Immigrant Selectivity from Rural and Urban Areas of Mexico to the United States: the Different Roles of Migrant Networks

THESIS

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Abstract

Debates on migrant educational selectivity – the position of migrants in the educational distribution of the sending country – have rarely taken into account the role played by community migrant networks in shaping selectivity. Moreover, studies have seldom analyzed how changes in the availability of migrant networks over time contribute to changes in selectivity, and whether this relationship is different for rural and urban sending areas. Using life history data from the Mexican Migration Project, I test whether changes in migration prevalence over time are associated with selectivity in the Mexico-U.S. migrant flow. I also explore how this relationship differs depending on the size of the sending community in Mexico. I find that the likelihood of U.S.-bound migration increases with migration prevalence in rural communities, small cities and metropolitan areas, suggesting that community networks reproduce international migration in all three types of settings. I also find that migrant network growth produces negative selection in rural areas, a result that is consistent with previous literature on the subject. Contrary to previous findings, however, migrant network growth produces positive selection in urban settings. Moreover, network growth is associated with more positive selection in large metropolitan sending areas compared to small urban areas. I argue that differences in selectivity patterns between rural and urban areas may be a result of urban networks being made up of weak ties, which are harder to reach and provide less support than the strong ties prevalent in rural settings. These differences may
be accentuated in large metropolitan areas, where individuals are more isolated and social ties are weaker.
To my loving family: my wife, my son, my mother, my brother, and my sister.

My wife Gabriela: your love keeps me going through difficult times.

My son Guillermo: you give me a reason to live.

My mother Georgina: you support me when I need it.

My brother Gustavo: you are an inspiration.

My sister Ana Laura: you bind us together.

We achieved one more goal.
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INTRODUCTION

Which sectors of a given population are most likely to migrate internationally? This complex question is central for understanding the implications of population movements. One particular aspect of interest to researchers is the skill level of migrants relative to nonmigrants (see for example Chiswick 1986, 2000; Borjas 1987, 1991; Massey and Sana 2003; Feliciano 2005, 2008; Belot and Hatton 2012). Skill, measured in terms of formal education, is an indicator of how well immigrants can assimilate into the societies that receive them. It is also helpful in order to estimate the loss of human capital that sending societies experience as a result of emigration.

Using education as a measure of skill, researchers have identified three main patterns of selection. If migrants are drawn from the higher educational strata of the sending society, they are said to be positively selected for skill. If, on the other hand, they are drawn from the lower educational strata, they are said to be negatively selected. Lastly, if migrants are drawn from the middle of the educational distribution in their home context, migrant selection is said to be intermediate. The literature on international migration has found that migration flows differ on the type of educational selection they present (positive, negative, or intermediate) (Ramos 1992; Feliciano 2005; Belot and Hatton 2012; Akee 2010). Studies that have attempted to explain similarities and
differences in selectivity patterns have focused mostly on comparisons between countries, while within-country comparisons have received considerably less attention. In order to address this gap, the present study seeks to compare the educational selectivity of migrants to the United States from rural- and urban-origin areas in Mexico.

While it has been theorized that community size has an effect in determining which individuals are more likely to migrate (Findley 1987; Massey 1990), the relationship between community size, migration processes and migrant selectivity has only received limited attention in the literature. Only three previous studies (McKenzie and Rapoport 2010; Lindstrom and Lopez 2010; Fernandez-Huertas 2013) have analyzed this relationship by comparing the selectivity of Mexico-U.S. migrants from rural and urban areas. The conclusions of these three studies, as will be seen below, are very different. These studies do not provide a complete picture of how the social transformations associated with international migration influence selectivity over time, or how this influence differs depending on community size. The present study bridges this gap by using a large sample of Mexican-origin communities, and by analyzing how transformations brought about by international migration have an impact on selectivity over time.

The present study places emphasis on the effect of migrant networks on selectivity. The development of migrant networks is one of the most important factors contributing to Mexico-U.S. migration. According to prior studies (Massey et al. 1987; Massey and Espinosa 1997), migration is driven by the accumulation of social capital in sending communities. Individuals with migration experience to the United States provide
information, support and assistance to other individuals from their communities of origin, thus reducing the costs and risks of migration. The social networks formed in this way lead to the incorporation of larger numbers of individuals into migration flows and to the reproduction of these flows over time.

In a study that included mostly rural communities, Massey, Goldring and Durand (1994) found that the development of migrant networks leads to migrants being less selected for education, as networks gradually tend to encompass larger proportions of individuals from the communities of origin. Other studies, however, have not found migration to become less selective as a result of the expansion of migrant networks (Feliciano 2005, 2008; Lindstrom and Lopez 2010).

In this study I explore whether migrant networks have different effects on selectivity in rural and urban areas. Rural and urban networks may differ on the degree to which they can be used by households and individuals of different skill levels in order to facilitate migration to the United States. Urban areas have higher levels of social isolation and anonymity than rural areas. Accordingly, in urban communities migrant networks may not expand to include individuals and households at the lower ends of the human capital distribution (represented by their lower education and skills), but rather be confined to individuals and households with middle and higher human capital levels. If this hypothesis is correct, the expansion of networks over time should make urban-origin migration more positively selected than rural-origin migration. In this paper I test this hypothesis using multivariate statistical methods.
THEORETICAL FRAMEWORK

Theories of Migrant Educational Selectivity

Previous research has shown that migrants do not have the same social, economic and human capital characteristics as nonmigrants (Ravenstein 1885; Lee 1966; Jansen 1969; Bogue 1977; Massey and Garcia Espana 1987; Massey and Espinosa 1997; Bustamante et al. 1998; Kanaiaupuni 2000; Fussell 2004; Hanson 2007; McKenzie and Rapoport 2010). There is, however, considerable debate about which characteristics make migrants different from nonmigrants, as well as the degree to which both groups differ with respect to those characteristics.

Education is one of most frequently discussed characteristics in analyses of the differences between migrants and nonmigrants. Migrant educational selectivity (whether migrants as a group have more, the same, or less education than nonmigrants) reflects migrants’ level of pre-migration human capital (Lindstrom and Massey 1994; Chiswick 2000; Feliciano 2008). The direction that selectivity takes is important for two reasons. First, positive selectivity means that migrant-sending communities (and countries) lose highly skilled individuals to those places that receive immigration. This “brain drain” can impose serious obstacles to economic development, especially in less developed rural areas. Secondly, immigrant selection influences the degree to which migrants can
assimilate into the host society. Migrants with less education tend to have worse economic outcomes in the United States than those with more education (Portes and Rumbaut 1996, 2001). Thus, negative selectivity can have a deleterious effect on assimilation.

Scholars have not reached a consensus on whether the Mexico-U.S. migration stream is positively, intermediately, or negatively selected for education. Part of the difficulty in estimating selectivity is related to the diverse educational profile of Mexican migrants. On one hand, migrant networks have facilitated the migration of large numbers of individuals with low education levels, mostly from rural areas. On the other hand, large proportions of individuals with average and greater than average education levels also make up a substantial proportion of the Mexico-U.S. migration flow. This migration of more qualified individuals has been spearheaded by the limited income opportunities available for educated individuals in Mexico, as well as the high demand for low-cost, mainly undocumented Mexican labor in sectors of the U.S. economy such as manufacturing and services (Fussell 2004; Lowell 2006; Giorguli, Gaspar and Leite 2007). Whether these processes have led to positive, intermediate, or negative educational selection of migrants remains unclear.

Previous research on the characteristics of recent Mexico-U.S. migrant educational selectivity is divided into three main camps: some researchers argue for positive selection, others for intermediate selection, and yet others for negative selection. Some of the researchers who have found positive selection argue that it is the result of migrants having high levels of skill and ambition relative to other members of the
sending society (Chiswick 1986, 2000; Marcelli and Cornelius 2001; Feliciano 2005, 2008). Positive selection has also been explained as a result of the association between education and socioeconomic status. According to this view, if the more educated are more likely to migrate, it is because they are more able to cover the costs of migration due to their social connections to previous migrants and/or their greater wealth (McKenzie and Rapoport 2007, 2010).

Researchers who find that migrant selection in the Mexico-U.S. flow is intermediate argue that this pattern is the combined result of two phenomena: 1) highly-educated individuals earn higher incomes than those with close-to-average education, and thus have fewer motivations to migrate; and 2) individuals located at the lower levels of the educational distribution may possess a strong motivation to migrate, but since their earnings are usually the lowest, they are also the least able to finance the costs of migration. Taken together, these two factors favor the migration of those located in the middle of the educational distribution (Chiquiar and Hanson 2005; Orrenius and Zavodny 2005; Assuncao and Carvalho 2010; Aguilar 2013).

A third group of researchers find negative educational selection in the Mexico-U.S. migration flow. Some of these authors argue that negative selection derives from the higher level of socioeconomic inequality in Mexico compared to the United States. According to this perspective, greater inequality in Mexico means that better-educated individuals can obtain higher rewards to their skills by staying in their country of origin rather than from moving to the U.S. Less educated individuals are more disadvantaged in
Mexico’s system of higher inequality, a factor that increases their propensity to migrate (Borjas 1987, 1991; Fernandez-Huertas 2011; Ambrosini and Peri 2012).

Other authors have argued that negative selection is the result of the development of migrant networks in the communities of origin. As individuals and households with previous migration experience to the U.S. help those with fewer resources to migrate, the costs of migration decrease. Consequently, as migrant networks become more widespread, individuals with fewer resources (who tend to have less education) tend to make up a larger proportion of the migrant flow (Massey, Goldring and Durand 1994; Durand, Massey and Zenteno 2001; McKenzie and Rapoport 2010).

As the previous review shows, explanations for selectivity tend to focus mostly on individual-level characteristics (such as skill, ambition, or wealth) or large socioeconomic trends like inequality or the demand for labor. The role of community-level factors (such as community migration prevalence) in shaping selectivity has received comparatively less attention. Previous research has found that social transformations brought about by the prevalence of migration at the community level influences outcomes such as mortality (Kanaiaupuni and Donato 1999), economic development (Durand et al. 1996) and economic inequality (McKenzie and Rapoport 2007). Still, the relationship between migration prevalence and migrant selectivity remains unclear. I argue that it is possible that increases in the prevalence of migration at the community level lead to the formation of migrant networks that have different effects on selectivity depending on the urbanization of the sending area. In the present paper I test this hypothesis using multivariate statistical methods.
Previous studies have also attempted to study the links between community-wide migrant networks and migrant selectivity. These studies offer mixed evidence on whether community migrant networks have different effects on selectivity depending on the level of urbanization of the sending region (McKenzie and Rapoport 2010; Lindstrom and Lopez 2010; Fernandez-Huertas 2013). The studies that have attempted to answer this question have been based either on cross-sectional designs or on very small samples of communities, which makes their results difficult to generalize. Moreover, the conclusions of these three studies are vastly different, suggesting the need for further empirical research on the topic. In order to be able to contrast the results of the present study with those of previous studies on the subject, in the following section I discuss the findings of the latter in detail.

Mexico-U.S. Migrant Selectivity by Community Size

Based on a nationally-representative survey of Mexican households collected in 1997, McKenzie and Rapoport (2010) find an association between community migrant networks and the selectivity of U.S.-bound migrants. According to these studies, communities that have mature migrant networks are characterized by negative educational selection of migrants, while those with weak migrant networks have more positive selection. The authors explain this difference as a result of migrant networks providing the less skilled with the support and resources needed to migrate. The association between migrant networks and selectivity decreases with urbanization, suggesting that networks play a more important role in selection in rural areas compared
to urban areas. The authors do not attempt to explain the mechanisms through which urbanization may shape the influence of migrant networks on selectivity, leaving pending the task of developing a theoretical understanding of this phenomenon.

The McKenzie and Rapoport study has several methodological shortcomings. Firstly, the study only takes into account the strength of community networks at the time the survey took place, and does not capture how changes in this variable over time may influence selectivity. The Mexico-U.S. migration flow has developed and evolved over several decades, driven by social, economic and political factors that connect origin and destination areas (Massey and Espinosa 1997; Kanaiaupuni 2000; Flores, Hernandez-Leon and Massey 2004). For this reason, the results obtained using McKenzie and Rapoport’s cross-sectional design may not be generalizable to other periods in the current era of Mexican migration to the United States.

Another drawback in the McKenzie and Rapoport study derives from the fact that migration is a process subject to age, period, and cohort effects (Massey 1990). The characteristics of migrants are likely to change as migrant networks form and develop in a community. Since McKenzie and Rapoport derive their conclusions from cross-sectional data, their study cannot fully account for how these changes shape migrant selectivity. A longitudinal research design may be more useful in order to achieve this goal.

Fernandez-Huertas (2013) has also studied differences in rural and urban selectivity of Mexico-U.S. migrants. Using a nationally representative sample of Mexican households, this author finds negative migrant selection in both rural and urban sending
areas. Unlike McKenzie and Rapoport, Fernandez-Huertas does not find community migrant networks to be relevant for reducing selectivity in urban areas, though they contribute to reducing selectivity from rural areas. As is the case in the McKenzie and Rapoport study, this finding suggests that the relationship between community networks and selectivity varies depending on the level of urbanization of the community.

The results obtained by Fernandez-Huertas are limited to migrants who took a trip to the U.S. during the period between 2000 and 2004, and may not be generalizable to individuals who migrated in earlier or later periods. Moreover, as is the case in the McKenzie and Rapoport study (2010), the conclusions of this analysis need to be taken with caution due to the cross-sectional methodology employed.

Finally, Lindstrom and Lopez (2010) study U.S.-bound migration from Mexico and several Latin American countries using data from the Mexican and Latin American Migration Projects. Due to disparities in the availability of data among countries, only a small number of communities from each country are included for comparison purposes. Unlike the studies by McKenzie and Rapoport (2010) and Fernandez-Huertas (2013), Lindstrom and Lopez employ a longitudinal design that takes the entire history of each community’s migrant network into consideration. With very few exceptions, the results suggest that community networks increase the likelihood of migration but do not reduce selectivity in either rural or urban areas. This finding provides support to other studies (Feliciano 2005, 2008; Massey and Sana 2003) that find only a modest association between the level of development of migrant networks and decreases in the selectivity of the Mexico-U.S. migration flow.
The small number of communities analyzed in the Lindstrom and Lopez study, however, suggests that the results may not be generalizable to all migrants from the respective countries of origin, especially in the case of Mexico where U.S.-bound migration is spread over a wide geographical spectrum. In order to overcome this drawback, it may be necessary to draw on a larger sample of communities.

