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Mexico–US Migration in Time From Economic to Social Mechanisms

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- analyse migration as part of broader global change
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Abstract

Scholars have long noted how migration streams, once initiated, obtain a self-feeding character. Studies have attributed this phenomenon – the cumulative causation of migration – to expanding social networks that connect migrants in destination to individuals in origin. Studies however, often disagree on how social networks influence migration decisions. While many establish a positive association between individuals' ties to prior migrants and their migration propensities, only few acknowledge that multiple social mechanisms might account for these interdependencies. To address this issue, we adopt a typology developed by DiMaggio and Garip (2012) and consider three mechanisms by which social ties may influence individuals' migration choices. We study the prevalence of these mechanisms in the Mexico-US migration context using a mixed methods approach. First, analysing data from more than 90,000 individuals surveyed by the Mexican Migration Project (MMP) we establish the presence of network effects in migration and test how prior migrants in the family or community increase individuals' migration propensities, and whether prior migrants reduce the effect of economic or political indicators on migration propensities. Second, we analyse qualitative data from 120 in-depth interviews to determine the different mechanisms that lead to interdependencies in individuals' migration choices. We thus provide a deeper understanding of migration as a social process, which we contend is crucial for anticipating future flows and policy responses.

Keywords: Social networks, Mexico, United States, migration choices, cumulative causation

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1 Introduction

There are 11.7 million Mexico-born persons in the United States today. About half of them are estimated to be undocumented. Over the past four decades, the size of the Mexican immigrant population in the United States has continuously increased, and only recently come to a standstill (Passel, Cohn and Gonzalez-Barrera 2012). During this period, several changes to US immigration policy have aimed to curb the flow of undocumented migrants from Mexico, but these efforts have had limited success (Massey et al. 1998).

Researchers attributed the pattern of increasing migration flows – despite progressively stronger efforts to control them – to a process of ‘cumulative causation’ (Massey 1990). This process works through the expansion of migrant networks, ties that connect migrants in destination to individuals in origin, which fosters more migration, and eventually leads to flows that are self-sustaining and resilient to changes in economic or political conditions.

Empirical work provided support for the presumed network effects on migration. Studies found migration to be more likely in families or communities with already high levels of migration (Curran et al. 2005; Davis, Stecklov and Winters 2002; Massey and Zenteno 1999; Massey, Goldring and Durand 1994). But researchers have often disagreed on the social mechanisms underlying this pattern. While some studies emphasised the importance of prior migrants providing information or direct assistance to current migrants (e.g., (Carrington, Detragiache and Vishwanath 1996), others underscored the escalating normative pressures in sending communities that make migration more likely (Kandel and Massey 2002). Empirical analyses have failed to resolve this ambiguity, as the data cannot distinguish among multiple mechanisms – nor discard alternative explanations – generating the observed associations.

In this study, we employ a mixed-methods strategy to identify the social mechanisms underlying the network effects in Mexico-US migration. First, we analyse data from more than 90,000 individuals surveyed by the Mexican Migration Project (MMP), and establish the presence of network effects. Specifically, we test how prior migrants in the family or community increase individuals’ migration propensities. We also consider whether prior migrants reduce the effect of economic or political indicators on migration propensities and thus evaluate an untested claim of cumulative causation theory.

We then analyse qualitative data from 120 in-depth interviews with migrants and their family members in Mexico to adjudicate among the different mechanisms that lead to interdependencies in individuals’ migration choices. We adopt an exhaustive typology suggested by DiMaggio and Garip (2012a) and consider three mechanisms by which social ties shape migration decisions. We thus capitalise on the strength of quantitative data for establishing and generalising the presence of network effects on migration, and the qualitative data for identifying the generative processes for these effects. By delineating the sources for interdependent migration choices, we provide a deeper understanding of migration as a social process, which we contend is crucial for anticipating future flows and policy responses.

2 Background

In 1981, Mines – an anthropologist studying a rural community in Zacatecas, Mexico – noted the importance of ‘who you know’ when migrating to, and succeeding in, the United States (Mines 1981, p. 14). This observation became an established pattern in later work on Mexico-US migration. Using large-sample data from several Mexican communities, researchers showed how individuals who had social ties to prior US migrants were more likely to migrate themselves (Massey and España 1987).

The accumulation of similar evidence from other settings (see Boyd 1989 for a comprehensive review) led to a new paradigm in migration research, which, until the late 1980s, had been dominated by economic and political explanations of migration. Alternative theories had connected migration to wage differentials between origin and destination countries (Harris and Todaro 1970; Sjaastad 1962), insurance and credit market failures in origin (Stark and Bloom 1985; Taylor 1987), a two-tier occupational structure – with immigrants relegated to the lower ranks – in destination (Piore 1979) and exploitative capitalist labour relations between destination and origin (Wallerstein 1974).

With Massey’s (1990) programmatic article, however, scholars began to study the ‘cumulative causation’ of migration, that is, its self-feeding character. The theory posited that each act of migration leads to a series of changes in the origin community, and these changes make future migration more likely. For example, with each new migrant, the social networks that connect individuals in origin to migrants in destination expand. More individuals can rely on these networks to migrate; with more migrants, the networks expand even more. Through this feedback loop, migration flows become self-sustaining, and eventually decoupled from the economic or political conditions that initiated them in the first place.¹

The cumulative causation theory thus systematised what anthropologists and sociologists working in the sending areas had long known: social ties matter for migration. The theory also extended this claim: social ties matter more for migration over time. Empirical work devised strong tests of the former claim, and only weak tests of the latter. Studies found that social ties to prior migrants increased individuals’ migration propensities (Dunlevy 1991; Fussell and Massey 2004; Massey and Zenteno 1999; Massey and Espinosa 1997), and also decreased the effect of individual characteristics on those propensities (Garip and Curran 2010; Massey et al. 1994; Winters, Janvry and Sadoulet 2001). However, no study investigated whether ties to prior migrants reduced the impact of economic and political factors on individuals’ migration choices.

Studies assumed the network effects on migration to be ‘social’, that is, to reflect true interdependencies between individuals’ migration choices, but often could not discard the alternative explanation that those choices can be a response to some common and

¹ Researchers identified other factors that similarly affect (and are affected by) migration in a cumulative fashion: (i) the distribution of income or land, (ii) the organization of agriculture, (iii) the distribution of human capital, (iv) culture, and (v) the social meaning of work (Massey et al. 1993).

unobserved environmental factor.² This convergence in the literature on the social character of network effects, however, did not extend to the specific mechanisms underlying these effects. Some researchers treated networks as hubs of information or help from prior migrants, while others viewed them as conduits for normative pressures. This lack of consensus about the mechanisms of influence – ubiquitous in the network effects literature at large – created ambiguity in the interpretation of results and prevented the synthesis of existing knowledge (DiMaggio and Garip 2012b). To resolve this we organise the findings in the migration literature around a typology developed by DiMaggio and Garip (2012a). This typology identifies three social mechanisms that lead to network effects, which occur when an individual's likelihood of adopting a behaviour, such as migration, is a function of the prior adopters in his or her network.³

The first mechanism, social facilitation, is at work when network peers (typically family or community members) provide useful information or help that reduces the costs associated with a behaviour, or increases the benefits that might be expected from it.⁴ This mechanism implies network effects that are typically zero until the number of peers engaging in the behaviour reaches a critical threshold (so that the individual has enough evidence on the efficacy of the behaviour), and increases at a declining rate with the number of peers (suggesting that, at some point, the individual has sufficient information and/or help to make a decision). Strong ties, such as close friends and family members, typically have a stronger effect on the transmission of behaviour than weak ties, especially if the behaviour requires thick information and active assistance.

Most studies attributed the observed network effects on migration to social facilitation. Studies argued (often without direct evidence) that prior migrants provide useful information about or help with migration, making it a less risky endeavour for potential migrants (Carrington et al. 1996; Garip 2008; Kandel and Kao 2001; Mines and Janvry 1982; Moretti 1999; Tilly 2006; Winters et al. 2001). Studies also suggested that experienced migrants help newcomers locate better-paying jobs, increasing their returns in destination (Aguilera and Massey 2003; Amuedo-Dorantes and Mundra 2007; Drever and Hoffmeister 2008; Elliott 2001; Hagan 1998; Hanson and Pratt 1992; Hondagneu-Sotelo 1994; Munshi 2003; Portes and Rumbaut 2006; Wilson 1998). Few studies speculated that the visible signs of migrants' success (for example, newly acquired land or a house) encourage more migration – by suggesting its efficacy – without any active help from the migrants (Stark and Taylor 1991; Stark, Taylor and Yitzhaki 1986). Studies found more proximate ties to exert more influence on migration decisions that involve dangerous border crossing or uncertain prospects in destination (Curran et al. 2005; Curran and Rivero-Fuentes 2003; Davis et al. 2002; DiMaggio and Garip 2011; Palloni et al. 2001).

