Explaining the Decline in Mexico-U.S. Migration: The Effect of the Great Recession

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Abstract

The rate of Mexico-U.S. migration has declined precipitously in recent years. From 25 migrants per thousand in 2005, the annual international migration rate for Mexican men dropped to 7 per thousand by 2012. If sustained, this low migration rate is likely to have a profound effect on the ethnic and national-origin composition of the U.S. population. This study examines the origins of the migration decline using a nationally-representative panel survey of Mexican households. The results strongly support an explanation that attributes the decline to lower labor demand for Mexican immigrants in the United States. Decreases in labor demand in industrial sectors that employ a large percentage of Mexican-born workers such as construction are found to be strongly associated with lower rates of migration for Mexican men. Second, changes in migrant selectivity are also consistent with an economic explanation for the decline in international migration. The largest declines in migration occurred precisely among the demographic groups most affected by the recession, namely economically active young men with low levels of education. Results from the statistical analysis also show that the reduction in labor demand in key sectors of the U.S. economy resulted in a more positive educational selectivity of young migrants.

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Introduction

Mexican migration to the United States during the final decades of the twentieth century ranks among the largest international population flows in the world. The number of Mexican migrants to the U.S. since the 1970s even surpasses those from many European countries in the late nineteenth century (Passel et al. 2012). This wave of Mexican migration has had a profound effect on the ethnic and national-origin composition of the United States. In 2010 almost 12 million U.S. residents were born in Mexico, accounting for 29% of the total foreign-born population (U.S. Census Bureau 2012). While the rate of Mexico-U.S. migration fluctuated in response to various demographic, economic and policy-related factors during this time, it showed no signs of stopping (Massey et al. 2002; Hanson 2006; Massey and Pren 2012). Indeed, some researchers argued that the flow of Mexican migrants was self-sustaining, as information conveyed back to the communities of origin by successful migrants encouraged others to follow, making migration rates less sensitive to economic downturns and border enforcement policy (Massey 1990; Massey et al. 1994a; Rivero-Fuentes 2004). Yet the rate of Mexican migration in fact began to fall sharply in the mid-2000s such that by 2012 the net flow of migrants from Mexico to the U.S. had essentially stopped (Passel et al. 2012).

The dramatic decline in Mexico-U.S. migration since the mid-2000s has been linked to the contraction in the U.S. economy among other factors (Fix et al. 2009; Massey 2012; Passel et al. 2012; Chiquiar and Salcedo 2013). However, previous studies have not been able to properly test the effect of U.S. economic performance against alternative explanations in part because of a lack of suitable data. Specialized demographic and migration surveys carried out in Mexico do not cover the time period with sufficient frequency and are often not nationally-representative.

Sources in the U.S. such as the Current Population Survey (CPS) and the American Community Survey (ACS) substantially undercount the number of undocumented migrants (Genoni et al. 2012). In this paper I use data from the Mexican National Occupation and Employment Survey (ENOE), a nationally-representative survey of Mexican households conducted on a quarterly basis, to estimate the decline in Mexico-U.S. migration from 2005 to 2013. I also test the effect that the slowdown in economic growth and the reduction in labor demand in sectors of the U.S. economy that employ the largest share of Mexican-born workers had on the rate of international migration from Mexico. Finally, I examine changes in the selectivity of Mexican migrants during this period of rapidly declining migration. In particular, I consider how changing economic conditions in the U.S. led to shifts in the educational selectivity of international migrants. While a large research literature has examined the extent to which Mexican migrants are selected based on their level of education (Chiquiar and Hanson 2005; Orrenius and Zavodny 2005; Hanson 2006; Ibarraran and Lubotsky 2007; McKenzie and Rapoport 2007), few studies have been able to test how changes in U.S. labor markets affect the level of selectivity, or how the educational selectivity of migrants changed during the recent U.S. recession.