The three studies discussed in this subsection report contradictory findings on the nature of migrant selectivity from rural and urban areas of Mexico. This contradiction may stem from the methodological limitations of each study. These limitations may be overcome by using a data sample that provides more generalizable results on the migrant selectivity pattern from rural and urban areas of Mexico. In order to achieve this objective, I employ data from the Mexican Migration Project (MMP). This source includes information from a large sample of Mexican communities, as well as life history information covering the period from 1965 to 2013. The entire MMP dataset provides results that are more generalizable along both the time and space dimensions compared to other studies of Mexico-U.S. migrant selectivity. The MMP’s longitudinal design also provides more reliable estimates than those obtained using cross-sectional data.

The justification for revisiting the issue of rural vis-à-vis urban migrant selectivity in Mexico is not only methodological but also theoretical. Both McKenzie and Rapoport (2010) and Fernandez-Huertas (2013) find evidence that the selectivity of the migrant flow varies by urbanization level, but both make different findings about exactly how it varies. McKenzie and Rapoport find that the availability of community networks reduces selectivity in both rural and urban areas, though the association is stronger in the former.
Fernandez-Huertas, on the other hand, finds that community networks contribute to reducing selectivity in rural areas but not in urban areas. Drawing on the argument by Borjas (1987, 1991) this author suggests that negative selectivity in Mexican urban areas is solely the product of socioeconomic inequality leading the less educated to migrate. According to Fernandez-Huertas, community migrant networks play no role in reducing selectivity from urban areas.

The present study seeks to determine whether community migrant networks play a role in shaping selectivity in both rural and urban areas, and whether the nature (direction and strength) of selectivity differs depending on the level of urbanization. In order to answer these questions, I propose a theoretical framework that posits a relationship between community size, types of social ties (strong or weak) and migrant selectivity. This framework is composed of two main elements:

1. An account of how sociological and economic theories of migration have moved away from theoretical models focused solely on the individual, and how these theories integrate individual-level, household-level, and community-level characteristics in order to understand the migration decision-making process.

2. A synthesis of relevant theoretical insights from the literature on migration from Mexican cities to the United States, as well as recent developments in migrant network theory. As will be shown in subsequent sections, several findings from these bodies of work allow
us to understand better the mechanisms linking community size, migrant networks, and selectivity.

The resulting theoretical framework will guide the empirical analysis of how the relationship between community migrant networks and selectivity is mediated by community size.

*Migrant Selectivity, Migration Networks, and Community Effects*

Migration theories suggest that the proclivity of specific population groups to migrate varies depending on the context of origin of migration. In order to understand how this happens, some authors (Lucas and Stark 1985; Taylor 1986; Massey *et al.* 1987) suggest a model of migration where decisions at the household level are seen as equally – if not more – important than decisions at the individual level. This household decision-making model views migration as part of a set of strategies that households use to diversify their income sources and minimize risks in times of economic uncertainty. From the point of view of households, risk diversification involves sending some household members to other communities as migrants. Since part of the income earned by migrants in destination communities flows back to the household in the form of remittances, the household as a unit benefits from the emigration of some of its members (Lucas and Stark 1985).

The theoretical perspective centered on the household is opposed to cost-benefit models that view migration as a purely individual-level strategy, driven by each actor’s interest in earning a higher wage in the destination community (Todaro 1980; Yap 1977).
Empirical work has found that the household decision-making model is more useful for understanding migration patterns than the individual cost-benefit model (Lucas and Stark 1985; Taylor 1986; Massey et al. 1987). These studies also point to the necessity of taking into account the community level of analysis, since the efficacy of migration as a risk-diversifying strategy depends on community characteristics such as the level of development of migrant networks and that of labor markets.

The development of migrant networks in a given community increases the likelihood of migration for its inhabitants (Massey et al. 1987; Massey and Espinosa 1997; Curran et al. 2005; McKenzie and Rapoport 2007). Migrant networks consist of interpersonal ties that link origin and destination communities. These ties involve current migrants, former migrants and nonmigrants, who are related each other through kinship, friendship, or shared community origin (individuals who are only related to each other by virtue of being from the same community of origin are commonly referred to as *paisanos*). Through migrant networks, individuals who have not yet migrated obtain information, resources, connections and other forms of assistance from previous and current migrants. According to migration network theory, these assets reduce substantially the costs and risks of migration and allow individuals with fewer resources to migrate internationally. Consequently, it is through migration networks that less-educated individuals access tangible and intangible resources (“social capital”) from other members of their origin communities. Because social capital is convertible into other forms of capital (Bourdieu 1986; Coleman 1988), disadvantaged individuals use the
social capital obtained from network connections to obtain financial capital in the form of foreign wages (Palloni et al. 2001).

As migrant networks make it possible for more individuals to join in the migration flow, communities reach a point where most of their residents will have a relationship to someone with international migration experience. In this way, the likelihood that any given individual will migrate – and that he or she helps others to do the same – increases significantly as migration networks expand and develop. Outmigration thus tends to become a self-reinforcing process within a given community. Consequently, while the factors that initiate international migration might differ from community to community, the development of networks in a given community leads to migration reproducing itself, even long after the initial conditions that lead to migration have changed. This process is referred to in the migration literature as “cumulative causation” (Massey et al. 1987; Massey and Zenteno 1999; Lindstrom and Lopez 2010).

While local migrant networks increase the motivations of individuals to migrate, highly dynamic local labor markets discourage emigration. In a study of Mexican communities, Fussell and Massey (2004) found that the availability of manufacturing and service sector jobs is negatively associated with making a trip to the United States. The ability to work in different sectors of the economy, or to work for different employers, reduces the risk of being without a constant income stream, making migration to the U.S. a less attractive option.

In the household decision-making model (also known as “New Economics of Labor Migration”, or NELM model), the availability of community migrant networks
allows households to diversify risks by sending some of their members to work in foreign communities, where there are better employment opportunities and wages are higher. The existence of dynamic local labor markets at the community level, on the other hand, means that households can better diversify risks by sending their members to work in the local economy, thus reducing the need for emigration (Massey 1990).

The preceding theoretical framework suggests that theories of migration must take into account several levels of analysis (individual, household and community) in order to provide a more developed understanding of why migration occurs. A given community-level variable can either have the same effect on the likelihood of emigrating for all groups in a given population, or it can have different effects for different groups (Findley 1987; Massey 1990). For instance, the likelihood of individuals with a certain level of education to migrate will depend both on the local opportunity structure and on their access to community migrant networks. Individuals with higher levels of education can find that their skills do not lead to higher incomes if the local opportunity structure offers few opportunities for well-paid employment. Such individuals can find migration to the United States to be an attractive alternative to working in the local labor markets if their home communities have well-developed migrant networks that they can access. Such a combination of factors can generate positive educational selection, as both local labor market conditions and migration networks favor the migration of more educated individuals.

In this study I explore whether the development of migration networks at the community level has different effects on the educational selectivity of Mexican
immigrants depending on the size of the community of origin (rural, small urban, or large urban). This research question is important for several reasons. First, while several studies have highlighted the importance of migration networks for facilitating Mexico-U.S. migration (Massey et al. 1987; Massey and Espinosa 1997; Zahniser 1999; Palloni et al. 2001) the impact of these networks on migrant selectivity has received relatively little attention in the literature. Secondly, current knowledge about the effects of networks on migrant selectivity is based on study samples with a disproportionate representation of rural communities (see for example Massey, Goldring and Durand 1994), meaning that the effects that networks have on urban-origin migrant selectivity are not well known. Finally, in recent years several studies on urban migration networks have emerged (Flores, Hernandez-Leon and Massey 2004; Arias and Woo 2004; Hernandez-Leon 2008; Flores-Yeffal and Aysa-Lastra 2011; Flores-Yeffal 2013, to name a few). These studies have reached highly relevant conclusions about how differences between urban and rural communities lead urban-origin migrant networks to function differently from rural-origin networks. To date, however, there have been no efforts to integrate these findings into analyses of migrant selectivity.

I hypothesize that migrant networks will have different effects on selectivity depending on the size of the community of origin. In order to elaborate on these differences, in the following subsection I present a brief overview of Massey, Goldring and Durand’s findings (1994) on how migrant networks shape selectivity. Later on, I will discuss how more recent empirical evidence casts doubt on the generalizability of these findings to all Mexican communities.
The Development of Community Migration Networks and Migrant Selectivity

Massey, Goldring and Durand (1994) propose an explanation of how the development of migrant networks in a sending community shapes educational selectivity over time. Based on a small sample of communities in Western Mexico that have sent migrants to the U.S., these authors find that international migration generally begins with a small number of migrants who are positively selected for educational level and socioeconomic status. As migration networks grow and develop, the costs of international migration drop and migration becomes more attractive. Moreover, migration leads to permanent changes in individual motivations, social structures and cultural patterns. These changes cumulate over time to make individuals and households of lower socioeconomic status more likely to adopt migration as an income-generating strategy. This process in turn leads to the incorporation of households and individuals from a wider array of socioeconomic strata into the Mexico-U.S. migration flow. Over time, migrants become less selected for education, as migration-related social capital reduces the costs and risks of international migration for the less educated.

A study using more recent data (Lindstrom and Lopez 2010) put this theory to the test by studying the relationship between the expansion of migrant networks and educational selectivity in both rural and urban sending communities in Mexico and four other Latin American countries (Guatemala, Nicaragua, Costa Rica, and the Dominican Republic). The authors find that there is strong evidence that the development of migrant networks generates processes of cumulative causation at the community level in both
rural and urban areas, leading to increasing numbers of individuals joining in the international migration flow as networks grow and mature. However, in contrast to the findings of Massey and his colleagues, Lindstrom and Lopez found mixed evidence of overall education levels of migrants decreasing with the expansion and maturation of community migration flows. Of all five countries surveyed, only rural communities in Costa Rica showed evidence of migrant selectivity decreasing as a result of the expansion of community networks.

This finding calls into question three arguments made by Massey and his colleagues: 1) that in the initial stages of the development of migrant networks in a given community, it is those individuals from more advantaged households (as reflected in these individuals’ education levels) who will be more able and willing to migrate internationally; 2) that these individuals will act as facilitators of the migration process for individuals coming from more disadvantaged households (as reflected in the latter’s lower education levels); and, 3) that this process results in a cumulative causation process in which less educated individuals are increasingly brought into the international migration flow, contributing to more negative selection over time.

The findings by Massey and his colleagues (1994) and those by Lindstrom and Lopez (2010) are both derived from analyses of small numbers of migrant-sending communities, a fact that raises questions about the generalizability of their results. The Massey, Goldring and Durand study focused in nineteen Mexican communities and purposely left out large metropolitan areas, while the Lindstrom and Lopez study only included fourteen communities in rural and urban areas of Mexico. It may be necessary to
study a wider sample of communities in order to determine whether the development of migrant networks has an overall negative effect on selectivity. Moreover, since in the case of Costa Rica migrant networks were found to reduce selectivity in rural but not in urban areas, it may be worthwhile to examine whether rural-urban differences are present in a larger sample of Mexican communities.

Obtaining more generalizable results becomes especially important given recent changes in the geographic origins of Mexico-U.S. migration. While up until the eighties the largest proportions of Mexico-U.S. migrants came from communities located in Western Mexico, over the last few decades the flow has become much more geographically diverse, incorporating an increasing number of individuals and households from other regions of the country. Moreover, while traditionally international migration from Mexico has originated mostly in rural communities and smaller cities, migration from large metropolitan areas increased significantly in recent decades (Durand, Massey and Zenteno 2001; Fussell 2004; Fussell and Massey 2004; Roberts and Hamilton 2005; Massey, Rugh and Pren 2010; Hamilton and Villarreal 2011; Garip 2012). This recent diversification of the origins of the migration stream raises the question of whether previous findings on the relationship between networks and selectivity hold for large metropolitan areas that send migrants to the United States, as well as for localities located outside the traditional sending regions.

Several influential early studies on Mexico-U.S. migration focused mostly on rural communities in the Western region of Mexico (Taylor 1986; Massey et al. 1987; Massey and Garcia Espana 1987; Massey, Goldring and Durand 1994). As a
consequence, much of our current knowledge about the phenomenon derives from the experience of those communities. Studies that have included data on urban-origin migrant flows, on the other hand, suffer from a variety of shortcomings. Some of them not compare rural and urban migration (see for example Massey, Goldring and Durand 1994); others do not differentiate between small urban and large urban areas (see for example Flores, Hernandez-Leon and Massey 2004), and yet others do not explore possible differences between small urban and rural areas (see for example Fussell and Massey 2004).

Until recently (see for example Hamilton and Villarreal 2011) little effort has been put into obtaining a clear picture of how international migration originating from small urban areas in Mexico differs from that originating in rural and large urban areas. Part of the problem stems from the limited amount of data used in several studies that include rural and urban communities. The aforementioned studies by Massey, Goldring and Durand (1994) and Lindstrom and Lopez (2010), for example, only include data on small numbers of Mexican urban communities, suggesting the need to study a larger number of urban areas in order to obtain more generalizable results.