² This identification problem is common social science research (Manski 1993). Empirical analysis often cannot distinguish social effects (i.e., individuals responding to the behaviour or characteristics of the group) from 'correlated' effects (i.e., individuals responding to the same environment). See Manski (1993, 1995) for a detailed discussion.

³ Economists refer to such effects as 'social interactions' or 'endogenous interactions.' See Manski (2000) and Durlauf (2001) for reviews.

⁴ Social facilitation is an umbrella term that encompasses social learning and social assistance. The former occurs when individuals infer the value of a practice of uncertain efficacy and/or limited observability from peers who engage in it. (Hedström (1998) refers to this mechanism as 'rational imitation.')

The latter is at work when individuals receive direct assistance in the acquisition of a complex practice (DiMaggio and Garip 2012b).

The second mechanism, normative influence, is at work if network peers offer social rewards, or impose sanctions, to encourage a behaviour.⁵ (Unlike social facilitation, normative influence does not alter the intrinsic cost or benefit associated with a behaviour.) Network peers may disagree about the behaviour, where some urge and others oppose its adoption.⁶ The mechanism generates network effects that are a function of the relative proportion of supporters versus opponents of the behaviour among peers. The effects also depend on the relative density of ties within each group, which determines the group's ability to exert persuasive pressure (DiMaggio and Garip 2012b).

Several studies suggested normative influence as the generative mechanism for network effects on migration. In a variety of settings, researchers observed a 'culture of migration' (Cohen 2004; Kandel and Massey 2002; Mines 1981; Reichert 1981; Wiest 1973), where individuals valued migration positively as a rite of passage (Piore 1979) or an affirmation of identity (Hernandez-Leon 1999; Levitt 1998). In the Mexican setting, Kandel and Massey (2002, p. 982) noted the social sanctions exacted on young men who did not attempt migration: they were seen as 'lazy, unenterprising, and undesirable as potential mates.' Researchers also connected the increasing mobility of women to wider acceptability of egalitarian gender norms due, in large part, to earlier female migrants (Grasmuck and Pessar 1991; Hirsch 2000; Hondagneu-Sotelo 1994; Kanaiaupuni 2000).

The third mechanism, network externalities, operates if prior adopters of a behaviour generate a pool of common resources that increase the value or reduce the cost of the behaviour to potential adopters. Different from social facilitation, network externalities do not depend on an interpersonal exchange of information or help between prior and potential adopters; rather, they rely on the development of institutionalised resources that facilitate the adoption of the behaviour.⁷ The mechanism leads to network effects that increase linearly or exponentially as a function of the number of prior adopters (and typically not at a declining rate). Because the maintenance of the common resources depends on size of the adopter population, the network effects decline proportionately if the adopters cease the practice.

Studies have connected migration behaviour to network externalities in two contexts, although they have not referred to the mechanism as such. First, researchers described how undocumented migrants used smugglers (coyotes) for crossing the Mexico-US border, whose existence, in turn, depends on a steady flow of migrants (Cornelius 2001; Singer and Massey 1998; Smith 2006). Second, researchers showed how new migrants often relied on migrant enclaves (Korinek, Entwisle and Jampaklay 2005; Portes and Sensenbrenner 1993) and hometown associations (Goldring 2004; Smith 2006) for employment or support in destination, both of which are institutions sustained by a large concentration of co-ethnics in the receiving context.

⁵ See Elster (2009) for a detailed discussion of how social norms shape individual actions.

⁶ DiMaggio and Garip (2012b) regard this mechanism a special case of normative influence that involves dissensus. The alternative case, normative influence with consensus, applies to largely legitimate behaviours, such as quitting smoking, which network peers either support, or are neutral to. We consider the former more applicable to migration.

⁷ Network externalities typically apply to the diffusion of communications media, such as telephone, where a large adopter base increases the value of the medium to new users (DiMaggio and Garip 2011, 2012a).

This tripartite typology allows us to map out the arguments in the migration literature about the mechanisms driving the network effects on migration.⁸ This exercise also reveals two major gaps in our understanding of these effects. First, the majority of empirical work on migration— and all that relies on quantitative data and analysis – assumes, rather than shows, the mechanisms of social influence. Second, most studies consider a single social mechanism; and few studies that distinguish among different mechanisms (e.g., Garip 2008) do not do so exhaustively.

This study addresses both issues. We first use large-sample survey data to establish network effects, that is, to determine how ties to prior migrants alter individuals' migration propensities. We also consider whether ties to migrants diminish the importance of economic or political factors on migration, and thus scrutinise an untested claim of cumulative causation theory. We then use qualitative data to identify the social mechanisms underlying the network effects. We distinguish among social facilitation, normative influence and network externalities, observe the prevalence of each in our data, and discuss the implications of these social mechanisms for Mexico-US migration flows.

3 The setting

We study the migrants from Mexico to the United States, who make up the largest international migrant stream in the world today. This stream started in the 1900s when US labour recruiters followed the railroads to the west-central states in search of Mexican workers (Durand, Massey and Zenteno 2001). The stream gained momentum with the Bracero program, which recruited 4.6 million Mexican workers to the United States for short-term farm labour from 1942 through 1964 (Cornelius 2001). In this period, an additional 3 million Mexican migrants entered the United States without documents (Passel and Woodrow 1987).

After the Bracero program, a number of changes to US immigration policy restricted the paths to legal migration for Mexicans. The amendments to the Immigration and Nationality Act in 1965 and 1976 reduced the number of visas available to Mexicans and imposed constraints on family migration. These restrictions, combined with the grim economic climate of Mexico following the peso devaluations in 1976 and 1982, gave rise to a wave of undocumented migrants to the United States. Between 1965 and 1986, an

⁸ Hedstrom (2005) and Aberg and Hedstrom (2011) offer an alternative typology where network effects can work through individuals' desires (D), beliefs (B), or opportunities (O). In this so-called 'DBO theory,' network peers influence an individual's behaviour (i) by altering his or her desires (e.g., through stigmatization of a behaviour), (ii) by changing individual's beliefs about the efficacy of the behaviour (e.g., through new information), or (iii) by constraining his or her opportunities. This categorization bears close affinity to the three channels for network effects – or social interactions as economists call them – identified in Manski (2000): (i) preference interactions, (ii) expectation interactions, and (iii) constraint interactions. The three groups respectively correspond to the desire-mediated, belief-mediated and opportunity-mediated network effects in the DBO theory. We prefer DiMaggio and Garip's (2012) typology because we focus on different types of network effects rather than on the different types of channels (desires, beliefs or opportunities) through which these effects reach the individual. We see some correspondence between the DiMaggio-Garip typology and those of Hedstrom and Manski: normative influence works through desires; network externalities are typically opportunity-mediated; and social facilitation is likely to change both beliefs and opportunities.

estimated 4.5 million Mexicans entered the country without documents (Massey, Durand and Malone 2003).

The Immigration Reform and Control Act (IRCA) in 1986 aimed to restrain undocumented migration. The legislation imposed stricter border enforcement and sanctions on employers hiring undocumented migrants, while it granted amnesty to 2.3 million undocumented Mexicans (US INS 1990). The amnesty, as an unintended consequence, created incentives for the extended relatives of the newly legalized migrants to migrate without documents (Massey and Espinosa 1997). These incentives, combined with the declining wages and increasing inflation rates in Mexico, ensured sustained undocumented migration flows to the United States through the 1980s (Meza 2006).

The Immigration Acts of 1990 and 1996 sought to deter undocumented flows by further tightening border control and increasing employer sanctions. The latter legislation also prohibited the use of public benefits by undocumented migrants, a change that unintentionally led to higher naturalisation rates among legal Mexicans, who obtained citizenship in order to sponsor the entry of their immediate relatives (Massey et al. 2003).

In January 1994, Mexico signed the North American Free Trade Agreement (NAFTA) with Canada and the United States. In December 1994, the country experienced another peso devaluation. Both events contributed to increasing numbers of Mexican migrants to the United States. The former displaced rural farmers through deregulation in agriculture (Fernandez-Kelly and Massey 2007) and devalued the skills of working-class individuals by transforming the industrial composition (Hernandez-Leon 2008). The latter led to the worst economic crisis in Mexico in decades. Within a year, the country defaulted on its foreign debt, the GDP shrank by 6 per cent, and the unemployment rate doubled (Meza 2006). As a result, from 1994 to 1998, US border apprehensions increased from 1.1 to 1.7 million (Martin 2003). By 2000, the Mexican-born population in the United States had reached 8.4 million in 2000, about 45 per cent of whom were estimated to be undocumented (Bean and Stevens 2003).