Economic Conditions in the U.S. and Mexico-U.S. Migration

A well-established theoretical perspective associated with neoclassical economics suggests that individuals' decisions to migrate are based on a calculation of the difference in the economic opportunities available in their place of origin and intended destination (Borjas 1999; Todaro 1969; Todaro and Maruszko 1987). Empirical studies have generally supported the hypothesis that economic opportunities in destination countries, as measured by the overall levels of employment and wages, have a significant effect on the inflow of migrants (Massey et al. 1994b; Hanson and Spilimbergo 1999; Hanson 2006). Given its detrimental effect on

employment conditions, we may therefore expect the recent U.S. recession to have contributed to the decline in Mexico-U.S. migration. This is more so the case because the recession reduced labor demand precisely in economic sectors that have traditionally employed Mexican immigrants such as construction. Before the recession began 32% of Mexican-born male workers in the U.S. were employed in construction, a larger share than in any other sector including manufacturing (17%), leisure and hospitality (15%), and professional and business services (11%), which were the next largest sectors employing Mexican-born men.[1]

However, the relation between the economic recession and the decline in Mexican migration to the U.S. is not straightforward. Particularly problematic is the fact that the decline in migration preceded the start of the recession. Immigration from Mexico to the United States began to fall as early as 2006, but the U.S. recession did not officially start until the first quarter of 2008 (NBER 2008). Nevertheless, labor demand in some sectors of the U.S. economy such as the construction sector began to decrease several years earlier, well before the onset of the recession (Goodman and Mance 2011; Hadi 2011). Job losses in economic sectors that employ a disproportionate percentage of Mexican workers in the U.S. such as construction may have therefore initiated the decline in migration before the official start of the U.S. recession. While the unemployment rate for Mexican-born men could in principle be used to track labor market conditions for recent immigrants, unemployment statistics for the foreign-born population in the U.S. are not available with sufficient frequency. Moreover, the unemployment rate for Mexican-born men cannot strictly be considered an exogenous predictor of migration since a decrease in the migration rate may result in the presence of fewer Mexican-born men seeking jobs, thus contributing to a lower unemployment rate for that group. In the analysis below I therefore use

[1] Current Population Survey Annual Tables for Foreign-born Population (2007). Retrieved from Census Bureau webpage [http://www.census.gov/population/foreign/data/cps.html].

changes in the combined number of jobs gained in the top employment sectors for Mexican-born workers as a proxy for the labor demand for Mexican immigrants. Information regarding job gains is available by sector on a quarterly basis and is less affected by the supply of immigrant labor.

Alternative Explanations

Employment conditions in the U.S. are not the only possible explanation for the decline in Mexican migration in recent years. In this section I discuss three alternative explanations that have been proposed (Passel et al. 2012), and outline the strategies used to incorporate each of these explanations in the statistical analysis that follows.

Economic Conditions in Mexico – An improvement in the economic conditions in Mexico could have contributed to the decline in international migration since the mid-2000s by expanding the opportunities available for Mexican workers at home, thereby dissuading them from moving abroad. Researchers have generally found a strong connection between the rate of international migration and economic conditions in sending countries (Massey et al. 1994b). Emigration from Mexico, in particular, appears to have increased with the deepening of the economic crisis in that country in the mid-1980s (Massey and Espinosa 1997; Massey et al. 2002; Cerrutti and Massey 2004). Since the late-1990s Mexico has experienced over a decade of economic stability and modest levels of growth, disrupted only by the recession of 2008-2009. Yet such economic growth has not resulted in a substantial improvement in the standard of living of most Mexicans. Average household income actually decreased slightly from 1998 to 2010 when adjusted for inflation (Passel et al. 2012), and the official poverty rate remains high at 52.1% (CONEVAL

2012). My analysis of individuals' decisions to migrate will nevertheless account for the effect of economic conditions at both the individual and community levels in Mexico.

Immigration Law Enforcement – A second alternative explanation attributes the decline in Mexico-U.S. migration to the increase in immigration law enforcement efforts over the past two decades. U.S. government spending on border patrol has increased ninefold since 1992 (U.S. Department of Homeland Security 2012a). The total size of the border patrol staff also rose by more than 400%, while the number of person-hours spent by agents patrolling the border, known as line watch hours, increased almost 700% during the same period.[2] These changes in border enforcement could have potentially reduced U.S.-bound migration from Mexico by raising both the monetary cost and physical danger of crossing the border without authorization. However, evidence from previous studies suggests that greater border enforcement efforts during the 1990s did not affect the flow of undocumented migrants (Espenshade 1994; Cornelius 2001; Massey et al. 2002). Most importantly, the timing is once again not right. The increase in border enforcement precedes the onset of the decline in migration by well over a decade. Border patrol expenditures began increasing notably in the early-1990s, while Mexican migration to the U.S. did not fall until the mid-2000s. Nevertheless, following previous studies which use border patrol staffing as a measure of immigration law enforcement (e.g., Orrenius and Zavodny 2005; Massey and Riosmena 2010; Donato, et al. 2008), I control for the total number of agents assigned to the border region in the models predicting Mexican men's odds of migrating.