In order to elucidate how migrant networks shape selectivity in urban contexts it is also crucial to articulate already-existing empirical findings and theoretical insights on the characteristics of urban-origin Mexico-U.S. international migration vis-à-vis rural-origin migration. In the following subsection I draw on those empirical and theoretical elements that are most useful to understand why networks can have different effects on selectivity, depending on whether the community of origin is rural or urban.
Rural and Urban Mexico-U.S. Migration Networks

There is still considerable uncertainty about the factors that drive the migration of Mexican urban residents to the United States, as well as the characteristics of urban-origin migrants vis-à-vis rural-origin migrants (Garip 2012). In recent years, a number of studies have appeared that attempt to account for the characteristics of urban-origin migration (Roberts, Frank and Lozano 1999; Fussell and Massey 2004; Flores, Hernandez-Leon and Massey 2004; Lozano 2004; Arias and Woo 2004; Flores 2006; Hernandez-Leon 2008; Flores-Yeffal and Aysa-Lastra 2011; Wilson 2012; Fernandez-Huertas 2013; Flores-Yeffal 2013; Mendoza forthcoming). There is much variation among these studies in terms of the number of urban communities studied, as well as the geographic location of these communities. Nonetheless, the insights these studies provide about urban-origin networks are useful for developing a theory of how these networks shape selectivity in urban migrant-sending areas. These findings are detailed below.

1) The relationship between urbanization and international migration from Mexico takes the form of an inverted U-shape. Migration is more common in communities with middle levels of urbanization (Hamilton and Villarreal 2011). Residents of large metropolitan areas have access to more developed labor markets (both formal and informal) and credit options, which provide greater opportunities to generate income than those available in less urbanized areas. These opportunities, coupled with the considerable costs and risks that international migration involves, mean that metropolitan households are less
likely to encourage their members to pursue migration to the United States. As
a risk-diversifying strategy for households, international migration is more
common in small urban areas, where employment and credit opportunities are
more scarce (Flores, Hernandez-Leon and Massey 2004; Hernandez-Leon
2008; Lozano 2004).

2) In Mexican rural communities, the lack of employment and credit options
means that international migration is a common household-level strategy for
diversifying economic risks (Flores, Hernandez-Leon and Massey 2004).
Nonetheless, outmigration from rural communities is less common compared
to small urban communities (Hamilton and Villarreal 2011). Despite the fact
that migrant networks reduce the costs and risks of migration for many rural
residents, lack of adequate transport infrastructure, employment, and credit
options in rural areas mean that international migration is a less affordable
strategy for rural compared to small urban residents (McKenzie and Rapoport

3) In contrast to rural communities, urban areas are characterized by greater
social differentiation, anonymity and mobility (Wirth 1938). While these
conditions do not automatically prevent migration networks from forming in
urban communities, they may reduce the propensity of networks to expand so
as to encompass all socioeconomic and demographic sectors of a given
community of origin. Rural communities are characterized by tight social
bonds and a culture of solidarity and reciprocity among community residents,
leading to the formation of networks that eventually become accessible to large sectors of the population. In urban settings, both community ties and norms of mutual reciprocity and solidarity are weaker, meaning that individuals of more disadvantaged backgrounds are less likely to have access to the networks that do form in urban areas. Individuals from urban communities often have to rely on close connections (such as family networks, which tend to be socioeconomically more homogeneous) in order to be able to migrate (Flores-Yeffal and Aysa–Lastra 2011; Hernandez-Leon 2008; Fussell and Massey 2004; Arias and Woo 2004; Lozano 2004; Mendoza forthcoming; Roberts, Frank and Lozano 1999).

4) Even though community migrant networks can form in urban areas (Flores, Hernandez-Leon and Massey 2004), the ability of these networks to mature is much reduced in large metropolitan areas, which are characterized both by more dynamic labor markets and a greater degree of social isolation and anonymity than smaller urban and rural communities. In major metropolitan areas, individuals and households often find sufficient labor opportunities to generate income and diversify risks, leading to fewer pressures to migrate. Moreover, because large metropolitan areas do not propagate migration through the same community channels that characterize smaller communities, a greater prevalence of U.S.-bound migration in the former does not increase the chances of any given individual migrating (Fussell and Massey 2004).
5) In urban areas where migrant networks do form, these networks are often composed of weak ties (Granovetter 1973) rather than strong community ties. Weak ties consist of neighbors, coworkers, schoolmates, fellow members of cliques, associations or clubs, or other types of links. Weak ties allow urban migrants to access information, assistance and resources they would not be able to obtain from individuals more closely related to them, such as family members or friends. The dynamics of these networks are different to those that operate in rural contexts, where relationships of kinship, friendship and 

*paisanaje* all operate as strong ties. Since ties that link urban migrants to one another are weaker compared to rural ties, urban migrants receive less support through community migrant networks (Flores-Yeffal 2013; Hernandez-Leon 2008; Flores 2006; Arias and Woo 2004; Mendoza forthcoming). Moreover, since urban ties are usually subject to lower levels of surveillance and sanctions from the entire community than is the case for rural ties, they tend to be less stable and reliable (Flores-Yeffal 2013; Flores 2006). These features of urban ties mean that while migration can be diffused and acquire a self-reproducing character in cities through urban networks, these networks are unlikely to expand in order to incorporate large numbers of socioeconomically disadvantaged individuals.

These elements can be combined to produce a theoretical account of how the different characteristics of rural and urban areas combine to influence in different ways the migration decisions of individuals and households. In both rural and urban
communities migration may initially be adopted by households located at intermediate levels of the socioeconomic scale. These households may be better able to finance the costs of migration than lower income households. These households also have greater economic need than members of higher-income households, making them more likely to pursue migration as a strategy to generate income and diversify risks.

Consequently, the earliest migrants from both rural and urban communities may be individuals with intermediate education levels. In the course of migration, these “migration pioneers” obtain migratory experience, which constitutes a form of capital that can be transmitted to other individuals through social ties. By forming ties with individuals from other households in their communities of origin, individuals with prior migration experience facilitate the diffusion of migration. Through network ties, previous migrants provide information, resources, and support to other households and individuals from their origin communities, helping to set in motion the process of cumulative causation.

Which individuals end up having access to these network ties, however, may depend on the strength of the network ties, which in turn may depend on the level of urbanization in the community. In rural communities, social ties tend to be close and individuals are more likely to know each other. These communities are often characterized by solidarity and reciprocity norms that tend to link individuals to one another regardless of socioeconomic status. These features make it more likely that individuals with little education will have ties to more educated individuals with U.S. migration experience. Through these ties, the less educated can probably obtain the
social capital they need in order to reduce the costs and risks associated with international 
migration. After they acquire migration experience to the U.S., these less-educated 
individuals may in turn become sponsors for other migrants. Since strong community ties 
may increase the likelihood of migration for the less educated, community networks that 
arise out of these ties may reduce rural migrant selectivity as they grow and develop.

In urban contexts, international migration might be a strategy that is also initially 
adopted mostly by households of intermediate socioeconomic levels. As is the case in 
rural areas, members of middle-class households in urban areas have greater economic 
need than members of higher-income households, making them more likely to pursue 
migration as a strategy to generate income and diversify risks. Since urban ties are 
weaker than rural ties, the networks created by urban migrants tend not to spread equally 
to all socioeconomic sectors of the community, but to remain accessible mostly to 
households located above a certain threshold in term of socioeconomic status. In this 
situation, the growth of networks in an urban community may not be associated with 
migration becoming less selective over time.

Rural migrant networks connect individuals through community level ties, all of 
which operate as strong ties. Feelings of solidarity and community surveillance both lead 
individuals to offer assistance to other members of the same community, irrespective of 
socioeconomic differences (Flores-Yeffal and Aysa-Lastra 2011; Flores-Yeffal 2013). 
Urban migrant networks, on the other hand, connect individuals through weak ties rather 
than strong community ties. Weak ties have been found to play an important role in 
facilitating international migration in a variety of contexts (Hernandez-Leon 2008; Garip
2008; Flores-Yeffal and Aysa-Lastra 2011; Wilson 2012; Liu 2013; Giuletti, Wahba and Zenou 2014). This, however, does not automatically mean that urban networks tend to encompass all individuals in the community of origin in the same manner that rural networks do. In urban areas of Mexico, where strong community networks are not as common, migration may be more selective than in rural areas. In urban areas, the existence of a pool of previous migrants may only increase the likelihood of migration for those who develop a weak link to those migrants.

This argument on the relationship between urbanization, strength of network ties, and selectivity is supported by recent research on the social dynamics derived from the reproduction of migrant networks. In a study of migrant networks in rural villages in Thailand, Garip and Curran (2010) and DiMaggio and Garip (2011) found that these networks can generate and reproduce inequality in access to migration instead of reducing it. These authors found that access to networks can be concentrated on subsets of the origin population that are advantaged in terms of resources and connections. I hypothesize that this type of outcome is highly likely in contexts with greater social heterogeneity and isolation (such as Mexican urban areas). Consistently with this line of thought, I argue that, contrary to rural migrant networks, urban networks may only increase the likelihood of migration for households and individuals located above a certain threshold in terms of socioeconomic status.

In cities, individuals of higher socioeconomic status (SES) may be more able to forge links to previous migrants, even if these migrants are of lower SES. This, however, will not mean that migrants of higher SES will in turn assist more individuals of lower
SES to migrate. As Bashi (2007) found in a study of international migration from the English-speaking Caribbean, the proclivity of initial groups of migrants to assist in the migration of a wide variety of individuals from their home countries does not mean that the newer arrivals will be equally likely to participate in sponsoring the migration of a diverse group of individuals. In demographic terms, this means that migrant networks can grow substantially in terms of size while remaining mostly concentrated on a narrow educational and socioeconomic stratum. In other words, network growth may not be associated with less selectivity in urban areas.

But why would be the more educated be interested in migrating to the United States if they can attain high rewards in the Mexican labor market? I hypothesize that in small urban areas in particular, the incentives to migrate may be quite high for highly-educated Mexicans. In small cities, labor markets are less developed and returns to education are lower compared to metropolitan areas. A consequence of this may be that more educated individuals residing in small cities may migrate as a response to scarce economic opportunities. This notion is supported by evidence that suggests households and individuals with high levels of education in Mexican urban areas use migration as a strategy to supplement labor- and investment-related incomes earned in Mexico (Lozano 2004). Moreover, evidence from rural and urban areas in Mexico suggests that opportunities for productive investment, which tend to be more accessible to the more educated, are associated with a greater likelihood of U.S. migration (Lindstrom and Lauster 2001).
A consequence of these processes may be that many Mexican urbanites with greater education levels are more likely to opt for migration as a risk-diversifying strategy if their households develop ties with individuals who have already migrated (Mendoza forthcoming; Wilson 2012; Lozano 2004; Lindstrom and Lauster 2001). More educated individuals tend to come from more socioeconomically advantaged households, which in turn are more likely to have ties to urban migrant networks, making migration easier for this group.

In large metropolitan areas, labor markets are more developed and returns to education are higher than is the case in small urban communities. While access to migrant networks in these areas may still be more difficult for disadvantaged households and easier for advantaged ones, migrant selectivity can be intermediate rather than positive. Highly educated individuals can take advantage of the higher returns to their skills to generate income, and thus be less likely to migrate.

The above discussion suggests that factors at the individual, household, and community levels interact to produce differences in the way networks shape migrant selectivity patterns. In order to test this argument empirically, I analyze data from a wide array of rural and urban Mexican communities. I also employ statistical multivariate methods to study the relationship between community size, migrant networks and migrant selectivity.
DATA, METHODS, AND ANALYTIC STRATEGY

This study uses data from the Mexican Migration Project (MMP), a survey on Mexican migration to the United States coordinated by Princeton University and the University of Guadalajara (Mexico). Since the eighties, the MMP has collected detailed demographic and socioeconomic information on households and individuals in a variety of Mexican communities. For members of each household, it includes detailed information on access to family-based and community-based migrant networks, as well as several aspects of their internal and international migratory experience (if any). The survey constructs a complete life history for the head of each household included in the sample, focusing on life events such as entering and leaving school, becoming married, separated or divorced, entering and leaving the workforce, having children, and migrating (either internally within Mexico or to the United States). The survey also collects information on a variety of demographic, social and economic community characteristics, making it especially suitable for studying how these characteristics are related to migration patterns (Donato 2010).

The MMP started in 1982 with a study of four communities in Western Mexico. Since 1987, new communities have been surveyed every year, with the goal of collecting information that is as representative of Mexico’s social, economic, political and cultural
profile as possible. Within each community, a probabilistic sample of households is selected. In each household, the head (or the head’s spouse if the head is not available) is interviewed using a semistructured method. Interviews are conducted in each of the selected households regardless of whether any household members have U.S. migration experience or not, making the MMP useful for comparing the migrant and nonmigrant populations. In order to generate data on the experiences of current migrants, the information obtained is complemented with interviews conducted with individuals from each surveyed community who reside in U. S. households at the time of the survey (Mexican Migration Project 2014).

The MMP includes a large amount of data on communities of different sizes, making it well-suited for comparing migration flows from rural and urban areas. Communities are classified as rural or urban according to their population. Areas with less than 10,000 inhabitants are considered rural, while areas with 10,000 inhabitants or more are considered urban. Within urban communities, those with less than 100,000 inhabitants are classified as small cities, while those with at least 100,000 inhabitants are classified as metropolitan areas (Mexican Migration Project 2014). This classification has been found to be useful for analyzing differences between rural and urban migrant flows (Fussell and Massey 2004; Garip 2012).

The criteria used here for differentiating between rural and urban areas are similar to those used by Lindstrom and Lopez (2010). They are, however, not equivalent to those used by McKenzie and Rapoport (2010) and Fernandez-Huertas (2013). The first of these studies defines urban areas as those having at least 20,000 inhabitants, while the second
defines urban areas as those having at least 2,500 inhabitants. This disparity in definitions may present difficulties when trying to compare the results of this study to previous studies.

Data from the MMP has been employed previously to compare Mexico-U.S. migration flows originating from rural and urban areas (Fussell and Massey 2004; Flores, Hernandez-Leon and Massey 2004; Lindstrom and Lopez 2010; Flores-Yeffal and Aysa-Lastra 2011). Several important findings about urban-origin migration based on MMP data come from studies published a decade ago (Fussell and Massey 2004; Flores, Hernandez-Leon and Massey 2004). In the meantime, the MMP has expanded its coverage so that the number of communities included in the database has more than doubled (from 70 to 143 communities). The number of small urban and metropolitan community areas included has also doubled (see Figure 1). The relatively small number of urban communities surveyed until 2004 may mean that the results obtained in those studies are not fully representative of urban-origin Mexico-U.S. migration as a whole. It is then pertinent to use the larger dataset to compare rural and urban communities and evaluate the robustness of previous findings.