4 Methods

We use a mixed methods approach. We first employ regression analysis on a large-sample representative data set to establish the plausibility of network effects in individuals' decisions to migrate from Mexico to the United States. We then illuminate the mechanisms underlying these effects with qualitative data from in-depth interviews. We thus verify our findings with two types of data. We also capitalise on the complementarity between the two types, the quantitative data for observing large-scale patterns and the qualitative data for identifying mechanisms, to arrive at a more comprehensive understanding of individuals' migration choices.

4.1 Quantitative data and analysis

The quantitative data comes from the 124 Mexican communities surveyed by the Mexican Migration Project (MMP). The data, although not nationally representative, provides an accurate profile of the US migrants in Mexico (Zenteno and Massey 1998). The MMP researchers surveyed each community once between 1982 and 2008 in the winter

months when the US migrants typically visit their families in Mexico. In each community, the researchers asked individuals residing in one of the 200 randomly selected households to provide demographic information and to state the timing of their first and last trip to the United States.

We construct a panel data set with the retrospective reports from 92,527 individuals. We focus on the demographic, economic and social factors that are associated with an individual's likelihood of taking a first migration trip to the United States. We do not study subsequent trips to avoid the endogeneity problem; that is, the fact that many factors related to migration may change as a result of prior migration trips making it difficult to estimate their effects. In each year, we reconstruct individual, household and community attributes by back-projecting from the survey year until the age of 15 (e.g., for education) or by using the data on the timing of various events (e.g., marriage and asset purchases).

As each community was surveyed in a specific year and the data was collected retrospectively, we observe a larger number of communities as we go back in time (e.g., 48 in 2000 versus 124 in 1970), but a smaller number of individuals (due to age restrictions to be included in the sample). We confine the analysis to the period 1970-2000, as the sample size drops sharply outside this range.

For each community-year, we compute a migration prevalence index, defined as the percentage of people who have migrated in that community up to that year. We classify community-years into five progressive categories based on the quintiles of the migration prevalence index. We then estimate a logistic regression model of first US migration separately for each category, and compare the coefficient estimates for various indicators across the five categories. This strategy, formerly used by Massey, Goldring, and Durand (1994) and (Garip and Curran 2010), allows us to evaluate the changes (if any) in the relative importance of the social and economic explanations of migration across different stages of the migratory process.

We include controls for individuals' demographic characteristics (age, whether they are household heads and/or male), education (primary, some secondary or completed secondary schooling), occupation (agriculture, manufacturing or service sector) and domestic migration experience (whether they have migrated in Mexico) as well as household wealth (number of rooms in properties, value of land owned, whether household owns a business) and community type (rural or metropolitan).

Four variables capture the economic and political conditions relevant to migration decisions: the average hourly wage in the United States (in constant US\$ in year 2000), inflation rate in Mexico, ratio of available visas to Mexican migrants, and logarithm of Mexico-US trade (converted to constant US\$ in 2000). Three variables capture the social context of migration: the number of US legal residents and of US migrants (non-residents) in the household and the migration prevalence (proportion who have ever migrated) in the community.

4.2 Qualitative data and analysis

The qualitative data focus on the social determinants of migration. The growing literature on network effects suggests three mechanisms for the social transmission of behaviour. With the qualitative data, we seek to assess the relevance of these mechanisms for the migration choices of Mexico-US migrants.

The qualitative data are based on in-depth interviews conducted in 120 households in Jalisco, Mexico during the summer months of 2011. Jalisco, a state in west-central Mexico and a major sender of migrants to the United States historically, provided a manageable and safe study site where the local support from the MMP researchers at the University of Guadalajara facilitated our access to the migrant communities.⁹

We selected four study sites from among the communities previously surveyed by the MMP with the objective of maximising the diversity of migrant characteristics.¹⁰ Each site was distinct in containing a large concentration of different 'migrant types' identified in prior analysis of the MMP data (Garip 2012). The first community, a rural village of only 1,000 residents, was home to a large share (about 30 per cent according to the MMP data) of older migrants, typically male household heads with little education and wealth, who started migrating in the 1970s and early 1980s to fill the farm jobs in the United States, which following the Bracero program had become socially undesirable to natives. The second community, a rural town of about 3,000 residents, contained a majority of male migrants, often adult sons from relatively wealthy households who started to migrate in the mid-1980s, a period of economic volatility in Mexico due to the peso devaluations in 1976 and 1982. The third community, an industrial town of about 9,000 inhabitants in central Jalisco, distinctly included a significant share of women among its migrants who migrated to join their husbands in the United States after the Immigration Reform and Control Act in 1986 granted citizenship to undocumented migrants in the United States and allowed for family reunification. The fourth community, a poor urban neighbourhood in Guadalajara, contained mostly educated male migrants working in manufacturing, who first migrated to the United States in the mid-1990s, around the period of economic restructuring in Mexico after the signing of the North American Free Trade Agreement in 1994.

Our team, led by the senior author, included six students (four women and two men) from the University of Guadalajara, all of whom had previously worked for the MMP, and thus had experience in the study communities. As locals with credentials from the University of Guadalajara, the students easily established rapport with the respondents (despite the sensitivity of the research topic, the rejection rate was less than 5 per cent). We spent about

⁹ Both the survey data and interviews capture migrants with at least one household member in Mexico. Thus, our data do not include migrants whose entire household has moved to the United States. (The survey data actually has a component that was administered to migrants in the United States, but respondents were not sampled randomly. We do not include this component in our analysis.) Such migrants, however, are of less interest to our study, since, by virtue of having no ties to Mexico, they are less likely to contribute to the network effects on migration.

¹⁰ The MMP data do not contain any identifying information; thus it was not possible to seek and interview the original respondents. Even if it were, we would not choose to do so. The goal of the study is to capture the various reasons underlying migration behaviour. It is preferable to obtain information from a diverse set of individuals rather than observe the same individuals in multiple periods.

a week in each community, and interviewed around 30 households with at least one current or return migrant. In some cases, group interviews were conducted when more than one previous migrant was present in the household. Of the total 134 respondents, 49 were migrants themselves, 49 were parents of a migrant, and 28 were spouses of a migrant. The remaining 8 included siblings, children or nieces of migrants.¹¹

The semi-structured interviews lasted from about 5 to 90 minutes and averaged around 20 minutes. The questions were open-ended and inquired about the circumstances surrounding the first migration decision, which, for some respondents, required a recollection of events in the distant past. To minimise recall bias, we elicited information on landmark events, such as marriage or birth of a child, and then asked the respondent to relate the migration decision to those events.¹² We asked about the goals in migrating, as well as whether and when they achieved that goal. This strategy allowed us to see if respondents' reports of the first migration trip were influenced by the actual outcome of that or subsequent trips (Barclay 1986) (for example, if migrants were able to buy a house with their earnings in the United States, they may now report their initial motivations as saving for future investments).¹³ We also asked about the family and community circumstances around the time of first migration as factual information is better recalled than attitudes (Berney and Blane 1997).

The interviewers transcribed the interview recordings themselves. A team of Mexican research assistants then translated the transcriptions into English. Two bilingual research assistants checked and corrected the translations to ensure accuracy and coded the data in Atlas.ti.

5 Results

Figure 1 utilizes a dot plot with error bars to present the estimates from the logistic regression of first US migration (Kastellec and Leoni 2007).¹⁴ The five vertical panels correspond to samples based on the quintiles of community migration prevalence. The panels trace the shifts in the standardized coefficient estimates for seven variables across communities at different stages of migration prevalence. (Table A1 lists the estimates for all variables included in the model.)

[FIGURE 1 ABOUT HERE]

¹¹ Although about two-thirds of our respondents are relatives who reported on the migrants (that is, proxies for migrants), we are confident that their reports accurately captured the social mechanisms motivating migration decisions. First, proxies remained in close contact with migrants, which made them privy to the circumstances surrounding the migration decision. Second, proxies were especially likely to provide useful insights on the specific mechanisms – social facilitation, normative influence or network externalities, which, by definition, describe how migrants' interactions with their social ties shape migration choices.

¹² Recall bias is problematic for event-dating because the date of an event is unlikely to be part of its representation in memory. As a result, in retrospective reports, respondents often exclude events that actually occurred from the reference period, or include those that did not (Barclay 1986). Such errors - which are especially prevalent in reports of ordinary events that occur at a high frequency - are unlikely in our case because (i) first international migration trip is a major life event, and (ii) we use bounded-recall techniques, such as connecting migration to other life events, that reduce the respondents' uncertainty about the event dates.

¹³ I thank Anthony Chen for this insight.

¹⁴ The estimates adjust for multiple observations from the same individual. The estimates remain substantively similar if we fit a continuous-time hazard model instead of the logistic model.