My study also considers the impact of three other recent developments in immigration law enforcement. First, the number of deportations increased dramatically over the past decades.

[2] Line watch hours obtained from the Mexican Migration Project National Level Supplementary Files. Retrieved from http://mmp.opr.princeton.edu/databases/supplementaldata-en.aspx.

In 2010 more than 387 thousand individuals were removed from the U.S., which represents an almost ninefold increase since 1992 (U.S. Department of Homeland Security 2012b). This rise in deportations could have served to discourage individuals from crossing the U.S. border, thereby contributing to the overall decline in international migration from Mexico. I therefore use the number of deportations (removals) by U.S. authorities as an alternative indicator of immigration law enforcement in the analysis below. Second, one of the most important developments in immigration law enforcement since the mid-2000s was the increasing involvement of local authorities in the identification and apprehension of undocumented migrants (Rodríguez, et al. 2010; Parrado 2012; Watson 2013). In particular, section 287(g) of the Illegal Immigration Reform and Immigrant Responsibility Act allowed state and county law enforcement agencies to enter into agreements with the federal government authorizing local agents to perform immigration enforcement functions including identifying and processing undocumented migrants. The number of state and local governments signing such agreements with the Department of Homeland Security rose rapidly beginning in 2006 (Rodríguez, et al. 2010), which coincides with the decline in immigration from Mexico. Although recent work examining the impact of the 287(g) program on Mexican immigration to cities throughout the U.S. has not found it to have a strong deterrent effect (Parrado 2012; Watson 2013), my statistical analysis will nevertheless consider the potential role of the 287(g) agreements using as an indicator the total population in jurisdictions where such agreements have been signed.

Finally, undocumented migrants' ability to work in the U.S. was made more difficult over the past decade by the increasing use of the E-Verify internet-based system by which employers can confirm the eligibility of job applicants to work in the United States (Rosenblum 2011; Amuedo-Dorantes et al. 2013). The E-Verify program is operated by the U.S. Department of Homeland Security using information from the Social Security Administration. Since the mid-

2000s many state and local authorities have begun requiring public agencies and contractors, and in some cases private employers, to use the E-Verify system. The number of participating employers consequently increased from 5,899 in 2005 to 404,295 in 2012, while the number of E-Verify cases rose from 980,991 to over 20 million during the same time interval. As a final measure of immigration law enforcement, I will therefore consider the number of employers using the E-Verify program.

Demographic Changes and Declining Fertility – A third explanation attributes the decline in Mexico-U.S. migration to the changing demographic characteristics of the Mexican population, and in particular to declining fertility rates over the past several decades (Passel et al. 2012). The total fertility rate in Mexico dropped from approximately 6 children per woman in 1974 to 2.08 children per woman in 2009 (Romo Viramontes and Sánchez Castillo 2009). A decline in fertility of this magnitude could affect the rate of international migration in several ways. First, the fertility decline could result in a reduction in the size of the Mexican population entering the labor market each year, which may put upward pressure on Mexican wages thereby making migration less attractive (Hanson and McIntosh 2009, 2010, 2012). In other words, the effect of lower fertility rates on migration may be mediated by its effect on local economic conditions discussed above. Second, declining fertility may also lower the rate of international migration from Mexico more directly by simply reducing the size of the working-age male population that is typically at greater risk of migrating. Finally, the decline in fertility could affect international migration rates from Mexico by reducing the size of Mexican families. Previous studies have found that the odds of migration for Mexican men increase with the number of dependent children at home (Massey et al. 1987; Massey and Espinosa 1997; Kanaiaupuni 2000). With fewer children to sustain economically, Mexican men may be less likely to make the arduous

journey north. The statistical analysis below will account for changes in demographic characteristics that are tied to the long-term fertility decline, including men's age and the number of household residents and dependent children.[3]

