.S.	0.00	0.01	1.00	1.24
Missing Years in U.S.	-0.89	1.05	0.41	1.02
Number Adults in the Household	-0.28	0.18	0.76	1.29
Intercept	-2.24	0.69	-------	0.45
F-statistic				2.94
N=	486			

*z < 0.05; **z < 0.01; ***z < 0.001; † z<.1

[7] Light is the omitted category.

Table 4: Logistic Regression Predicting Having a Core Network Varying With Ethnicity

	Model 1				Model 2			
Predictor	**Coeff.**	**Standard Error**	**Odds Ratios**	**Design Effect**	**Coeff.**	**Standard Error**	**Odds Ratios**	**Design Effect**
Years of Education	0.06	0.06	1.06	0.67	0.13*	0.06	1.14*	0.44
Gender (1=Female)	-0.05	0.26	0.95	1.23	0.03	0.27	1.03	1.22
Ethnicity (1=Puerto Rican)	0.91***	0.24	2.49***	1.28	4.20***	1.03	66.45***	0.69
Organization Member	0.66**	0.23	1.93**	1.30	1.04**	0.40	2.84**	1.35
Skin Tone[8]								
Medium	0.57*	0.26	1.76*	1.27	1.89	0.46	6.61	1.15
Dark	0.33	0.35	1.39	1.33	1.02 †	0.58	2.78 †	1.19
Family Income	0.00†	0.00	1.00†	1.03	0.00**	0.00	1.00**	1.21
Missing Income	-0.43	0.71	0.65	1.19	-0.28	0.74	0.76	1.24
Years in the U.S.	0.00	0.01	1.00	1.24	0.00	0.01	1.00	1.27
Missing Years in U.S.	-0.89	1.05	0.41	1.02	-0.78	1.09	0.46	0.99
Number Adults in the Household	-0.28	0.18	0.76	1.29	-0.32 †	0.19	0.72 †	1.27
Interactions								
Education*Ethnicity	-------	-------	-------	-------	-0.10	0.08	0.90	0.52
Organization*Ethnicity	-------	-------	-------	-------	-0.60	0.49	0.55	1.33
Medium Skin Tone* Ethnicity	-------	-------	-------	-------	-1.83***	0.57	0.16***	1.19
Dark Skin Tone* Ethnicity					-0.64	0.74	0.53	1.26
Family Income* Ethnicity	-------	-------	-------	-------	0.00*	0.00	1.00*	1.13
Intercept	-2.24	-------	-------	0.77	-4.73	0.93	-------	0.65
F-statistic	2.94***				3.42**			
N=	486				486			

*z < 0.05; **z < 0.01; ***z < 0.001; † z<.1

[8] Light is the omitted category.

Table 5: Negative Binomial Regression Predicting Core Network Size

Predictor	Size of Network		
	Coeff.	Standard Error	Design Effect
Years of Education	0.01	0.01	1.19
Gender (1=Female)	-0.04	0.17	1.26
Ethnicity (1=Puerto Rican)	0.59***	0.14	1.29
Organization Member	0.45**	0.15	1.31
Skin Tone[9]			
Medium	0.39*	0.16	1.25
Dark	0.12	0.23	1.39
Family Income	0.00**	0.00	1.20
Missing Income	-0.74 †	0.43	1.14
Years in the U.S.	0.00	0.01	1.33
Missing Years in U.S.	-0.30	0.78	1.05
Number Adults in the Household	-0.18	0.11	1.22
Intercept	-1.25	-------	1.24
F-statistic		5.02 ***	
For Puerto Ricans			
Pr(y=0|x)		0.45	
Pr(y=1|x)		0.29	
Pr(y=2|x)		0.15	
Pr(y=3|x)		0.07	
For Dominicans			
Pr(y=0|x)		0.61	
Pr(y=1|x)		0.26	
Pr(y=2|x)		0.09	
Pr(y=3|x)		0.03	
N=		486	

*z < 0.05; **z < 0.01; ***z < 0.001; † z<.1

[9] Light is the omitted category.

Table 6: Multinomial Logistic Regression Predicting Having a Black and White Alters (Base category of neither Black nor White Alters)

Predictor	Blacks			Whites			Blacks and Whites		
	Coeff.	Standard Deviation	Odds Ratios	Coeff.	Standard Deviation	Odds Ratios	Coeff.	Standard Deviation	Odds Ratios
Years of Education	0.14	0.11	1.14	0.15	0.10	1.16	0.08	0.22	1.09
Gender (1=Female)	-0.48	1.08	0.62	-0.91	0.57	0.40	0.85	1.91	2.35
Ethnicity (1=Puerto Rican)	0.83	0.83	2.30	0.57	0.57	1.77	21.53***	2.60	2.24e09***
Organization Member	3.81**	1.27	45.01**	0.33	0.51	1.39	-0.32	1.66	0.73
Skin Tone[10]									
Medium	-1.35	1.13	0.26	0.52	0.56	1.68	-0.87	1.71	0.42
Dark	-49.94***	1.96	0.00***	-0.38	0.91	0.69	0.84	1.71	2.32
Family Income	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00
Missing Income	-55.59***	9.58	0.00***	-58.27***	8.74	0.00***	-49.68	0.00	0.00
Years in the U.S.	0.01	0.05	1.01	0.07**	0.02	1.07**	0.12***	0.03	1.12***
Missing Years in U.S.	4.38**	1.91	80.09**	-46.35	0.00	0.00	2.28	1.77	9.79
Number Adults in Household	-1.08 †	0.63	0.34†	-0.34	0.34	0.71	-48.11***	0.93	0.00***
Intercept	-8.75	-------	-------	-5.77	-------	-------	-30.58	-------	-------
N=	483								

*z < 0.05; **z < 0.01; ***z < 0.001; † z<.1

[10] Light is the omitted category.

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