In the first panel from the left, the odds of first US migration increase with the hourly wage in the United States and the inflation rate in Mexico. The odds of migration also increase with the ratio of available visas to Mexican migrants and the amount of Mexico-US trade. Migration is more likely in households with prior US migrants (residents or non-residents) and in communities with high migration prevalence. These findings are in line with the various theories that connect migration to higher expected earnings in destination, economic uncertainty in origin, economic and political ties between origin and destination, and social ties between individuals in origin and destination.

Yet, as we move from the first to the fifth panel, and shift from studying communities with less than 3 per cent migrants to those with more than 20 per cent, the model estimates change considerably. The standardised coefficient estimate for the hourly US wage drops from 0.16 in the first stage of migration prevalence to 0.08 in the last stage ($p < 0.05$ for all estimates, exceptions indicated). The coefficient estimate for the Mexican inflation rate drops from 0.15 in the first stage to -0.07 in the fifth stage; the estimate for the Mexico-US trade indicator declines from 0.74 to -0.07, and that for the ratio of visas to migrants decreases from 0.12 to 0.02 ($p > 0.05$). By contrast, the coefficient estimates for the number of US residents in household and the migration prevalence in community both increase from about 0.02 ($p > 0.05$) in the first stage of migration to 0.17 in the fifth stage. The estimate for the number of non-resident migrants in household remains around 0.54 at all stages of migration.

[TABLE 1 ABOUT HERE]

As communities move from low to high levels of migration prevalence, the effect of the economic and political context indicators on individuals' migration propensities declines in size (and sometimes switches sign), while the effect of social context indicators either remains constant or increases in size. This pattern is further reinforced in Table 1, which presents likelihood ratio test statistics comparing the full model to a baseline model without the social context indicators. The test statistic is higher, suggesting the higher explanatory power of the social context indicators, at higher levels of migration prevalence. This finding supports the idea – put forth in the cumulative causation theory – that migration decisions become increasingly a function of past migration patterns as migration gains prevalence in sending communities.

The interviews – in contrast to the survey data – suggested the continued salience of economic rationales for respondents' migration decisions, which spanned a period of six decades from 1950 to 2010. For many migrants, the higher wages in the United States constituted the main motivating factor for migration. A recurrent migrant in his fifties, who first migrated when he was just 21, made this claim explicitly as he described how wage differentials compelled him to make repeated trips: 'Once you go there and come back here, you say "No, well, no. You don't earn in a week [here] what you can earn there [US] in a day." So I went back there again.' For others, difficult economic conditions in Mexico provided the impetus for short-term migration to accumulate savings. One former migrant described almost destitute conditions following the 1994 economic crisis as the reason for his decision to migrate: 'In 1996, Salinas [Mexico's President] left. He left us on the street; there were no jobs. We lasted two or three months without jobs... So, I left. And I did well – I built my house.' Some migrants were more specific in justifying their migration decision,

referring to rising property prices and/or interest rates as their motivation. One respondent, who first migrated in 2003, highlighted how high lending costs prevented him from starting his own business and resulted in his decision to migrate: '[Sometimes] you want to start a business but there's no money... And when there is money, they lend it at a very high price. That's when one says, "I'd better leave."' The father of a migrant reinforced these views by similarly complaining about the high prices in his town: 'Here everything is expensive...I'm telling you, here we pay the same [prices] as the tourists.' In his view, then, migration was a good opportunity for his son to earn more than he could in Mexico and ultimately build his own house: 'I tell him, "Save [money], my son, so you can build your house." Because that's what matters, the house.' For many of our respondents, then, economic rationales continue to factor into their migration decisions.

While almost all respondents referred to economic goals or conditions as the main drivers of migration, several of them also recognised migration as a chain process, where few initial migrants in a family or community triggered others to migrate as well. For example, for a father of six migrants, it all started with the migration of his eldest daughter, who left in 1989 at the age of 18: 'They [relatives in the US] invited her and said, "Let's go!" And so the girl decided to go and they took her... And then, you know the story, the husband arrived, the boyfriend, and they married (laughs). And that's life. You see?' Soon, the daughter helped her siblings, four sisters and a brother, to migrate as well. A former migrant in his fifties described a similar process in communities:

People go where their family is, where their friends are, where their relatives are, and where any acquaintance is. People get stuck at that, like, from this town in Jalisco, everybody goes to Oregon. People from [another town] go to Chicago because three or four people [from that town] went there, so, well, those people helped another five, and those five bring ten.

Indeed, the presence of network effects is not lost on our respondents.

[FIGURE 2 ABOUT HERE]

In fact, almost all the interviews (116 out of 120) suggested similar network effects on migration, although, in some of these cases, the respondents were not fully aware of the imprint of social ties on migration decisions. We coded each interview according to the mechanism(s) underlying the suggested network effects. We considered the three mechanisms – social facilitation, normative influence and network externalities – identified by the DiMaggio-Garip typology, which are exhaustive but not mutually exclusive. The Venn diagram in Figure 2 shows the distribution of interviews ($N = 116$) across these mechanisms.

In 110 of the 116 interviews, we observed the first mechanism, *social facilitation*, which works through the information or help social contacts provide that decreases the costs or increases the benefits of migration. In describing their migration decisions, most respondents mentioned the availability of help from others, typically prior migrants in the family or community, especially when crossing the border or looking for a job or a place to stay in the United States. As one migrant explained, these tasks involved considerable risks: 'You risk a lot to go make another peso because you're not sure if you'll come back or if you will actually do OK over there.'

Consequently, individuals often relied on strong ties, such as family members or close friends who could be trusted. The presence of such ties, in most cases, became a major determinant of migration decisions as the father of four migrant daughters explained:

“I knew, more or less, that they [his daughters] were on a good path, because the people who took the first girl, they were [established] there and they had, more or less, a good life. So, I felt better. They [daughters] didn’t go for an adventure, to try their luck by themselves...No. They had the support of those there [US] and the family.”

In the above example, the father was put at ease when his daughters left for the United States, as well-established prior migrants could assist them in settling. Likewise, another respondent emphasised the importance of social ties to her husband’s decision to migrate: ‘An opportunity came up so that my siblings could help him – because nobody from his family was there – only my family. His cousins said they’d go with him, but they didn’t, so we called my sisters, and they said yes, he could go with them. That’s why he left.’ In this case, the respondent’s husband did not view migration as an option because he had no relatives in the United States to support him. Indeed, the ‘opportunity’ to migrate only became possible when it was determined that relatives would migrate as well.

For some respondents, the presence of other migrants in the family or community provided sufficient information to inspire migration decisions, because it proved migration to be a worthwhile undertaking and thus increased its perceived benefits. The wife of a migrant, for example, described how her own family’s success inspired her husband’s move:

My mother lived with the same things [as us]... Like, at the beginning, we only had a little room and a tiny kitchen. And as soon as my brother left [for the US], they built her a house. And because of that, I say, it’s because they [migrants like my husband] do observe, more than anything, they say, ‘You can see the results.’

Another respondent, who left in 1993, concurred that observing other migrants’ successes encouraged him, and other first-timers, to travel to the United States: ‘Back then, everyone that left did well. Many acquaintances, neighbours, and friends did fine. They started their own businesses and bought land here.’ The ability of prospective migrants to witness the successes of prior migrants thus allowed the former group to determine how efficacious their migration to the United States could potentially be for them.

The responses coded as examples of social facilitation often suggested the importance of having a certain number of social ties to help with different tasks, or to establish the efficacy of migration beyond a doubt, for undertaking migration. Such was the case for many of our respondents, including one who borrowed papers from her sister and crossed with her son-in-law. Another decided to migrate only after his friend corroborated what his sisters in the United States were telling him about the opportunities there. The presence of such thresholds, beyond which the network effects are realised, is deemed as a fingerprint of the social facilitation mechanism (DiMaggio and Garip 2012b).

We coded 69 out of 116 interviews as cases of *normative influence*, which is if social ties encourage or oppose migration by offering rewards or imposing sanctions. In 40 of these cases, migrants’ social ties were in consensus about the positive value of migrating, and tried to persuade the migrant to go by voicing their approval. A respondent, for example, described how the whole family came together to discuss whether his 20-year-old son should migrate: ‘We talked about our situation here [community] and told him: “If you

want to go, you decide. You're still young and so you have to think about it. We support you if you want to go to [the United States]." And yes, everyone agreed – nobody said no.' A return migrant told us he was encouraged to go in 2003 at the age of 37 by friends who had prodded him to, 'Come, work hard, [and] you can make it.' Another migrant was convinced that 'he would do great there and make a lot of money,' which according to his sister, 'is what allured him.' A mother similarly recalled her migrant son's excitement after talking to his migrant friends: 'He said, "Look ma, I want to go because I can't do a thing [here], and from what I heard, they say that our lives are about to change."'15 As demonstrated by the above examples, direct encouragement from family, friends, and previous migrants can serve as the impetus for some migrants to leave for the United States.