The current era of Mexican migration to the United States is considered to have begun in 1965. Before 1965, a binational guest worker program (known as Bracero program) allowed millions of Mexicans to migrate legally to the United States to work for short periods of time (mostly in agricultural production). This program began in 1942, driven both to the availability of surplus labor in Mexico and the high demand for labor
in the United States as a result of World War II. Even though the Bracero program was terminated by the United States Congress in 1964, Mexican migration to the United States not only continued in subsequent decades, but grew substantially due both to economic crises in Mexico and the continuing demand for low-cost labor in the United States. Because of increasing restrictions on immigration put in place by the American government, the post-1965 period is characterized by a predominance of undocumented migration (Massey, Pren and Durand 2009).

Mexico-U.S. migration flows during the current era have been found to differ from those of previous times in terms of the demographic, social and economic forces shaping them, as well as the U.S. policy context within which they took place (Massey et
Since the MMP includes data about Mexico-U.S. migration that extends back in time far beyond the current era, I needed to exclude this information in order to focus the analysis on the current (post-1965) era of Mexican migration. In order to achieve this, I left-truncated the life history data so that individuals are considered to be at risk of taking a first U.S. trip only from 1965 onwards. By doing this I include all available information on current-era migration while leaving out information on migration from previous eras. Only data for communities surveyed from 1987 to 2013 (139 out of 143 communities) are considered, as the four communities surveyed in 1982-1983 have a stronger focus on migration flows before the post-1965 era (Massey et al. 1987; Fussell and Massey 2004).

This study includes only household heads aged 15 and over, comparing individuals who make at least one trip to the United States (migrants) to those individuals who at the time of the survey had not made any migratory trips to that country (nonmigrants). I focus on male migrants because females are more likely to migrate in order to follow a family member who has already migrated (Cerrutti and Massey 2001, Kanaiaupuni 2000). Since the theoretical model used is better suited to explain labor migration than family migration, and since males are more likely than females to be labor migrants, only male household heads are included in the analysis.

The method I use for estimating selectivity involves discrete-time event history multivariate models that compare the determinants of migration across metropolitan areas, small urban areas, and rural areas (this last category comprising both towns and villages). The dependent variable in all models is a binary outcome that takes on a value
of one if the household head in question has taken a first trip to the United States, and a value of zero otherwise. Heads are considered to be at risk of taking a first trip between the ages of 15 and 65. Once an individual takes a first trip to the U.S., any remaining post-trip person-years are excluded from consideration. Data are right-censored at the time of the survey, meaning that heads who have not taken a first trip at that time are considered nonmigrants.

In order to estimate the level of community migration-related social capital available to individuals in the community, I used the community-level migration prevalence ratios included with the MMP data for each decade from 1960 onwards. This time-changing ratio is obtained by dividing the number of community residents aged 15 and older who have made at least one trip to the United States by the total number of community residents aged 15 and older. This ratio is calculated for all years from 1965 through the year of the survey. The migration prevalence ratio measures the availability of previous migrants who can potentially provide support to residents of the same community who are interested in making a first trip to the United States. This indicator has been found to predict the likelihood of migrating internationally in both rural and urban areas of Mexico (Kanaiaupuni 2000; Flores, Hernandez-Leon and Massey 2004). The migration-prevalence ratio is used here as a predictor of the likelihood of migration. It also allows me to estimate the effects of migrant networks on selectivity by interacting it with the level of education variable.

The baseline regression models estimated (one for each type of community studied) have two objectives. The first is to obtain logit regression coefficients to
determine whether the availability of previous international migrants in the community (migration-related social capital) increases the likelihood of making a first trip to the United States. Since one previous study found that community social capital did not increase the probability of making a U. S. trip for individuals from metropolitan areas (Fussell and Massey 2004) I am interested in learning whether this result holds after taking into account the new communities included in the MMP143 dataset. The second objective is to estimate educational selectivity by obtaining logit regression coefficients for different educational categories. If the education variable is found to have a significant effect, it can be determined whether migration selects for individuals with higher, middle, or lower levels of education, depending on the direction of the logit coefficients.

In order to achieve both of these objectives, I control for a set of characteristics (demographic factors, human capital, social capital, migration experience, capital assets, and community-level factors) that influence the likelihood of migrating to the United States (see Table 1). I also incorporate a variable the represents changes in both the economic context in Mexico and the immigration policy context in the United States. Taken together, these factors have been found to be the most important in explaining Mexico-U.S. migration (Massey and Garcia-Espana 1987; Massey and Espinosa 1997).

As noted by several authors (Durand, Massey and Zenteno 2001; Feliciano 2008), the age control variables are especially important for the analysis of selectivity. During the time period analyzed in this study, the level of education in Mexico has risen considerably, meaning that more recent migrant cohorts will tend to have more education
Table 1. Independent variables used in the analysis

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic background</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>Years</td>
</tr>
<tr>
<td>Age squared</td>
<td>Squared years</td>
</tr>
<tr>
<td>Ever married or in union</td>
<td>1 if ever married or in union; 0 otherwise</td>
</tr>
<tr>
<td>Number of minors in household</td>
<td>Minors</td>
</tr>
<tr>
<td>Human capital</td>
<td></td>
</tr>
<tr>
<td>Education (reference cat. = 5 to 9 years)</td>
<td></td>
</tr>
<tr>
<td>No education</td>
<td>1 if no education; 0 otherwise</td>
</tr>
<tr>
<td>1 to 4 years of education</td>
<td>1 if 1 to 4 years of education; 0 otherwise</td>
</tr>
<tr>
<td>10 or more years of education</td>
<td>1 if 10 or more years of education; 0 otherwise</td>
</tr>
<tr>
<td>Skilled occupation</td>
<td>1 if working in skilled occupation; 0 otherwise</td>
</tr>
<tr>
<td>Months of labor force experience</td>
<td>Months</td>
</tr>
<tr>
<td>Social capital in the family</td>
<td></td>
</tr>
<tr>
<td>Parent a U.S. migrant</td>
<td>1 if at least one parent has migrated to the U.S.; 0 otherwise</td>
</tr>
<tr>
<td>Sibling a U.S. migrant</td>
<td>1 if at least one sibling has migrated to the U.S.; 0 otherwise</td>
</tr>
<tr>
<td>Social capital in the community</td>
<td></td>
</tr>
<tr>
<td>Migration prevalence ratio</td>
<td>Ratio of community residents 15 and older with U.S. migration experience to total number of community residents 15 and older</td>
</tr>
<tr>
<td>Migration experience</td>
<td></td>
</tr>
<tr>
<td>Internal migratory experience</td>
<td>1 if has migrated within Mexico; 0 otherwise</td>
</tr>
<tr>
<td>Capital assets</td>
<td></td>
</tr>
<tr>
<td>Land ownership</td>
<td>1 if owns at least one land parcel; 0 otherwise</td>
</tr>
<tr>
<td>Property ownership</td>
<td>1 if owns at least one property; 0 otherwise</td>
</tr>
<tr>
<td>Business ownership</td>
<td>1 if owns at least one business; 0 otherwise</td>
</tr>
<tr>
<td>Community size (reference cat. = rural area)</td>
<td></td>
</tr>
<tr>
<td>Resident of small city</td>
<td>1 if resides in small city; 0 otherwise</td>
</tr>
<tr>
<td>Resident of metropolitan area</td>
<td>1 if resides in metropolitan area; 0 otherwise</td>
</tr>
<tr>
<td>Economic crisis period</td>
<td>1 if 1982-1985 period; 0 otherwise</td>
</tr>
<tr>
<td>IRA period</td>
<td>1 if 1986-1991 period; 0 otherwise</td>
</tr>
<tr>
<td>Post-IRCA period</td>
<td>1 if 1992-2000 period; 0 otherwise</td>
</tr>
<tr>
<td>Post-September 11 period</td>
<td>1 if 2001-2007 period; 0 otherwise</td>
</tr>
<tr>
<td>Post-2008 peak migration period</td>
<td>1 if 2008-2013 period; 0 otherwise</td>
</tr>
</tbody>
</table>

Source: Data from Mexican Migration Project.
than older migrant cohorts (Massey, Goldring and Durand 1994). This means that individuals who took a first trip shortly before the survey will tend to have more education than those who migrated in earlier periods. The potential for bias stems from the fact that, at the time of the survey, younger, more educated individuals will be more represented among recent migrants, while older, less educated individuals will be more represented among earlier migrants. This may lead to an upward bias in estimating educational selection, which I correct by controlling for age in the regression model.

Following Durand, Massey and Zenteno (2001) I define four educational categories based on years of schooling achieved at each person-year: no education, one to four years of education, five to nine years of education, and ten or more years of education. While this categorization does not exactly match the structure of the Mexican educational system, it adequately captures the educational distribution of the Mexican population. The category 5 to 9 years of education includes the mean, median and modal values of education for the entire sample, as well as for rural areas, small cities and metropolitan areas taken separately. Since this category represents accurately the central tendency of all the included distributions, I decided to use it as the reference category in the analysis.

Having parents or siblings with migration experience to the United States is a form of social capital that facilitates the migration of Mexican individuals to the United States (Massey et al. 1987; Fussell and Massey 2004). Family networks can complement community networks to facilitate the migration of individuals to the United States. Family networks can also be facilitate the migration of individuals when their household
cannot access any community networks (Fussell and Massey 2004; Flores-Yeffal and Aysa Lastra 2011). Given these features, and since this study focuses on the influence of community-level networks on selectivity, the associations between family networks and migration are estimated as control variables.

The economic and policy context variables control for the effect of large-scale social, economic, and political changes on the propensity of individuals to migrate. The economic crisis in Mexico in the early eighties forced many Mexicans into international migration as employment and income opportunities declined dramatically. The passage of the Immigration Reform and Control Act (IRCA) in 1986 brought about increased immigration, as the legalization of millions of Mexicans allowed them to bring their families over to the United States. The Post-IRCA period also saw increased immigration, driven by the integration of the two economies via the North American Free Trade Agreement (NAFTA), the 1994-1995 economic crisis in Mexico, strong economic growth in the United States, the momentum generated by IRCA, and the development of migrant networks (Massey, Pren and Durand 2009).

The World Trade Center attacks in 2001 led to increased border enforcement and higher rates of deportation of undocumented aliens as part of a strategy designed to strengthen national security, factors that contributed to reducing immigration from Mexico. Nonetheless, the economic boom experienced during much of that decade contributed to slowing down this trend as it attracted more Mexican immigration. The economic recession that began in 2008, however, combined with stricter measures against undocumented immigration, led once more to sharp decreases in Mexico-U.S.
migration (Passel, Cohn and Gonzalez-Barrera 2012). The regression models include dummy variables that control for differences in the likelihood of migrating during each of the historical periods described above.

Regression coefficients for all the independent variables are estimated with a one-year lag. Lagging the regression coefficients makes it easier to find causal relationships between the independent variables and the likelihood of migrating, since the effect of a specific life event on migration is estimated only after the event occurs. Since migrants can increase their educational attainment after their first trip, there is a possibility that using years of education at the time of first migration may provide a biased measure of their skill level. The potential for bias due to schooling attained after migration is small in the case of migrants surveyed in the MMP, as only 1.8 percent of male migrants earned additional years of schooling after making a first trip to the U. S. For this reason, I decided to estimate selection using educational level at the time of the first trip, without any further adjustments.

After estimating selectivity with the baseline models, I fit a series of models that include all the controls from the first set, but also add in interaction terms between migration prevalence ratio in the community and the education level of the individual. These interaction terms allows me to estimate whether the prevalence of migration in a given community makes it more or less likely that an individual of a given education level will migrate. A positive interaction between prevalence ratio and lower education levels, for example, would suggest that the likelihood of migration for less educated individuals increases with the development of migration-related social capital in the
community (as Massey, Goldring and Durand (1994) suggest). Likewise, a negative interaction between prevalence ratio and a lower education level would suggest that community social capital does not increase the likelihood of migration for individuals with less education. Similar conclusions apply for interactions between community social capital and higher levels of education.

The objective of the models with interactions is to determine whether community networks have different effects on selectivity depending on the level of urbanization of the community. This procedure is similar to that used by Orrenius and Zavodny (2005) to estimate the effect of economic factors on the selectivity of Mexico-U.S. migrants.
RESULTS

*Trends in Migration Prevalence*

Fussell and Massey (2004) found that Mexican communities of different urbanization levels differ in their proportion of individuals with migration experience. According to this study, large metropolitan areas on average have lower migration-prevalence ratios than both small urban and rural communities. In Figure 2 I present the results of a reproduction of this exercise using MMP143 data. While this data spans the 1960-2013 period, data for most of the study communities is truncated before 2013, depending on the date of the survey for each community. Results for the last study years are thus likely to be less stable.

Migration-prevalence ratios increased significantly in the seventies in all three types of areas, driven by an economic crisis in Mexico that forced many Mexicans into migration to the U.S. In rural and small urban areas in particular, this growth was also partially driven by the migrant networks that formed as a result of the Bracero program. Since this program excluded metropolitan areas for the most part, migration-prevalence ratios in these areas remain consistently below those of less urbanized places.

Further economic crises during the eighties increased migration to the U.S. in all three types of communities. Migration-prevalence ratios reached their peak in the late eighties in metropolitan areas, and in the early nineties in small cities and rural...
I find that small cities have on average the largest migration-prevalence ratios for most of the period ranging from 1960 to 2013. Rural areas have the second largest migration ratios for most of the period, while metropolitan areas have the lowest average migration-prevalence ratios during the entire period. Equivalent results are found if rural areas are disaggregated into villages and towns. Except for brief periods of time,
migration-prevalence ratios are highest in small cities, followed by villages, then rural towns and then metropolitan areas (results not shown). This finding is consistent with that of Hamilton and Villarreal (2011) that U.S.-bound migrants are more likely to originate in communities with middle levels of urbanization. It is, however, inconsistent with Fussell and Massey’s (2004) previous finding that small rural communities had the largest average migration-prevalence ratios for the most of the 1950-1998 period. This difference may be the result of small urban areas with unusually low levels of U.S.-bound migration being overrepresented in Fussell and Massey’s study.