In some of these cases, prior migrants exaggerated life prospects in the United States, or 'sweetened the truth', as the mother of a migrant put it, and thus sustained the widespread belief in the value of migrating in sending communities. Several migrants described a rude awakening when they realised the discrepancy between what others had told them about the United States and what they actually experienced. A male respondent, who first migrated in 1974 at the age of 29, explained:

Interviewer: Sir, do you have any friends from your village who migrated before you?

Respondent: Oh, yeah, well, many. I repeat to you, I saw a friend that came back two or three years after leaving, and I tell you that appearances always have you mistaken.

I: And how did your friends do?

R: No, well, they all did ok, but normally they came and told stories that weren't real. Really! "No, no, 'Over there I have,' 'Over there I am,'" and they were all lies... When I left, I went with friends who had [spent] years over there and noticed that they hardly had anything to eat. They've been there for years, and the ones here thought they were millionaires over there, but it was all a lie.

Another respondent, who first migrated in 2007 at the age of 17, described a similar case of deception:

We want to promise a lot, but unfortunately, when we arrive to the United States, everything is so different. Because here they say, "Everything is a bed of roses," that the North [US] gives you a lot of things, but what I mean is that when you get there, the whole world changes. Because, here, they don't tell you that you have to pay [for] bills or food...They don't say anything. And sometimes we feel very bad in that sense. I, for instance, I didn't want to come back [to Mexico], because the crisis [in the US in 2008] was very hard. But I decided to come back, and I came back ashamed because I promised [my family] to buy a house, and well, I couldn't do anything. I came back as I left – with nothing.

Other respondents similarly talked about the shame the migrants felt when their experiences did not match the expectations in their family or community. A return migrant in his late forties told us:

People there [in the US] struggle. There are many people who have been living there for 15 or 20 years who never come back because they are ashamed since they have nothing. They live worse there than some of the very poor here, in a room with tattered rags [of

¹⁵ These examples also constitute cases of social facilitation because prior migrants provide information that increases the perceived benefits of migration. As Figure 2 shows, 66 out of 69 interviews coded as normative influence were also categorized as social facilitation.

clothing].... But many don't come back out of shame. They don't want to return here as failures.

In most cases, then, because migrants with negative experiences in the United States chose not to share those experiences upon return, or did not return at all, individuals in the sending communities retained a glorified view of migration. A respondent described how his children, a daughter and a son, subscribed to this view and migrated against his wishes:

My children don't like this place [the tortilla bakery I own]...They don't want to raise pigs, goats, cows, farm, or sell...They want to go to a better place, to the North. But they are worthless there. It's only pride, the pride that...They got raised like that, [thinking] that they are going to make it there, that 'I'm going to make it to the North.'

Another respondent similarly described an ingrained culture of migration, when he told us of his son, who migrated at the age of 16:

I think, most of all, it was the idea [of migrating]. As I was telling you, I told him to do something, but no, he surely didn't understand it like that... He was curious to go and know how the US was, because his friend came and told him, and so I think that his idea was to know that place, and as one says over there, 'for people not to say you're wrong.'

In fact, in 29 of the 69 interviews coded as normative influence, migrants heard dissenting views on migration, but chose to disregard them, as in the case of a 21 year-old male migrant, who told us: '[My parents] never agreed, and never will agree, that we go there.' Nevertheless, he still migrated, 'as all Mexicans do ... to achieve the American Dream.'

In 82 out of 116 interviews, respondents referred to *network externalities*, institutionalised resources, like smugglers or labour recruiters, as facilitators of migration acts. These resources owe their existence to a steady flow of earlier migrants. A former migrant, for example, told us how his father, after helping several relatives, 'became a smuggler, and started to move people. Because it [crossing the border] was easier before, it was very easy, so he did take lots of people there [the US].' Migrants often could not trust the smugglers, and expressed fears of being robbed, left behind or even killed. A female respondent, and a former migrant in the 1970s, described the dangerous situation her siblings, two brothers and a young sister, ended up in:

They crossed [the border] and the coyote [smuggler] arrives and says: 'You are going to pay me for all of them [two siblings]' and we didn't have money.... What do you do? You can get into a problem; they can even kill you if you don't pay. Then one of my brothers talked to the coyote and said: 'I can pay you next week for one and the other week for the other,' and the coyote said 'If you don't do the way you say, you will pay the consequences'... They [coyotes] are people that you get on the border, you don't know who they are.

To avoid such situations, many migrants relied on their social ties to find a trustworthy and competent smuggler. A respondent explained how the process worked: 'Everybody around [a nearby city] knows who the coyotes are. "Go with Jose. Go with that guy, look for him," and then they [coyotes] ask "Who sent you?", "Heriberto's brother," "Oh, okay. Let me talk to him," "Luis, you sent such and such", "Oh, okay, look after them." So trust . . . Even for finding a coyote you need to know people.

As a result, in 78 out of the 82 cases, network externalities worked in tandem with social facilitation, where migrants relied both on smugglers, and friends or family to make it to the United States. In 46 of these cases, normative influences, that is persuasion efforts

from social ties, were also in effect. Such was the case of a male migrant, who first went to the United States in 1961 as a 26-year-old, whose friend convinced his dissenting mother to let him migrate (normative influence), then helped him (social facilitation) go to Tijuana and find a smuggler to cross the border (network externalities).

Taken together, the results from the quantitative and qualitative data establish the presence of network effects in Mexico-US migration: individuals are more likely to migrate if there are prior migrants among their family or community members. These effects become stronger as migration becomes more widespread in a community. The effects work through three mechanisms: first, prior migrants provide information or help that reduces the risks, or increases the benefits – both actual and perceived – of migrating to the individual. Second, prior migrants often communicate their positive, rather than negative, experiences in the United States, and thus nourish the idea of migration as a path to success. Third, prior migrants generate a common pool of resources, such as smugglers, that facilitate migration. In the Mexico-US setting, the first mechanism, social facilitation, is the most prevalent, but it often works in combination with the remaining two mechanisms, normative influence and network externalities.

6 Conclusion

Scholars have long noted how migration streams, once initiated, obtain a self-feeding character. Studies have attributed this phenomenon, called the cumulative causation of migration, to expanding social networks that connect migrants in destination to individuals in origin. Studies have often disagreed, however, on *how* social networks influence migration decisions. While many studies established a positive association between individuals' ties to prior migrants and their migration propensities, only few acknowledged that multiple social mechanisms – as well as exposure to common environmental factors – might account for these interdependencies.

To address this issue, a common problem in the identification of social effects in general, we adopted a typology developed by DiMaggio and Garip (2012a) and considered three mechanisms by which social ties may influence individuals' migration choices. In the first mechanism, *social facilitation*, social ties reduce the risks and increase the benefits of migration by providing information or help to potential migrants. In the second mechanism, *normative influence*, social ties provide normative pressures to migrate (or not to migrate) through rewards or sanctions. In the third, and final, mechanism, *network externalities*, social ties help sustain institutionalized resources, such as smuggling networks or migrant enclaves in destination, which fosters more migration.

We studied the prevalence of these mechanisms in the Mexico-US migration context with mixed methods. We used large-sample quantitative data to establish the presence of social effects, and in-depth qualitative data to reveal the mechanisms underlying those effects. This approach – applicable to any question where researchers suspect network influences – is becoming increasingly prevalent in the social sciences (see Lamont 2008 for reviews of this approach in different fields; Lieberman 2005; Manski 1993; Small 2011).

We first analysed the migration choices of more than 90,000 individuals observed between 1970 and 2000 in 124 Mexican communities surveyed by the Mexican Migration

Project. Similar to prior work, we found that having prior migrants in the household or community increases individuals' likelihood of migrating. This positive effect is higher in communities with higher migration prevalence, while the effects of the economic and political context indicators are typically lower. This pattern provided evidence for an implication of cumulative causation theory that has not been tested to date: social ties become an increasingly important predictor of migration behaviour as migration flows gain prevalence in sending communities.

To determine the mechanisms underlying this pattern, we relied on qualitative data from 120 in-depth interviews with migrants and their household members in Mexico. Our analysis suggested social facilitation to be the predominant mechanism underlying the social transmission of migration behaviour. An overwhelming majority (more than 90 per cent) of migrants obtained information or help from other migrants in crossing the border or finding a job or accommodation in the United States. For more than half of the migrants, normative influence was an important mechanism through which social ties shaped migration decisions. These individuals were encouraged to migrate by family or friends, who, sometimes, exaggerated the potential prospects in the United States, and thus maintained the widespread belief that one can 'make it in the North' as one respondent put it. In about half of these cases (a fourth of the total), potential migrants also heard dissenting voices, typically of friends citing their negative experiences as migrants, that challenged the normative aspect of migration, but chose to disregard them. For about two-thirds of all migrants, network externalities – resources sustained by a continuous flow of earlier migrants, such as smugglers – facilitated migration acts. In almost all of these cases, however, potential migrants needed to rely on other migrants to access these resources. Finding a reliable and competent smuggler, one that 'doesn't fail' as one migrant put it, was a major concern, which most migrants achieved with help from close friends and family. In fact, for about 90 per cent of the migrants in our sample, at least two mechanisms worked at the same time. In more than third of the cases, all three mechanisms worked together.

By focusing on the social mechanisms underlying the network effects on migration, we can anticipate whether and how these effects may decline in size, or be reversed. In particular, the mechanisms we have identified – social facilitation, normative influence and network externalities – generate a positive feedback loop as long as migration remains a successful enterprise, or at least is perceived as such, in sending communities. But many of our respondents complained about the false impression they got from other migrants who 'say wonderful things about being there... and...come showing something that is not true.' These migrants came to realise the difficulties with the life in the United States only after completing their journey, but often felt ashamed to share their negative experiences with others, thus sustaining the lopsided representation of migration. If such experiences become more commonplace, an increasing number of migrants may feel compelled to share them, ultimately challenging the normative aspect of migration, and breaking – or even reversing - the cumulative causation of migration. Our data are only suggestive on this point, which we identify as a fruitful direction for future work.

By understanding the interdependencies between individuals' migration choices at a deeper level, we can also design more effective policy interventions. In the Mexico-US case, for example, migration flows have persisted through the 1970s, 1980s and 1990s despite the increased border enforcement and sanctions on employers hiring undocumented

migrants in the United States. The qualitative data in this study suggest a plausible explanation for why these policies have not created the desired effects. By making it more difficult for migrants in the United States to travel back to Mexico, the border control, on the one hand, may have partially cut off the interpersonal exchange of help between prior and potential migrants (what we called social facilitation). But, on the other hand, the border control may have made it more difficult for migrants to share their negative experiences in the United States (for example, the hardships they face in finding a job under increased employer sanctions). The combined effect of the longer time spent by migrants in the United States, and the lack of access to information about the altered opportunity structure there, may have been to reinforce the normative influence mechanism, and to perpetuate, as one migrant put it, the 'Mexican illusion [of what life is like in the United States].'

Tables and Figures

Table 1. The likelihood ratio test comparing the full model to the baseline model with no social interaction measures by quintiles of community migration prevalence

	Quintiles of Community Migration Prevalence				
	I	II	III	IV	V
Likelihood ratio test χ^2 (dof=3)	1981.6 *	2226.9 *	2591.3 *	2927.9 *	2815.7 *
N (person-years)	272,947	276,374	268,689	271,667	272,181

*p<0.05.

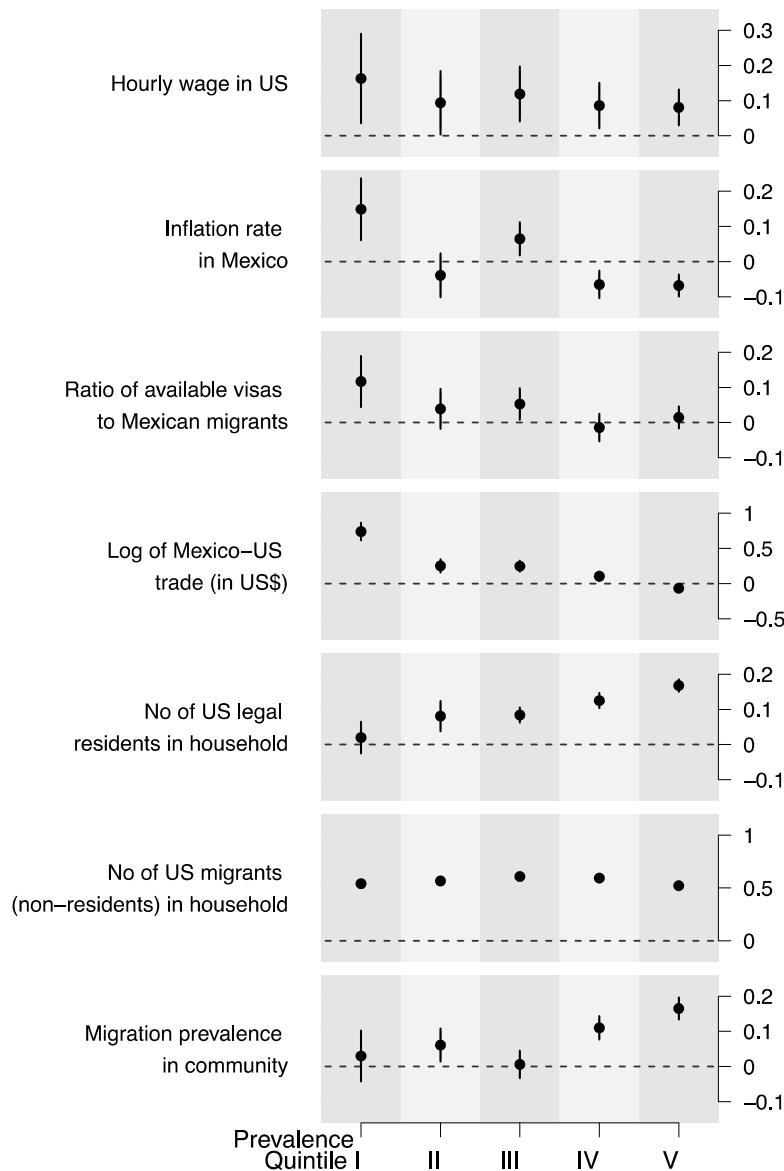


Figure 1

The estimates from a logistic regression of model first US migration in five progressive categories based on the quintiles of the migration prevalence index. For each community-year, the migration prevalence index is defined as the percentage of people who have migrated in that community up to that year. The x-axis displays the prevalence quintile on which the sample is based. The left-hand-side y-axis lists the variable names, the right-hand-side y-axis shows the range of the standardized coefficient estimates. A horizontal dashed line marks zero for each variable. The dots represent the point estimates and the vertical lines indicate 95% confidence intervals. All models include controls for demographic characteristics, education, occupation, household wealth and community type. The standard errors are adjusted for clustering at the individual-level.

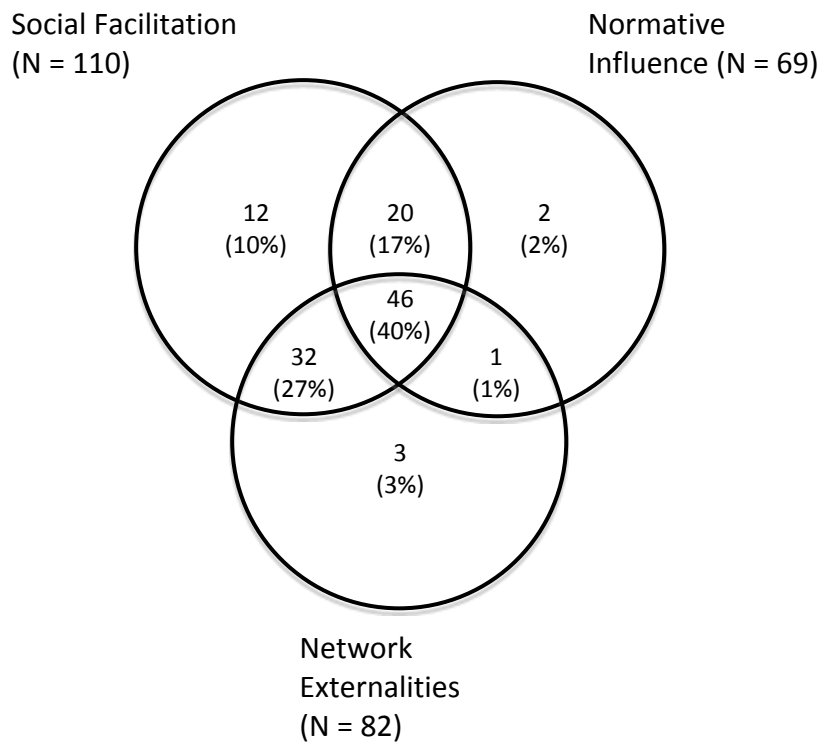


Figure 2

Venn diagram showing the distribution of interviews (N = 116) across three social mechanisms underlying migration (excludes 4 interviews where no social mechanism is mentioned).