Higher migration prevalence in small urban areas compared to rural areas may reflect the fact that the former have better infrastructure, employment and credit opportunities. These factors may make international migration more affordable as a risk-diversifying strategy for households in small urban areas. Lower migration prevalence in metropolitan areas compared to small urban areas, on the other hand, suggests that in the former employment and credit options are greater, making international migration less attractive as an income-generating strategy.

Fussell and Massey (2004) argue that small cities experience processes of cumulative causation of migration similar to those that develop in rural areas. My finding that migration-prevalence ratios are higher in small urban areas than in rural areas, however, suggests the need to analyze processes of cumulative causation in these areas separately from the rest.

Fussell and Massey (2004) also interpret the lower migration-prevalence ratios in metropolitan areas as evidence that processes of cumulative causation leading to the self-
reproduction of migration are less likely to occur in large metropolitan areas compared to smaller cities and rural communities. Contrary to these authors, I do not find the rate of decline in average migration-prevalence ratios after the eighties to be more pronounced in metropolitan areas compared to other types of community. For this reason, I argue that the possibility that cumulative causation processes take place in large metropolitan areas cannot be ruled out without further analysis. In the following subsection I explore whether community networks contribute to the self-reproduction of migration in metropolitan areas, and whether there is a relationship between these networks and selectivity.

One last aspect to consider is that for the three types of communities, migration-prevalence ratios increase significantly during the first few decades and then decline. This dynamic must be taken into account when interpreting the results of the regression model that interacts educational and migration-prevalence ratio variables. For example, if it is found that the likelihood of migration for a particular educational group increases with the growth of community networks, this result should be interpreted as the likelihood of migration for that group increasing in early periods (when migrant networks were in a process of expansion) and decreasing in later periods (when migrant networks were in a process of decline).

Migrant Selectivity in Rural and Urban Communities in Mexico
Table 2 presents descriptive statistics for the independent variables used in the analysis. These values refer to the characteristics of migrants and nonmigrants at the time of the survey.

Standard deviations are denoted using parentheses. Results are broken down by community size (rural, small urban, or metropolitan) and previous migration experience to the United States. For all variables except migration-prevalence ratio, migrants are compared to nonmigrants using tests for differences between means or proportions. Migration-prevalence ratios, on the other hand, are compared across the three community size categories using a one-way ANOVA test.

Migrants are on average younger than nonmigrants in the entire sample. This difference holds for all three types of communities, though it is smaller for metropolitan areas. The differences in age are extremely significant in all cases. Increases in migration prevalence during the period when the MMP data were collected may explain why migrants tend to be younger than nonmigrants. The proportion of individuals who have been in a union is very high (close to ninety percent in the entire sample and 85 percent or greater in all three types of communities). Given that the data focus only on household heads, and that household formation without a union (marital or non-marital) is rare in Mexico, these results are not surprising.

There are no significant differences with respect to having been in a union between migrants and nonmigrants. On the other hand, the mean number of minors in the household is significantly higher for migrants compared to nonmigrants, both in the
<table>
<thead>
<tr>
<th>Variable</th>
<th>Total</th>
<th>Rural community</th>
<th>Small city</th>
<th>Metropolitan area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age</td>
<td>40.17***</td>
<td>40.22***</td>
<td>39.83***</td>
<td>40.72***</td>
</tr>
<tr>
<td>Migrants</td>
<td>(10.92)</td>
<td>(10.50)</td>
<td>(10.49)</td>
<td>(11.87)</td>
</tr>
<tr>
<td>Nonmigrants</td>
<td>48.85</td>
<td>50.26</td>
<td>48.36</td>
<td>46.68</td>
</tr>
<tr>
<td>(15.53)</td>
<td>(15.62)</td>
<td>(15.55)</td>
<td>(15.10)</td>
<td></td>
</tr>
<tr>
<td>Percentage ever in union</td>
<td>88.84</td>
<td>88.54</td>
<td>91.41</td>
<td>84.43</td>
</tr>
<tr>
<td>Migrants</td>
<td>(31.49)</td>
<td>(31.86)</td>
<td>(28.03)</td>
<td>(36.29)</td>
</tr>
<tr>
<td>Nonmigrants</td>
<td>88.61</td>
<td>89.03</td>
<td>90.38</td>
<td>86.38</td>
</tr>
<tr>
<td>(31.77)</td>
<td>(31.25)</td>
<td>(29.49)</td>
<td>(34.30)</td>
<td></td>
</tr>
<tr>
<td>Mean number of minors in household</td>
<td>2.41***</td>
<td>2.49***</td>
<td>2.45***</td>
<td>2.00***</td>
</tr>
<tr>
<td>Migrants</td>
<td>(1.80)</td>
<td>(1.85)</td>
<td>(1.73)</td>
<td>(1.66)</td>
</tr>
<tr>
<td>Nonmigrants</td>
<td>1.68</td>
<td>1.72</td>
<td>1.83</td>
<td>1.49</td>
</tr>
<tr>
<td>(1.77)</td>
<td>(1.87)</td>
<td>(1.84)</td>
<td>(1.50)</td>
<td></td>
</tr>
<tr>
<td>Percentage with no education</td>
<td>6.81***</td>
<td>7.67***</td>
<td>5.99***</td>
<td>4.80+</td>
</tr>
<tr>
<td>Migrants</td>
<td>(0.25)</td>
<td>(0.27)</td>
<td>(0.24)</td>
<td>(0.21)</td>
</tr>
<tr>
<td>Nonmigrants</td>
<td>13.31</td>
<td>16.47</td>
<td>14.31</td>
<td>6.70</td>
</tr>
<tr>
<td>(0.34)</td>
<td>(0.37)</td>
<td>(0.35)</td>
<td>(0.25)</td>
<td></td>
</tr>
<tr>
<td>Percentage with 1 to 4 years of education</td>
<td>25.70</td>
<td>29.08</td>
<td>24.33</td>
<td>13.83</td>
</tr>
<tr>
<td>Migrants</td>
<td>(0.44)</td>
<td>(0.45)</td>
<td>(0.43)</td>
<td>(0.35)</td>
</tr>
<tr>
<td>Nonmigrants</td>
<td>25.54</td>
<td>30.69</td>
<td>26.54</td>
<td>15.27</td>
</tr>
<tr>
<td>(0.44)</td>
<td>(0.46)</td>
<td>(0.44)</td>
<td>(0.36)</td>
<td></td>
</tr>
<tr>
<td>Percentage with 5 to 9 years of education</td>
<td>52.98***</td>
<td>52.04***</td>
<td>54.85***</td>
<td>52.98+</td>
</tr>
<tr>
<td>Migrants</td>
<td>(0.50)</td>
<td>(0.50)</td>
<td>(0.50)</td>
<td>(0.50)</td>
</tr>
<tr>
<td>Nonmigrants</td>
<td>41.68</td>
<td>39.20</td>
<td>38.97</td>
<td>48.48</td>
</tr>
<tr>
<td>(0.49)</td>
<td>(0.49)</td>
<td>(0.49)</td>
<td>(0.36)</td>
<td></td>
</tr>
<tr>
<td>Percentage with 10 or more years of education</td>
<td>14.36***</td>
<td>11.07***</td>
<td>14.83***</td>
<td>28.09</td>
</tr>
<tr>
<td>Migrants</td>
<td>(0.35)</td>
<td>(0.31)</td>
<td>(0.36)</td>
<td>(0.45)</td>
</tr>
<tr>
<td>Nonmigrants</td>
<td>19.34</td>
<td>15.50</td>
<td>20.15</td>
<td>29.39</td>
</tr>
<tr>
<td>(0.39)</td>
<td>(0.34)</td>
<td>(0.40)</td>
<td>(0.46)</td>
<td></td>
</tr>
<tr>
<td>Percentage in skilled occupations</td>
<td>28.09</td>
<td>24.30</td>
<td>29.76</td>
<td>40.96</td>
</tr>
<tr>
<td>Migrants</td>
<td>(44.95)</td>
<td>(42.90)</td>
<td>(45.73)</td>
<td>(49.21)</td>
</tr>
<tr>
<td>Nonmigrants</td>
<td>29.03</td>
<td>22.88</td>
<td>30.17</td>
<td>39.37</td>
</tr>
<tr>
<td>(45.39)</td>
<td>(42.01)</td>
<td>(45.91)</td>
<td>(48.86)</td>
<td></td>
</tr>
<tr>
<td>Mean months of labor force experience</td>
<td>310.45***</td>
<td>312.40***</td>
<td>305.23***</td>
<td>313.50***</td>
</tr>
<tr>
<td>Migrants</td>
<td>(140.68)</td>
<td>(140.26)</td>
<td>(138.81)</td>
<td>(150.62)</td>
</tr>
<tr>
<td>Nonmigrants</td>
<td>411.90</td>
<td>433.18</td>
<td>406.35</td>
<td>377.44</td>
</tr>
<tr>
<td>(196.56)</td>
<td>(196.03)</td>
<td>(197.19)</td>
<td>(191.78)</td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Characteristics of International Migrants and Nonmigrants by Community Size
entire sample and in each of the three types of communities. This difference may be explained by the lower age of migrants compared to nonmigrants.
Differences in education suggest that both individuals with no education and individuals with greater than average education levels are less likely to migrate than those with 1 to 9 years of education. The percentage of individuals with no education who are migrants is significantly lower than the corresponding percentage of nonmigrants, and the same is true for individuals with ten or more years of education. The percentage of individuals with 5 to 9 years of education who are migrants, on the other hand, is significantly greater than that for nonmigrants. All of these differences are extremely significant. In the case of the 1 to 4 years of education category, there are no significant differences between migrants and nonmigrants. These results suggest that migrants tend to be more represented among those with intermediate levels of education (5 to 9 years), and less represented both among those with no education and those with high levels of education.

In rural areas and small cities, differences in education between migrants and nonmigrants are similar to those observed for the entire sample. The educational profile of migrants from metropolitan areas, however, is very different. While among individuals with no education the percentage of migrants is lower than that for nonmigrants, the difference is only marginally significant. On the other hand, there are no significant differences in the percentage of migrants and nonmigrants in the group with 10 or more years of education. The percentage of migrants in the group of 5 to 9 years of education, for its part, is greater than the percentage of nonmigrants, but the difference is also only marginally significant. These differences suggest that in metropolitan areas migrants are
less clustered around the intermediate educational category (5 to 9 years) than is the case in less urbanized places.

There are no significant differences between migrants and nonmigrants in terms of the skill level of their current occupation. On the other hand, migrants have on average less cumulative labor force experience than nonmigrants in the entire sample, with the difference being extremely significant. Significant differences are also observed across all three urbanization categories. This may simply be a reflection of the younger age profile of migrants compared to nonmigrants.

In the entire sample, there are no significant differences in the percentage of migrants who have previous international migration experience compared to nonmigrants. However, in rural areas the percentage of U.S. migrants with internal migration experience is significantly higher than the percentage of nonmigrants. These results suggest that the presence of internal migrants among U.S. migrants of rural origin is greater compared to U.S. migrants of urban origin.

For the entire sample, the percentage of migrants is higher among those who have parents or siblings that have previously migrated. This result holds for all three types of community, with the differences being extremely significant in all cases. Overall, the presence of those who have family ties to previous migrants is greater among U.S. migrants than among nonmigrants.

Differences in migration-prevalence ratio among the three types of community are extremely significant, supporting the previous result that the likelihood of U.S.-bound migration varies depending on the size of the community of origin.
The percentage of landowners is lower among migrants for the entire sample, but the difference is not significant. Breaking the results down by community size, I found that landowners are less represented among migrants than among nonmigrants in rural and small urban areas, though in the latter case the difference is only significant at the .05 level. On the other hand, the percentage of landowners is very similar across migrants and nonmigrants in metropolitan areas, with no significant differences observed.

In the entire sample the percentage of migrants who own property is significantly lower than that for nonmigrants, with the difference being extremely significant. The percentage of migrants who own property is also significantly lower in rural and metropolitan areas, but not in small cities. Finally, the percentage of business owners is significantly lower for migrants compared to nonmigrants in the entire sample. This percentage is lower in all three types of communities, but the differences are only significant in rural and small urban areas. Overall, migrants have fewer capital assets than nonmigrants.

These results suggest that migrants are a group selected on several characteristics. Moreover, the difference in migration-prevalence ratio across community types suggests that the effect of community networks on migration is likely to vary depending on urbanization level, supporting the finding by McKenzie and Rapoport (2010).

In order to identify the educational selectivity pattern of migrants controlling for the other independent variables, I fit a series of event history logit regression models for all household heads included in the sample. As mentioned previously, the dependent
variable takes a value of zero if the individual has never migrated to the U.S., and a value of one if a first trip to that country has been taken.

I begin by fitting a baseline model for the entire sample (Table 3). According to this model, age is positively associated with taking a first trip to the U.S., while age squared is negatively associated with taking a first trip (both results are extremely significant). Consequently, we can conclude that the likelihood of migration increases with age up to a certain point and then decreases. This result suggests that the first U.S.-bound trip tends to occur when the individual is at intermediate stages of his work life, and is less likely to occur when he is either younger or older.

Union formation is associated with a greater likelihood of migration. This likelihood, however, descends with each additional minor in the household. Taken together, these results suggest that for Mexican males, the likelihood of U.S. migration is highest in early stages of the family formation process and decreases as the number of children increases. While the pressures to migrate may increase when males enter into a union and acquire financial responsibilities as household heads, having children may act as a deterrent to migration.

In the baseline model, the logit coefficients for all educational categories are negative with respect to the reference category (5 to 9 years of education). Given the fact that all education coefficients are extremely significant, the baseline model suggests an intermediate educational selection pattern.