Appendix 1: Estimates from Logistic Regression Models of First US Migration

Table A1. Standardized coefficient estimates from a logistic regression model of first US migration by quintiles of community migration prevalence

	Quintiles of Community Migration Prevalence									
	I		II		III		IV		V	
Age	-0.74	**	-0.72	**	-0.67	**	-0.68	**	-0.72	**
	(0.06)		(0.04)		(0.03)		(0.03)		(0.02)	
Household head	0.29	**	0.35	**	0.34	**	0.31	**	0.25	**
	(0.05)		(0.04)		(0.03)		(0.02)		(0.02)	
Male	0.57	**	0.45	**	0.49	**	0.54	**	0.51	**
	(0.06)		(0.04)		(0.03)		(0.02)		(0.02)	
Primary education	0.24	**	0.04		0.01		0.06	**	0.03	
	(0.06)		(0.04)		(0.03)		(0.02)		(0.02)	
Some secondary education	0.19	**	-0.05		0.02		0.03		-0.04	*
	(0.05)		(0.04)		(0.03)		(0.02)		(0.02)	
Complete secondary education	0.14	**	0.00		-0.07	*	-0.07	**	-0.11	**
	(0.05)		(0.04)		(0.03)		(0.02)		(0.02)	
Manufacturing occupation	0.32	**	0.29	**	0.21	**	0.18	**	0.15	**
	(0.03)		(0.03)		(0.02)		(0.02)		(0.01)	
Service or other occupation	0.27	**	0.19	**	0.16	**	0.10	**	0.03	*
	(0.04)		(0.04)		(0.03)		(0.02)		(0.02)	
Migrated in Mexico?	0.09	**	0.07	**	0.09	**	0.03		-0.01	
	(0.03)		(0.03)		(0.02)		(0.02)		(0.02)	
Number of rooms in properties	-0.23	**	-0.13	**	-0.11	**	-0.06	*	-0.01	
	(0.05)		(0.04)		(0.03)		(0.02)		(0.02)	
Log of value of land (US\$ in 2000)	0.02		0.02		0.05	*	0.00		0.04	**
	(0.04)		(0.03)		(0.02)		(0.02)		(0.01)	
Own business	-0.03		-0.03		-0.07	**	-0.08	**	-0.03	*
	(0.04)		(0.03)		(0.02)		(0.02)		(0.02)	
Community in metropolitan area	-0.17	**	-0.37	**	-0.19	**	-0.10	**	-0.51	**
	(0.04)		(0.03)		(0.03)		(0.02)		(0.03)	

(continued)

Table A1. (continued) Standardized coefficient estimates from a logistic regression model of first US migration by quintiles of community migration prevalence

	Quintiles of Community Migration Prevalence				
	I	II	III	IV	V
Hourly US wages (US\$ in 2000)	0.16 *	0.09 *	0.12 **	0.09 *	0.08 **
	(0.07)	(0.05)	(0.04)	(0.03)	(0.03)
Inflation rate [0,1]	0.15 **	-0.04	0.07 **	-0.07 **	-0.07 **
	(0.05)	(0.03)	(0.03)	(0.02)	(0.02)
Availability of visas [0,1]	0.12 **	0.04	0.05 *	-0.01	0.02
	(0.04)	(0.03)	(0.02)	(0.02)	(0.02)
Log of total Mexico-US trade (US\$ in 2000)	0.74 **	0.25 **	0.25 **	0.11 **	-0.07 *
	(0.08)	(0.05)	(0.04)	(0.03)	(0.03)
No of US legal residents in household	0.02	0.08 **	0.08 **	0.13 **	0.17 **
	(0.03)	(0.02)	(0.01)	(0.01)	(0.01)
No of US migrants (non-residents) in hh	0.54 **	0.57 **	0.61 **	0.59 **	0.52 **
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Migration prevalence in community	0.03	0.06 *	0.01	0.11 **	0.17 **
	(0.04)	(0.03)	(0.02)	(0.02)	(0.02)
Intercept	-6.72 **	-5.90 **	-5.28 **	-4.88 **	-4.36 **
	(0.06)	(0.04)	(0.03)	(0.03)	(0.02)
Pseudo-R ²	0.24	0.17	0.15	0.14	0.13
N (person-years)	272,947	276,374	268,689	271,667	272,181
(unique persons)	19,360	27,762	30,367	30,899	30,710
(community-years)	796	668	605	641	636
(unique communities)	37	48	53	51	43

*p<0.05; **p<0.01; ***p<0.001 (two-tailed tests). Results are logit coefficients. Standard errors are corrected for clustering at the individual level. The reference group for education is individuals with no education; the reference group for occupation is individuals who work in agriculture or are unemployed.

References

- Aguilera, M.B. and D.S. Massey. 2003. "Social Capital and the Wages of Mexican Migrants: New Hypotheses and Tests." *Social Forces* 82(2):671-701.
- Amuedo-Dorantes, C. and K. Mundra. 2007. "Social Networks and Their Impact on the Earnings of Mexican Migrants." *Demography* 44(4):849-863.
- Barclay, C.R. 1986. "Schmatization in autobiographical memory." Pp. 82-100 in *Autobiographical Memory*, edited by D.C. Rubin. Cambridge, UK: Cambridge University Press.
- Bean, F. and G. Stevens. 2003. *America's Newcomers and the Dynamics of Diversity*. New York: Russell Sage Foundation.
- Berney, L.R. and D.B. Blane. 1997. "Collecting Retrospective Data: Accuracy of Recall After 50 Years Judged Against Historical Records." *Social Science & Medicine* 45(10):1519-1925.
- Carrington, W.J., E. Detragiache, and T. Vishwanath. 1996. "Migration with Endogenous Moving Costs." *The American Economic Review* 86(4):909-930.
- Cohen, J.H. 2004. *The Culture of Migration in Southern Mexico*. Austin, TX: University of Texas Press.
- Cornelius, W.A. 2001. "Death at the Border: Efficacy and Unintended Consequences of US Immigration Control Policy." *Population and Development Review* 27(4):661-685.
- Curran, S.R., F. Garip, C.Y. Chung, and K. Tangchonlatip. 2005. "Gendered Migrant Social Capital: Evidence from Thailand." *Social Forces* 84(1):225-255.
- Curran, S.R. and E. Rivero-Fuentes. 2003. "Engendering Migrant Networks: The Case of Mexican Migration." *Demography* 40(2):289-307.
- Davis, B., G. Stecklov, and P. Winters. 2002. "Domestic and International Migration from Rural Mexico: Disaggregating the Effects of Network Structure and Composition." *Population Studies* 56(3):291-309.
- DiMaggio, P. and F. Garip. 2011. "How Network Externalities Can Exacerbate Intergroup Inequality." *American Journal of Sociology* 116(6):1887-1933.
- . 2012a. "Network Effects and Social Inequality." *Annual Review of Sociology* 38:93-118.
- . 2012b. "Network Effects and Social Inequality: How Mechanisms Matter." Working Paper.
- Drever, A.I. and O. Hoffmeister. 2008. "Immigrants and Social Networks in a Job-Scarce Environment: The Case of Germany." *International Migration Review* 42(2):425-448.
- Dunlevy, J. 1991. "On the Settlement Patterns of Recent Caribbean and Latin Immigrants to the United States." *Growth and Change* 22:54-67.
- Durand, J., D.S. Massey, and R. Zenteno. 2001. "Mexican immigration to the United States: Continuities and changes." *Latin American Research Review* 36(1):107-127.
- Elliott, J.R. 2001. "Referral Hiring and Ethnically Homogeneous Jobs: How Prevalent Is the Connection and for Whom?" *Social Science Research* 30(3):401-425.