Migration experience and social capital increase the likelihood of migration to the U.S. Having made at least one migratory trip within Mexico is associated with a greater
<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Baseline model</th>
<th>Model with interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographic characteristics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.223***</td>
<td>0.224***</td>
</tr>
<tr>
<td>Age squared</td>
<td>-0.004***</td>
<td>-0.004***</td>
</tr>
<tr>
<td>Married or in union</td>
<td>0.053***</td>
<td>0.054***</td>
</tr>
<tr>
<td>Minors in household</td>
<td>-0.006***</td>
<td>-0.007***</td>
</tr>
<tr>
<td><strong>Human capital</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education (ref.=5 to 9 years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No education</td>
<td>-0.367***</td>
<td>-0.297***</td>
</tr>
<tr>
<td>1 to 4 years</td>
<td>-0.042***</td>
<td>0.140***</td>
</tr>
<tr>
<td>10 or more years</td>
<td>-0.552***</td>
<td>-0.355***</td>
</tr>
<tr>
<td>Occupation (ref.=Unskilled occupation/not in labor force)</td>
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<td></td>
</tr>
<tr>
<td>Skilled occupation</td>
<td>-0.085***</td>
<td>-0.083***</td>
</tr>
<tr>
<td>Labor force experience</td>
<td>0.002***</td>
<td>0.002***</td>
</tr>
<tr>
<td>Internal migratory experience</td>
<td>0.167***</td>
<td>0.169***</td>
</tr>
<tr>
<td>Parent a U.S. migrant</td>
<td>0.612***</td>
<td>0.614***</td>
</tr>
<tr>
<td>Sibling a U.S. migrant</td>
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<td>1.132***</td>
</tr>
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<td>Social capital in the community</td>
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<tr>
<td>Migration-prevalence ratio</td>
<td>3.899***</td>
<td>4.400***</td>
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<td><strong>Physical capital</strong></td>
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<tr>
<td>Owns land</td>
<td>-0.011*</td>
<td>-0.013</td>
</tr>
<tr>
<td>Owns property</td>
<td>0.027**</td>
<td>0.028**</td>
</tr>
<tr>
<td>Owns business</td>
<td>-0.218***</td>
<td>-0.219***</td>
</tr>
<tr>
<td><strong>Community size</strong></td>
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<tr>
<td>Community size (ref.=Rural)</td>
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<tr>
<td>Small urban</td>
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<td>0.180***</td>
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<tr>
<td>Metropolitan</td>
<td>-0.371***</td>
<td>-0.371***</td>
</tr>
<tr>
<td><strong>Mexican Economic and U.S. Policy Context</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time period (ref.=Post-Pacific period (1965-1981))</td>
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</tr>
<tr>
<td>Economic crisis period (1982-1985)</td>
<td>0.676***</td>
<td>0.679***</td>
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<tr>
<td>IRCA period (1986-1991)</td>
<td>0.975***</td>
<td>0.979***</td>
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<tr>
<td>Post-IRCA period (1992-2000)</td>
<td>1.240***</td>
<td>1.249***</td>
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<tr>
<td>Post-September 11 period (2001-2007)</td>
<td>1.478***</td>
<td>1.483***</td>
</tr>
<tr>
<td>Post-2008 period (2008-2013)</td>
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<td>1.596***</td>
</tr>
<tr>
<td>Intercept</td>
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<td>-6.744***</td>
</tr>
<tr>
<td><strong>Interactions (ref.=5 to 9 years of education x migration-prevalence ratio)</strong></td>
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<td></td>
</tr>
<tr>
<td>No education x migration-prevalence ratio</td>
<td>-</td>
<td>-0.539***</td>
</tr>
<tr>
<td>1 to 4 years of education x migration-prevalence ratio</td>
<td>-</td>
<td>-1.075***</td>
</tr>
<tr>
<td>10 or more years of education x migration-prevalence ratio</td>
<td>-</td>
<td>-1.321***</td>
</tr>
<tr>
<td>Log likelihood</td>
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<td>-178,809.0</td>
</tr>
<tr>
<td>Chi-square</td>
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<td>118,406.0</td>
</tr>
<tr>
<td>Total person-years</td>
<td>657,254</td>
<td>657,254</td>
</tr>
</tbody>
</table>

Source: Author's calculations of data from the Mexican Migration Project.

+ p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Table 3. Event History Analysis Predicting First-time Migration to the U.S.
likelihood of moving to the U.S., suggesting that the experience acquired through internal migration allows individuals to reduce the costs and risks associated with migrating internationally. Having parents or siblings with previous U.S. migration experience is also associated with taking a first U.S. trip, suggesting that individuals with family ties to migrants use the social capital obtained through these ties to reduce the costs of migration.

The migration-prevalence ratio is associated with a higher likelihood of migrating to the U.S., with the relationship being extremely significant. This suggests that the social capital obtained through community migrant networks acts as a facilitator for U.S. migration. The model with interactions (to be discussed below) reveals how changes in the prevalence of community social capital shape the educational selectivity of migrants.

Owning land makes it less likely that an individual will migrate to the U.S., but the coefficient is not significant. Owning a property, on the other hand, increases the likelihood of migration, but the result is only significant at the .05 level. Finally, owning a business makes it less likely that an individual will migrate, with the association being extremely significant. These results suggest that individuals’ access to physical capital seems to be of little relevance for increasing the likelihood of migration to the U.S. In some cases (i.e. business ownership) capital assets may actually deter individuals from migrating. The positive associations found between the social capital variables and taking a first trip, on the other hand, suggest that social capital plays a strong role in leading individuals to migrate.
Residing in a small city makes migration to the U.S. more likely compared to residing in a rural area, while residing in a metropolitan area reduces the likelihood of migrating. These results confirm the finding described in a previous subsection that migration tends to be highest in areas with intermediate urbanization levels, and lowest in metropolitan areas.

The likelihood of migration is higher for all periods after 1981 compared to the post-Bracero era (1965-1981). While migration from Mexico to the U.S. declined substantially after the nineties, the self-reproduction of migration at the community level may lead to the likelihood of migration remaining relatively high even during a period of decline. This factor may explain why the period coefficients in the regression model are all positive.

In order to test whether educational selectivity varies with the prevalence of migration in a community, I run a model interacting each of the education dummy variables with the migration-prevalence ratio in the community (Table 3). A likelihood-ratio test suggests that the model with interactions fits the data better than the baseline model at the .001 significance level. The coefficients and significance levels for the control variables remain mostly stable when interaction terms are included, though the positive association between owning property and taking a first trip is more significant in the model with interactions.

When the interaction terms are introduced in the model, the non-interacted education coefficients represent the association between education and taking a first trip to the U.S. when the migration-prevalence ratio equals zero. In other words, these
coefficients estimate educational selectivity in early stages of the development of migration streams between Mexican communities and the United States, when community networks have not yet matured and the self-reproduction of migration is still incipient. The coefficients for the interaction terms, on the other hand, show how the development of community migrant networks over time acts to shape educational selectivity by facilitating or deterring the migration of specific educational groups.

It must be noted that the ability of this model to estimate selectivity at early stages of the migration process is limited by the fact that the data are left-truncated at the year 1965. In 55 percent of the communities included in the MMP, the migration-prevalence ratio was .05 (5 percent of the total adult population) or higher in 1965, meaning that these communities had already moved beyond the initial phases of the development of their respective migration streams at the beginning of the study period (Lindstrom and Lopez 2010). Consequently, the results presented here only illustrate how selectivity evolved during the post-1965 era and should not be taken to represent the entire history of migration from the study communities.

The results from the model with interactions suggest that educational selectivity of Mexican migrants becomes increasingly positive as community networks develop in the sending areas. The non-interacted coefficient for 1 to 4 years of education is positive and extremely significant, while the coefficients for no education and 10 or more years of education are negative and are also extremely significant. This means that when very few individuals have migrated to the U.S. (that is, when migration-prevalence ratio equals zero), migration selects for those with little education (1 to 4 years) and secondly for
those with intermediate education (5 to 9 years). The high likelihood of migrating for individuals with 1 to 4 years of education contradicts the findings by Massey, Goldring and Durand (1994) and Lindstrom and Lopez (2010) that early-stage U.S. migration tends to be driven by individuals in the upper middle echelons of the educational distribution.

The interaction terms in the model denote that, as community migrant networks develop over time (i.e., as the migration-prevalence ratio increases), the Mexico U.S. flow selects for individuals with intermediate levels of education. As U.S. migration increases, the likelihood of migration for individuals with no education, 1 to 4 years of education, and 10 or more years of education declines relative to that for individuals with 5 to 9 years of education. Given that at early stages of the migration process the likelihood of making a first trip is highest for the group with 1 to 4 years of education, the results suggest that the development of community networks increases the overall selectivity of the migrant flow.

These results contradict the finding by Lindstrom and Lopez (2010) that educational selection of migrants does not change with the development of migrant networks. They also contradict the finding by McKenzie and Rapoport (2010) that more developed migrant networks are associated with negative educational selection. The results from the model with interactions presented in Table 3 suggest that the self-reproduction of migration seems to make the flow more selective, not less; as the migration-prevalence ratio increases, the highest likelihood of migration tends to shift from the group with 1 to 4 years of schooling to the group with 5 to 9 years of schooling.
This result also suggests that in later stages of the migration process, as the migration-prevalence ratio decreases and community migrant networks weaken, the migrant flow tends to revert to the selectivity pattern suggested by the non-interacted coefficients. As community networks decline, the likelihood of migration for the group with 1 to 4 years of education increases relative to the reference category.

In order to study how these patterns differ by community size, I split the sample into three categories: individuals residing in rural communities, individuals residing in small cities, and individuals residing in large metropolitan areas. In order to determine whether the effects estimated in each model differ for rural, small urban, and metropolitan respondents, I conducted Wald chi-squared tests between the coefficients. I found that all but two of the variables included had significantly different effects across models, the two exceptions being number of minors in the household and having 1 to 4 years of education. Despite the non-significance of the latter variable in the comparison between models, results from the Wald tests for the other education variables suggest that there exist important differences in the selection into migration of both individuals with no education and of the highly educated. Likewise, the significance test for the migration-prevalence ratios suggests that the influence of community networks on migration varies significantly by urbanization level, as McKenzie and Rapoport (2010) have argued. These differences suggest the need to analyze carefully how both the determinants of migration and educational selectivity work in the three types of context. Results of the event history models are presented in Table 4.
<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Rural</th>
<th>Small urban</th>
<th>Metropolitan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic characteristics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.233***</td>
<td>0.253***</td>
<td>0.153***</td>
</tr>
<tr>
<td>Age squared</td>
<td>-0.004***</td>
<td>-0.004***</td>
<td>-0.003***</td>
</tr>
<tr>
<td>Married or in union</td>
<td>0.037+</td>
<td>0.020</td>
<td>0.028</td>
</tr>
<tr>
<td>Minors in household</td>
<td>-0.008***</td>
<td>0.003</td>
<td>-0.005***</td>
</tr>
<tr>
<td>Human capital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education (ref=-5 to 9 years)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No education</td>
<td>-0.351***</td>
<td>0.022</td>
<td>-0.253***</td>
</tr>
<tr>
<td>1 to 4 years</td>
<td>-0.041**</td>
<td>0.015</td>
<td>-0.043</td>
</tr>
<tr>
<td>10 or more years</td>
<td>-0.715***</td>
<td>0.022</td>
<td>-0.056*</td>
</tr>
<tr>
<td>Occupation (ref=Unskilled occupation/not in labor force)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Skilled occupation</td>
<td>-0.014</td>
<td>0.015</td>
<td>-0.103***</td>
</tr>
<tr>
<td>Months of labor force experience</td>
<td>0.001***</td>
<td>0.000</td>
<td>0.003***</td>
</tr>
<tr>
<td>Internal migratory experience</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Previous migratory experience</td>
<td>0.118***</td>
<td>0.014</td>
<td>0.246***</td>
</tr>
<tr>
<td>Social capital in the family</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parent of U.S. migrant</td>
<td>0.381***</td>
<td>0.019</td>
<td>1.251***</td>
</tr>
<tr>
<td>Sibling of U.S. migrant</td>
<td>1.106***</td>
<td>0.013</td>
<td>1.196***</td>
</tr>
<tr>
<td>Social capital in the community</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Migration-prevalence ratio</td>
<td>4.632***</td>
<td>0.043</td>
<td>2.539***</td>
</tr>
<tr>
<td>Physical capital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Owns land</td>
<td>0.016</td>
<td>0.015</td>
<td>0.249***</td>
</tr>
<tr>
<td>Owns property</td>
<td>-0.007</td>
<td>0.029</td>
<td>0.020</td>
</tr>
<tr>
<td>Owns business</td>
<td>-0.241***</td>
<td>0.018</td>
<td>0.056+</td>
</tr>
<tr>
<td>Mexican Economic and U.S. Policy Context</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time period (ref=Post-Banco period (1965-1981))</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economic crisis period (1982-1985)</td>
<td>0.755***</td>
<td>0.020</td>
<td>0.566***</td>
</tr>
<tr>
<td>IRA period (1986-1991)</td>
<td>1.047***</td>
<td>0.018</td>
<td>0.936***</td>
</tr>
<tr>
<td>Post-IRCA period (1992-2000)</td>
<td>1.371***</td>
<td>0.018</td>
<td>1.131***</td>
</tr>
<tr>
<td>Post-September 11 period (2001-2007)</td>
<td>1.724***</td>
<td>0.024</td>
<td>0.802***</td>
</tr>
<tr>
<td>Post-2008 period (2008-2013)</td>
<td>1.908***</td>
<td>0.042</td>
<td>0.369**</td>
</tr>
<tr>
<td>Intercept</td>
<td>-6.817***</td>
<td>0.020</td>
<td>-6.238***</td>
</tr>
<tr>
<td>Log likelihood</td>
<td>-97,576.1</td>
<td>-49,162.0</td>
<td>-30,874.0</td>
</tr>
<tr>
<td>Chi-square</td>
<td>70,274.0</td>
<td>31,211.3</td>
<td>12,686.2</td>
</tr>
<tr>
<td>Total person-years</td>
<td>350,485</td>
<td>152,133</td>
<td>154,636</td>
</tr>
</tbody>
</table>

Source: Author's calculations of data from the Mexican Migration Project.