- Fernandez-Kelly, P. and D.S. Massey. 2007. "Borders for Whom? The Role of NAFTA in Mexico-US Migration." *The Annals of the American Academy of Political and Social Science* 610:98-118.
- Fussell, E. and D.S. Massey. 2004. "The Limits to Cumulative Causation: International Migration from Mexican Urban Areas." *Demography* 41(1):151-171.
- Garip, F. 2008. "Social capital and migration: How do similar resources lead to divergent outcomes?"
- . 2012. "An Integrated Analysis of Migration and Remittances: Modeling Migration as a Mechanism for Selection." *Population Research and Policy Review* 31(5):637-663.
- Garip, F. and S.R. Curran. 2010. "Increasing migration, diverging communities: changing character of migrant streams in rural Thailand." *Population Research and Policy Review* 29(5):695-685.
- Goldring, L. 2004. "Family and Collective Remittances to Mexico: A Multi-dimensional Typology." *Development and Change* 35(4):799-840.
- Grasmuck, S. and P. Pessar. 1991. *Between two islands: Dominican international migration*. Berkeley and Los Angeles: University of California Press.
- Hagan, J.M. 1998. "Social Networks, Gender, and Immigrant Incorporation: Resources and Constraints." *American Sociological Review* 63(1):55-67.
- Hanson, S. and G. Pratt. 1992. "Dynamic Dependencies: A Geographic Investigation of Local Labour Markets." *Economic Geography* 68(4):373-405.
- Harris, J. and M. Todaro. 1970. "Migration, unemployment and development: a two-sector analysis." *The American Economic Review* 60(1):126-142.
- Hernandez-Leon, R. 1999. "A la Aventura!: Jovenes, Pandillas y Migracion en la Conexion Monterrey-Houston." in *Fronteras Fragmentadas, Identidades Multiples*, edited by G. Mummert. Zamora: El Colegio de Michoacan.
- . 2008. *Metropolitan migrants: the migration of urban Mexicans to the United States*. Berkeley: University of California Press.
- Hirsch, J.S. 2000. "'En el norte la mujer manda': Gender, Generation and Geography in a Mexican Transnational Community." Pp. 369-389 in *Immigration Research for a New Century: Multidisciplinary Perspectives*, edited by N. Foner, R. Rumbaut, and S. Gold. New York: Russell Sage Foundation.
- Hondagneu-Sotelo, P. 1994. "Regulating the Unregulated?: Domestic Workers' Social Networks." *Social Problems* 41(1):50-64.
- INS, U. 1990. "Immigration Act of 1990." in *Public Law 101-649*.
- Kanaiaupuni, S.M. 2000. "Reframing the Migration Question: An Analysis of Men, Women, and Gender in Mexico." *Social Forces* 78(4):1311-1347.
- Kandel, W. and G. Kao. 2001. "The Impact of Temporary Labour Migration on Mexican Children's Educational Aspirations and Performance." *International Migration Review* 35(4):1205-1231.

- Kandel, W. and D.S. Massey. 2002. "The Culture of Mexican Migration: A Theoretical and Empirical Analysis." *Social Forces* 80(3):981-1004.
- Kastellec, J. and E. Leoni. 2007. "Using graphs instead of tables in political science." *Perspectives on Politics* 5(4):755-771.
- Korinek, K., B. Entwisle, and A. Jampaklay. 2005. "Through Thick and Thin: Layers of Social Ties and Urban Settlement among Thai Migrants." *American Sociological Review* 70(5):779-800.
- Krissman, F. 2005. "Sin Coyote Ni Patron: Why the "Migrant Network" Fails to Explain International Migration." *International Migration Review* 39(1):4-44.
- Lamont, M. a. P. W., eds. 2008. "Workshop on Interdisciplinary Standards for Systematic Qualitative Research." Washington, DC.
- Levitt, P. 1998. "Social Remittances: Migration Driven Local-Level Forms of Cultural Diffusion." *International Migration Review* 32(4):926-948.
- Lieberman, E.S. 2005. "Nested Analysis as a Mixed-Method Strategy for Comparative Research." *American Political Science Review* 99(3):435-452.
- Manski, C.F. 1993. "Identification of Endogenous Social Effects: The Reflection Problem." *The Review of Economic Studies* 60(3):531-542.
- Martin, P. 2003. "Mexico-US Migration." Washington, DC: Institute for International Economics.
- Massey, D. and R. Zenteno. 1999. "The dynamics of mass migration." *Proceedings of the National Academy of Sciences* 96(9):5328.
- Massey, D.S. 1990. "Social Structure, Household Strategies, and the Cumulative Causation of Migration." *Population Index* 56(1):3-26.
- Massey, D.S., J. Arango, G. Hugo, A. Kouaouci, A. Pellegrino, and E.J. Taylor. 1998. *Worlds in Motion: Understanding International Migration at the End of the Millenium*. Oxford, UK: Clarendon.
- Massey, D.S., J. Durand, and N. Malone. 2003. *Beyond Smoke and Mirrors: Mexican Immigration in an Era of Economic Integration*. New York: Russell Sage Foundation.
- Massey, D.S. and F.G. España. 1987. "The Social Process of International Migration." *Science* 237(4816):733-738.
- Massey, D.S. and K.E. Espinosa. 1997. "What's Driving Mexico-US Migration? A Theoretical, Empirical, and Policy Analysis." *The American Journal of Sociology* 102(4):939-999.
- Massey, D.S., L. Goldring, and J. Durand. 1994. "Continuities in Transnational Migration: An Analysis of Nineteen Mexican Communities." *The American Journal of Sociology* 99(6):1492-1533.
- Meza, L.G. 2006. "Transformaciones económicas en México y migración a Estados Unidos." Pp. 173-193 in *Migración México-Estados Unidos: implicaciones y retos para ambos países*, edited by A. Latapí, E. Herrera, J. Alejandro, and G. Igartúa. Mexico City: Ediciones Casa Juan Pablos.

- Mines, R. 1981. *Developing a Community Tradition of Migration: A Field Study in Rural Zacateca, Mexico and California Settlement Areas*. La Jolla, CA: University of California at San Diego, Program in United States Mexican Studies.
- Mines, R. and A.d. Janvry. 1982. "Migration to the United States and Mexican Rural Development: A Case Study." *American Journal of Agricultural Economics* 64(3):444-454.
- Moretti, E. 1999. "Social Networks and Migrations: Italy 1876-1913." *International Migration Review* 33(3):640-657.
- Munshi, K. 2003. "Networks in the Modern Economy: Mexican Migrants in the U. S. Labour Market." *The Quarterly Journal of Economics* 118(2):549-599.
- Palloni, A., D.S. Massey, M. Ceballos, K. Espinosa, and M. Spittel. 2001. "Social Capital and International Migration: A Test Using Information on Family Networks." *The American Journal of Sociology* 106(5):1262-1298.
- Passel, J., D.V. Cohn, and A. Gonzalez-Barrera. 2012. "Net Migration from Mexico Falls to Zero - and Perhaps Less." Pew Hispanic Center Report.
- Passel, J. and K. Woodrow. 1987. "Change in the undocumented alien population in the United States, 1979-1983." *International Migration Review* 21(4):1304-1334.
- Piore, M.J. 1979. *Birth of Passage: Migrant Labour in Industrial Societies*. Cambridge, UK: Cambridge University Press.
- Portes, A. and R. Rumbaut. 2006. *Immigrant America: a portrait*. Berkeley and Los Angeles: University of California Press.
- Portes, A. and J. Sensenbrenner. 1993. "Embeddedness and Immigration: Notes on the Social Determinants of Economic Action." *American Journal of Sociology* 98(6):1320-1350.
- Reichert, J.S. 1981. "The Migrant Syndrome: Season US Wage Labour and Rural Development in Central Mexico." *Human Organization* 40(1):55-66.
- Singer, A. and D.S. Massey. 1998. "The Social Process of Undocumented Border Crossing among Mexican Migrants." *International Migration Review* 32(3):561-592.
- Sjaastad, L. 1962. "The costs and returns of human migration." *The Journal of Political Economy* 70(5):80-93.
- Small, M.L. 2011. "How to Conduct a Mixed Methods Studies: Recent Trends in a Rapidly Growing Literature." *Annual Review of Sociology* 37:56-86.
- Smith, R.C. 2006. *Mexican New York: Transnational Worlds of New Immigrants*. Berkeley: University of California Press.
- Stark, O. 1984. "Migration decision making: A review article." *Journal of Development Economics* 14:251-259.
- Stark, O. and D.E. Bloom. 1985. "The New Economics of Labour Migration." *The American Economic Review* 75(2):173-178.
- Stark, O. and J. Taylor. 1991. "Migration incentives, migration types: The role of deprivation." *The Economic Journal* 101(408):1163-1178.

- Stark, O., J. Taylor, and S. Yitzhaki. 1986. "Remittances and inequality." *The Economic Journal* 96(383):722-740.
- Taylor, J.E. 1987. "Undocumented Mexico-US migration and the returns to households in rural Mexico." *American Journal of Agricultural Economics* 69:616-638.
- Tilly, C. 2006. "Trust networks in transnational migration."
- Wallerstein, I. 1974. *The Modern World System, Capitalist Agriculture and the Origin of the European World Economy in the Sixteenth Century*. New York: Academic Press.
- Wiest, R. 1973. "Wage-Labour Migration and the Household in a Mexican Town." *Journal of Anthropological Research* 29:180-209.
- Wilson, T.D. 1998. "Weak Ties, Strong Ties: Network Principles in Mexican Migration." *Human Organization* 57(4):394-403.
- Winters, P., A.d. Janvry, and E. Sadoulet. 2001. "Family and Community Networks in Mexico-US Migration." *The Journal of Human Resources* 36(1):159-184.
- Zenteno, R. and D.S. Massey. 1998. "Especificidad versus representatividad: Enfoques metodológicos para el estudio de la migración internacional." *Estudios demográficos y urbanos* 40:75-116.