+ p<0.1 * p<0.05 ** p<0.01 *** p<0.001

Table 4. Event History Analysis Predicting First Migration to the U.S. by Community Size (Baseline Models)
In rural communities, the association between age and migration is very similar to that observed in the model for the entire sample. Having ever been in a union is positively associated with migration, but unlike in the full model, the coefficient is only marginally significant. Since migration is highly normative in many rural communities, individuals may be likely to be pressured into migrating regardless of whether they have acquired increased financial responsibilities by forming a union. Similarly to what happens in the full model, the likelihood of migration decreases with the number of children in the household.

Results from the education variables suggest an intermediate migrant selection pattern in rural communities. The likelihood of migration is lower for all educational categories relative to the reference category, with all coefficients being significant at the .01 level. Working in a skilled occupation is negatively associated with migrating from rural communities, but unlike in the full model, the result is not statistically significant. In other words, those who work in skilled occupations in rural areas are as likely to migrate as those working in unskilled occupations and those who are not working. These results suggest that the negative effect of human capital on migration is less clear cut in rural areas compared to other types of communities. As in the full model, labor force experience is positively associated with migration.

In rural areas, internal migration experience, family human capital, and community social capital are all positively associated with taking a first trip to the U.S. These results are similar to those found in the full model. The positive coefficient for migration-prevalence ratio supports the finding by Massey, Goldring and Durand (1994)
and Fussell and Massey (2004) that as community networks develop in rural areas, the U.S.-bound migration flow becomes self-sustaining.

The relationships between capital assets and migration in rural areas are also similar to those observed for the entire sample, except for property ownership. Owning property is negatively associated with taking a first trip, but the association is not significant. Finally, as in the entire sample, migration from rural areas is significantly more likely for all periods after 1982 compared to the pre-1982 period.

In small cities, the relationship between age and migration is similar to that observed in the full model. The association between union formation and migration is not significant, suggesting that in small urban areas migration does not tend to be driven by the financial pressures associated with forming a family. As in the rest of the sample, in small urban communities each additional minor in the household reduces the likelihood of taking a first trip to the U.S.

Small urban areas present a baseline intermediate educational selection pattern, with the likelihood of migration being lower for all educational categories relative to the reference category. The negative coefficient for the category of 1 to 4 years of education, however, is only significant at the .05 level, meaning that the difference in likelihood of migrating between this category and the reference category is somewhat lower than is the case in rural areas. In other words, migration tends to be more negatively selected in small cities than in rural areas.

The coefficients for type of occupation, labor force experience, migration experience and family social capital in small urban areas suggest similar effects to those
observed for the entire sample. The coefficient for migration-prevalence ratio, for its part, is positive and extremely significant, suggesting that the development of community networks increases the likelihood of migration in small cities just as it does in rural areas. This evidence supports the finding by Flores, Hernandez-Leon and Massey (2004) that cumulative causation processes contribute to the self-reproduction of migration both in rural and urban areas.

The relationships between physical capital and migration are similar in small cities compared to the entire sample, though the positive association between property ownership and migration is much more significant in the former. The period controls for small urban areas also follow a similar pattern to that observed in the full model.

In metropolitan areas the relationship between age and migration is similar to that observed in the full model. Union formation is positively associated with taking a first trip, with the coefficient being extremely significant. Based on the significance levels, the association between union formation and migration is strongest in metropolitan areas compared to less urbanized areas, suggesting that the financial pressures associated with union formation are a more important determinant of migration in large cities. The relationship between number of minors in the household and migration is similar to that observed in the full model.

The baseline educational selectivity pattern observed in metropolitan areas is very different to that observed in rural and small urban communities. Compared to the reference category, the likelihood of migration is negative and extremely significant for those with no education, negative and not significant for those with 1 to 4 years of
education, and negative but moderately significant for those with 10 or more years of education. Unlike in less urbanized areas, in metropolises there seems to be less clustering of migrants around the 5 to 9 years of education category, with those with 1 to 4 years of education being equally likely to take a first U.S. trip. Likewise, the negative association between having 10 or more years of education and taking a first trip is only moderately significant, suggesting that the presence of highly educated migrants in the metropolitan flow may be higher compared to rural and small urban areas.

The results for skill level of occupation, labor force experience, migration experience, and family social capital are similar to those observed in the full model. The coefficient for migration-prevalence ratio, for its part, is positive and highly significant in metropolitan areas. This result contradicts the previous finding by Fussell and Massey (2004) that migration-prevalence ratio is associated with a greater likelihood of migration in rural and small urban areas but not in metropolitan areas. Contrary to these authors, I find that community networks contribute to reproducing metropolitan-origin Mexican migration to the United States when controlling for other factors. This finding suggests the need for examining how these community networks influence the selectivity pattern of metropolitan migrants to the U.S.

The relationships between physical capital variables and migration in large cities are very different to those observed in smaller communities. In large cities owning land increases significantly the likelihood of migration, while owning property significantly decreases it. As in the full model, owning a business in a metropolitan area reduces the likelihood of migration, but the association is only marginally significant.
The coefficients for period variables follow a similar trend to those in the full model, except for the positive coefficient for the post-2008 period, which is only moderately significant. This coefficient becomes more significant in the model with interactions (Table 5), suggesting that the differences in the likelihood of migration between this period and the post-Bracero period are considerable.

In order to estimate how the development of community networks shapes selectivity in all three types of communities, I estimated event history models including interaction terms between migration-prevalence ratio and the education dummy variables. Likelihood-ratio tests revealed that for each type of community the model with interactions fits the data better than the corresponding baseline model at the .001 significance level. Wald chi-square tests between the interaction coefficients also showed that the associations between the interaction terms and the dependent variable are significantly different across models. This result supports the finding by McKenzie and Rapoport (2010) that the influence of community networks on selectivity varies depending on the urbanization level of the community. However, as we will see below, the results contradict these authors’ findings about the direction of the association between migration prevalence and selectivity.

Results from the disaggregated models with interactions are presented in Table 5. With the exception of the education variables, the coefficients and significance levels for the non-interacted variables are very similar to those observed in the baseline models for the three types of communities. For this reason, in what follows I shall focus on interpreting the interaction results.
Table 5. Event History Analysis Predicting First Migration to the U.S. by Community Size (Interaction Models)

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Rural B</th>
<th>Rural SE</th>
<th>Small urban B</th>
<th>Small urban SE</th>
<th>Metropolitan B</th>
<th>Metropolitan SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.233***</td>
<td>0.003</td>
<td>0.253***</td>
<td>0.005</td>
<td>0.155***</td>
<td>0.006</td>
</tr>
<tr>
<td>Age squared</td>
<td>-0.004***</td>
<td>0.000</td>
<td>-0.004***</td>
<td>0.000</td>
<td>-0.003***</td>
<td>0.000</td>
</tr>
<tr>
<td>Married or in union</td>
<td>0.037+</td>
<td>0.020</td>
<td>0.002</td>
<td>0.028</td>
<td>0.185***</td>
<td>0.038</td>
</tr>
<tr>
<td>Minors in household</td>
<td>-0.069***</td>
<td>0.003</td>
<td>-0.065***</td>
<td>0.005</td>
<td>-0.056***</td>
<td>0.007</td>
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<td>Human capital</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education (ref=5 to 9 years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No education</td>
<td>-0.436***</td>
<td>0.035</td>
<td>-0.118***</td>
<td>0.019</td>
<td>-0.101***</td>
<td>0.023</td>
</tr>
<tr>
<td>1 to 4 years</td>
<td>0.104***</td>
<td>0.021</td>
<td>0.066</td>
<td>0.038</td>
<td>0.224***</td>
<td>0.039</td>
</tr>
<tr>
<td>10 or more years</td>
<td>-0.492***</td>
<td>0.030</td>
<td>-0.409***</td>
<td>0.048</td>
<td>-0.166***</td>
<td>0.038</td>
</tr>
<tr>
<td>Occupation (ref=Unskilled occupation/ not in labor force)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skilled occupation</td>
<td>-0.011</td>
<td>0.015</td>
<td>-0.118***</td>
<td>0.019</td>
<td>-0.101***</td>
<td>0.023</td>
</tr>
<tr>
<td>Months of labor force experience</td>
<td>0.001***</td>
<td>0.000</td>
<td>0.001***</td>
<td>0.000</td>
<td>0.003***</td>
<td>0.000</td>
</tr>
<tr>
<td>Internal migratory experience</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Previous migratory experience</td>
<td>-0.150***</td>
<td>0.014</td>
<td>-0.156***</td>
<td>0.019</td>
<td>-0.238***</td>
<td>0.025</td>
</tr>
<tr>
<td>Social capital in the family</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parent a U.S. migrant</td>
<td>0.389***</td>
<td>0.019</td>
<td>0.574***</td>
<td>0.024</td>
<td>1.225***</td>
<td>0.033</td>
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<tr>
<td>Sibling a U.S. migrant</td>
<td>1.105***</td>
<td>0.013</td>
<td>1.042***</td>
<td>0.018</td>
<td>1.182***</td>
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<td>Social capital in the community</td>
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<td></td>
</tr>
<tr>
<td>Migration-prevalence ratio</td>
<td>5.057***</td>
<td>0.064</td>
<td>4.486***</td>
<td>0.109</td>
<td>3.338***</td>
<td>0.112</td>
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<tr>
<td>Physical capital</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Owns land</td>
<td>0.017</td>
<td>0.015</td>
<td>0.032</td>
<td>0.028</td>
<td>0.254***</td>
<td>0.073</td>
</tr>
<tr>
<td>Owns property</td>
<td>-0.006</td>
<td>0.015</td>
<td>0.206***</td>
<td>0.020</td>
<td>-0.159***</td>
<td>0.026</td>
</tr>
<tr>
<td>Owns business</td>
<td>-0.238***</td>
<td>0.018</td>
<td>-0.267***</td>
<td>0.024</td>
<td>-0.053+</td>
<td>0.030</td>
</tr>
<tr>
<td>Mexican Economic and U.S. Policy Context</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time period (ref=Post-Banano period (1965-1981))</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economic crisis period (1982-1985)</td>
<td>0.756***</td>
<td>0.020</td>
<td>0.612***</td>
<td>0.026</td>
<td>0.582***</td>
<td>0.038</td>
</tr>
<tr>
<td>IRCA period (1986-1991)</td>
<td>1.048***</td>
<td>0.018</td>
<td>0.845***</td>
<td>0.023</td>
<td>0.943***</td>
<td>0.032</td>
</tr>
<tr>
<td>Post IRCA period (1992-2000)</td>
<td>1.371***</td>
<td>0.018</td>
<td>1.063***</td>
<td>0.025</td>
<td>1.146***</td>
<td>0.033</td>
</tr>
<tr>
<td>Post September 11 period (2001-2007)</td>
<td>1.724***</td>
<td>0.024</td>
<td>1.193***</td>
<td>0.038</td>
<td>0.927***</td>
<td>0.057</td>
</tr>
<tr>
<td>Post-2008 period (2008-2013)</td>
<td>1.901***</td>
<td>0.042</td>
<td>1.254***</td>
<td>0.070</td>
<td>0.477***</td>
<td>0.161</td>
</tr>
<tr>
<td>Interactions (ref=5 to 9 years of education x migration-prevalence ratio)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No education x migration-prevalence ratio</td>
<td>0.228+</td>
<td>0.127</td>
<td>-1.367***</td>
<td>0.291</td>
<td>-1.595***</td>
<td>0.229</td>
</tr>
<tr>
<td>1 to 4 years of education x migration-prevalence ratio</td>
<td>-0.824***</td>
<td>0.088</td>
<td>-0.598***</td>
<td>0.171</td>
<td>-2.188***</td>
<td>0.194</td>
</tr>
<tr>
<td>10 or more years of education x migration-prevalence ratio</td>
<td>-1.353***</td>
<td>0.127</td>
<td>-1.265***</td>
<td>0.211</td>
<td>1.464***</td>
<td>0.297</td>
</tr>
<tr>
<td>Intercept</td>
<td>-6.699***</td>
<td>0.051</td>
<td>-6.857***</td>
<td>0.072</td>
<td>-6.351***</td>
<td>0.087</td>
</tr>
<tr>
<td>Log likelihood</td>
<td>-97,479.5</td>
<td>-49,136.7</td>
<td>-49,136.7</td>
<td>-30,760.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chi-square</td>
<td>70,467.7</td>
<td>31,262.0</td>
<td>12,912.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total person-years</td>
<td>350,485</td>
<td>152,133</td>
<td>154,636</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Author's calculations of data from the Mexican Migration Project.

* p<0.1  ** p<0.05  *** p<0.01  **** p<0.001
As the non-interacted education coefficients for rural areas show, when migrant networks are in the early stages of development the selectivity of migrants is slightly negative. The likelihood of migration for individuals with 1 to 4 years of education is slightly higher than is the case for individuals in the reference category. At these stages, the likelihood of migration for individuals with no education and ten or more years of education is lower compared to the reference category. This finding contradicts the argument by Massey, Goldring and Durand (1994) that migration to the U.S. is initiated by individuals with upper middle education levels. Actually, in rural communities the group that is more likely to migrate at early stages of the process is composed of individuals with little education (1 to 4 years).

The interaction coefficients reveal that, as the prevalence of migration to the U.S. rises and migrant networks develop in rural communities, migration becomes somewhat less selective. The likelihood of migration for those with no education increases relative to those with 5 to 9 years of education, though the difference is only marginally significant. Moreover, the likelihood of migration for the group with 10 or more years of education decreases significantly. On the other hand, since the likelihood of migration for the group with 1 to 4 years of education also decreases significantly relative to that of individuals located in the reference category, we cannot speak of a decidedly negative selection pattern as community migrant networks grow.

These results suggest that the initial group of U.S. migrants from rural communities is composed of individuals with 1 to 4 years of education. This result contradicts the earlier finding by Massey, Goldring and Durand (1994) that the initiators
of migration tend to be individuals with above-average education. As community networks develop, the initial group of migrants may assist those with no education to migrate, eventually leading to a self-reproducing process in which the proportion of migrants with no education exceeds that of other groups. At the same time, as community networks grow, the likelihood of migration for individuals with 1 to 4 years of education decreases relative to those with 5 to 9 years of education.

The results from the model with interactions for rural areas also suggest that as community networks weaken and migration declines, migration tends once again to select for those with 1 to 4 years of education. Taken together, the results from the interaction model suggest that in rural areas the likelihood of migration for both those with no education and those with 5 to 9 years of education vary directly with the availability of community networks. This may mean that both groups depend on the support provided by community networks in order to migrate.

These results only provide a modest degree of support for the thesis by Massey, Goldring and Durand (1994) that the expansion of community networks is associated with a reduction in the selectivity of the migrant flow in rural areas. As migration-prevalence ratios increase in a community, previous migrants may build networks that facilitate the migration of individuals with no education. However, the development of community networks is also associated with a decline in the likelihood of migration for the group with 1 to 4 years of education relative to the group with 5 to 9 years of education, suggesting that the development of migrant networks can also facilitate the migration of those with intermediate levels of education.
In rural communities, individuals are connected to each other through close ties of kinship, friendship, and *paisanaje*, which may provide individuals with little education with the social capital necessary to migrate. Without this social capital, individuals with no education would probably be even less likely to migrate than they already are, given their limited resources and the high costs and risks associated with international migration. In this respect, rural migrant ties may operate as strong ties when they spread from individuals with little education (1 to 4 years) to those with no education.

The data, however, also suggest that, as community networks grow in rural communities, individuals with 1 to 4 years of education become less likely to migrate than those with 5 to 9 years of education. This evidence suggests that the strong ties prevalent in rural communities do not have a completely negative effect on selectivity. The negative effect that community ties have on selectivity is balanced out by the incorporation of migrants with middle education levels (5 to 9 years of education) who tend to join in the flow in later stages of the migration process. As migration begins to decline and community networks break apart, the rural migrant flow reverts back to a slightly negative selection pattern, with individuals with 1 to 4 years of education being once again the most likely to migrate.

In small urban areas, the selectivity pattern in early stages of the migration process is somewhat negative (Table 5). As the non-interacted education coefficients show, the likelihood of migration for those with no education is negative, but the result is only moderately significant. At the same time, I find no significant differences in the likelihood of migration between those with 1 to 4 years of education and those in the
reference category. On the other hand, the likelihood of migrating for those with 10 or more years of education is negative and extremely significant.

The interaction coefficients show that, as community networks develop, the selectivity of migration increases. The likelihood of migration for all the interacted educational categories is negative and extremely significant relative to those with 5 to 9 years of education. In other words, the migration flow changes from negative to intermediate selection as the prevalence of migration increases.

Unlike in rural areas, in small cities the likelihood of migration for those with less than 5 years of education does not seem to increase with the extent of community migrant networks. This result may be explained by the weak ties prevalent in urban settings, which may mean both that the less educated have a more difficult time forming links with other migrants and that the support obtained through community networks tends to be weaker.

As was the case in the rural model, in small cities the likelihood of migration changes from intermediate to negative as migration prevalence declines. This evidence suggests that the likelihood of migration of those with intermediate education levels may decrease as the migration networks formed by those with less education fall apart.

In metropolitan areas, the selectivity pattern in early stages of the migration process is somewhat negative (Table 5). Relative to the reference category, the non-interacted coefficients show no significant difference in the likelihood of migrating for those with no education, a positive and significant difference for those with 1 to 4 years of education, and a negative and significant difference for those with 10 years of education.
education or more. The interaction coefficients show that, as community networks develop in metropolitan areas, the likelihood of migration decreases for those with no education and 1 to 4 years of education, and increases for those with 10 years of education or more. In other words, the development of community networks in large cities makes the flow much more positively selected in these areas.

As is the case in small cities, in large cities the likelihood of migration for the less educated does not increase with the expansion of community networks. This result suggests that in large urban areas community networks operate as weak ties, meaning that they are both more difficult to access and provide less support than rural networks. For this reason, it is possible that individuals and households located beyond a certain threshold in terms of SES are better able to take advantage of community networks in metropolitan areas. This socioeconomic selection may in turn lead to more positive educational selection.

The more educated become more likely to migrate as metropolitan networks grow and mature. This result is not completely new. Earlier studies (Lozano 2004; Mendoza forthcoming) have documented a significant presence of migrants with high levels of education in migrant flows from Mexican metropolitan areas. This finding is nonetheless surprising given the fact that employment and income opportunities for the highly educated are more prevalent in Mexican metropolitan areas, a factor that I expected would deter the outmigration of this educational group.

As migration-prevalence decreases, migration flows from metropolitan areas shift from a positive to a negative selection pattern. This evidence suggests that as in the rest
of the sample, in large cities the more educated are more likely to follow the less educated into the migration process rather than initiate it themselves. The results presented here are similar to the findings by Mendoza (forthcoming) that the more educated are not likely to be the first to migrate in their respective households, and that their likelihood of migration increases with access to migrant networks.

The findings from the longitudinal regression models suggest that, contrary to the finding by Lindstrom and Lopez (2010) community migrant networks are associated with changes in migrant selectivity. Also contrary to the finding by Fernandez-Huertas (2013), these networks are not only associated with changes in selectivity in rural areas, but also in urban areas.

Contrary to the findings by McKenzie and Rapoport (2010) I do not find community networks to be negatively associated with selectivity for all types of areas. These networks are associated with a modest reduction in selectivity in rural areas, and an increase in selectivity in urban areas. McKenzie and Rapoport also found that the more urbanized an origin community is, the weaker the association between community networks and negative selection will be. The findings of the present study lend some support to this conclusion, as they suggest that the more urbanized the community is, the more selective the migrant flow will become in terms of education. In rural areas migrant networks are associated with the migration of those with no education, in small urban areas with the migration of those with intermediate education, and in metropolitan areas with the migration of the more educated.
DISCUSSION AND CONCLUSION

This study uses a dataset with information on a large number of rural, small urban and metropolitan areas of Mexico in order to compare the selectivity of rural and urban migrants from Mexico to the United States. My first finding is that the likelihood of taking a first trip to the United States is greatest in small urban areas, followed by rural and metropolitan areas. This finding corroborates the results put forward by Hamilton and Villarreal (2011). Migration to the U.S. is more common in communities with a sufficient level of economic and infrastructure development so that migration does not become too costly, but where labor and credit opportunities are not sufficient to deter migration.

Secondly, I find that migration-prevalence ratios follow an upward trend for the first few years of the current era of Mexican migration and descend afterwards. This means that results from the regression models with interactions must be interpreted in an ascending fashion for the period during which Mexican migration increased and in descending fashion for the period when migration decreased.

Thirdly, I find that community-level migrant networks contribute to the reproduction of U.S.-bound migration in rural, small urban, and metropolitan areas of Mexico. This result contradicts previous findings by Fussell and Massey (2004) that increases in the prevalence of migration in metropolitan areas do not generate processes
of cumulative causation. While Lindstrom and Lopez (2010) found evidence of cumulative causation in urban areas of Mexico, the generalizability of their results is limited due to the small number of communities included in their study. Data from the larger sample of localities analyzed in this study suggests that the self-reproduction of migration through community networks does take place in large metropolitan areas, just as it does in rural and small urban areas.

Contrary to the finding by Massey, Goldring and Durand (1994) that in Mexican communities migration is initiated by individuals from intermediate education levels, I find that when the development of community networks is still incipient, migration tends to select for individuals with low education levels. Contrary to what Massey and his colleagues suggest, it is the networks formed by individuals with little education who seem to facilitate the migration of individuals with more education. As migration begins to decline and community networks weaken, the likelihood of migration for individuals with more education declines. These results are observed for all three types of communities, with some variations depending on community size.

In a similar fashion to Massey, Golding and Durand (1994), and McKenzie and Rapoport (2010), I find that community migrant networks are associated with changes in the educational selectivity of Mexican migrants to the United States. Unlike these authors, however, I find that migrants become more selected for education as migration networks develop. This result seems to be driven by more educated migrants following in the footsteps of less educated migrants through community migrant networks, especially in urban areas.
In accordance with McKenzie and Rapoport (2010) I find that the nature of the association between community networks and selectivity varies depending on the level of urbanization of the community. Contrary to these authors, however, I find that this influence differs not only in terms of the strength of the relationship but also in terms of its direction. Community networks are associated with moderately negative selectivity in rural areas, with moderately positive selectivity in small cities, and with strongly positive selectivity in metropolitan areas. These results suggest that the nature of the association between community networks and selectivity differs depending on the urbanization level of the sending area.

In rural settings, community networks are associated with an increase in the likelihood of migration for individuals with no education relative to those with 5 to 9 years of education. However, they are also associated with a decrease in the likelihood of migration for those with 1 to 4 years of education relative to those with 5 to 9 years of education. This evidence suggests that while community networks decrease selectivity by favoring the migration of those with no education, they also facilitate the migration of individuals with intermediate education. This result may be explained by a combination of strong and weak ties operating to shape selectivity in rural contexts. Strong ties to initial migrants may facilitate the migration of those with no education, while weak ties to initial migrants may facilitate the migration of those with 5 to 9 years of education.

In small urban areas the expansion of networks shifts migrant selection from the 1 to 4 years of education category to the 5 to 9 years of education category. As networks decline, migrant selectivity reverts back to a pattern where the group with 1 to 4 years of
education is more prevalent. This result seems to support the weak tie hypothesis in that an increase in community networks is associated with the outmigration of individuals with more education than the initial group of migrants.

In large cities, community networks shift migrant selection from individuals with lower education levels towards individuals with 10 or more years of education. As community networks decline, migration reverts back to a negative selection pattern. As is the case in small cities, these results support the weak tie hypothesis that an increase in community networks is associated with the outmigration of those with more education.

The pattern of selectivity, however, varies depending on the size of the urban area. In metropolitan areas community networks are associated with an increase in the migration of the highest educational group, while in small cities they are associated with an increase in the migration of the group with intermediate education.

Since I found strong evidence of community networks operating in small urban and metropolitan areas, it is not possible to conclude that migrant selectivity is positive in these areas due to an absence of cumulative causation processes. Instead, I argue that higher selectivity in urban areas is due to urban migrant networks being composed primarily of weak ties. Individuals of lower educational status are often also those of lowest socioeconomic status. Even though these individuals (and their households) are likely to have access to social networks composed of strong ties, many of them they might lack the weak ties that are needed to access migrant networks in urban areas. In other words, while the high levels of isolation and anonymity that prevail in urban areas do not deter the formation of community-level networks that reproduce migration, high
levels of social heterogeneity and isolation prevalent in cities mean that it is households located beyond a certain threshold in terms of SES who find it easier to access these networks and thus facilitate the migration of their members to the United States. Since members of these households also tend to have higher levels of human capital, migrants coming from these households will be more positively selected. This result can explain why, even as community-wide networks develop in small urban and metropolitan areas, it is individuals with middle and high levels of education who are better able to access these networks in order to migrate to the United States.

Since large cities have more developed labor markets than small urban areas, I expected highly educated individuals to be less likely to migrate from the former since the returns to their skills in those markets are quite considerable. The results obtained, however, suggest that community networks increase the likelihood of migration for individuals with ten or more years of education in metropolitan areas but not in small cities. Large metropolitan areas have greater social heterogeneity and isolation than small urban areas. These factors may cause migrant selection to be more positive in large cities than in small cities. It is also possible that differences in migrant selection by city size can be explained by other variables, but the current state of knowledge does not allow us to venture what these variables may be. Further research is needed in order to formulate and empirically test alternative explanations.

This study has several limitations. One of the most important is that it only focuses on male migration to the United States, despite the fact that females form a significant part of the Mexico-U.S. migration flow. Since many females tend to migrate
for family reasons rather than economic reasons, studying female migration requires
different theories and models than those employed in this study. The magnitude of female
Mexico-U.S. migration suggests that female selectivity is an important topic of research,
which should be addressed in future studies.

Another limitation of this study is its exclusive focus on household heads. The
results presented here most likely do not capture the experience of sons, daughters, and
other household members who also participate in the Mexico-U.S. migration flow in
large numbers. This limitation is imposed upon us by the MMP data, which only contain
complete life histories for household heads and their spouses. However, in recent years
the MMP has started collecting complete life history data on other household members.
This data may prove useful for future research projects that explore the association
between community networks and the selection of non-household heads into U.S.
migration.

A final limitation of the present study resides in the fact that the criteria used to
define community types are arbitrary. This drawback limits our ability to compare the
results of the present study with those of other studies that use very different criteria for
categorizing sending communities. In future research, this limitation can be addressed by
using more sophisticated methodological criteria for differentiating among communities
and using these criteria to compare results across different data sources.

As shown by Passel, Cohn and Gonzalez-Barrera (2012), the Mexico-U.S.
migration flow has declined significantly since the nineties. The results presented here
suggest that the decline seems to have been associated with a weakening of the
community networks that have driven the migratory flow for decades. This decline seems
to be associated with lower, and not higher, educational selectivity of U.S. migrants. This
result lends support to previous studies that have found negative selection in the Mexico
U.S. migrant flow. Negative educational selection could be associated with migrants
having more difficulties in integrating into U.S. society. The phenomenon of negative
selection is of particular concern given the fact that Mexican migration has transited from
a circular to a settled pattern of migration as a result of increasing border enforcement by
the U.S. government (Massey, Durand and Malone 2002). Since Mexican migrants are
now staying in the U.S. for longer periods (even permanently) their integration into U.S.
has become a pressing issue. Negative educational selection is likely to generate a more
difficult path for the integration of Mexican migrants. Whether these patterns will
continue or change in the future, and whether they have different effects in rural and
urban communities, remains to be seen.


Mendoza, Cristobal. Forthcoming. “Explaining Urban Migration from Mexico City to the USA: Social Networks and Territorial Attachments.” *International Migration*.