To summarize, in the first part of the analysis below I will test models that examine the effect of economic conditions in the U.S. on individuals' decisions to migrate internationally from Mexico. Job gains in sectors of the U.S. economy employing the largest share of Mexican-born workers will be used as a proxy for labor demand for Mexican immigrants. The models will also control for three alternative explanations for the decline in migration during this time period. Individual- and community-level economic indicators will be introduced as predictors to account for the effect of local economic conditions in Mexico. Several different measures will also be used to control for immigration law enforcement, and for changes in the demographic characteristics of the Mexican population associated with the long-term fertility decline.

Changes in Migrant Selectivity with Decreasing Migration

A second objective of this study is to examine how the selectivity of Mexican migrants has changed during the period of declining migration. Changes in the profile of individuals that are more likely to migrate from Mexico are important, among other reasons, because they may affect U.S. and Mexican labor markets. Changes in migrant selectivity may also inform us about the reasons for the overall decline in migration. For example, if the decline in Mexican migration is due to lower labor demand in the U.S. during the recent recession, then we should observe a

[3] A complete analysis of the impact of declining fertility on international migration is beyond the scope of this paper. Among other things, such an analysis would require examining changes in migration over the span of several decades, rather than analyzing quarterly fluctuations over a an eight-year period as in the analysis below. Studies examining the effect of the fertility decline on migration typically use information from multiple decennial censuses (Hanson and McIntosh 2009, 2010, 2012). The demographic characteristics of the Mexican population, including its age and family structure, are unlikely to have changed sufficiently during the period of observation in this study to account for the rapid decline in international migration from Mexico.

disproportionate reduction in the odds of migrating precisely among those most affected by the recession, namely working-age men with relatively low skill levels (Elsby et al. 2010; Bell and Blanchflower 2011; Pew Economic Mobility Project 2013).

Studies conducted using data from the high-migration period that preceded the recent decline suggest a general decrease in selectivity over time. The decrease in selectivity with increasing migration rates is consistent with cumulative causation theory of international migration (Massey 1990; Massey et al. 1994a; Fussell and Massey 2004; Rivero-Fuentes 2004). According to this theory, information transmitted back to the communities of origin by former residents who have successfully migrated lowers the risk and costs of moving abroad, thus making migration accessible to new categories of individuals for whom migration was previously too costly. According to Massey et al. (1994a), the first migrants from a community are mainly married men of working age who see migration as a way to support their families who stay behind. Because the costs of migrating are especially high for these initial migrants, they typically belong to the lower middle classes instead of the poorest segments of society. These married men migrating to support their families are later joined by their unmarried sons who have the greatest income potential and whose movement is less restricted by traditional gender roles. When migration becomes even more prevalent, unmarried daughters, wives and young children begin to migrate, followed by more distant relatives. In this way, the migration stream becomes more representative of the community as a whole over time. Consistent with this account, Massey et al. (1994a) find that as migration prevalence from sending communities in Mexico increased during the second half of the twentieth century, the migration stream became more diverse (less selective) with regards to age, education, and occupation, among other characteristics (see also Cerrutti and Massey 2004).

Reversing the logic of cumulative causation theory, we may expect an overall increase in migrant selectivity during the period of decreasing migration that began in 2005. However, the profile of migrants will not necessarily revert back to what it was during the early period of migration in the mid-twentieth century when young married men first migrated in search of work. Instead, the change in selectivity will be driven by changes in labor demand in the U.S. Young men with relatively low levels of education might actually be the first to stop migrating since their employment prospects have worsened disproportionately (Elsby et al. 2010; Bell and Blanchflower 2011; Pew Economic Mobility Project 2013). Consequently, if the decline in migration is driven by changes in U.S. labor demand, we should expect to see a larger decrease in the rate of migration of younger and less educated men during this time.

To examine how migrant selectivity changed after the U.S. recession, in the analysis below I will compare the relative odds of migration for men of different age, education, and employment status, before and after the onset of the recession in the first quarter of 2008. The analysis is limited to men because they are much more likely to migrate independently in search of work than for other reasons such as family reunification (Donato 1993; Cerrutti and Massey 2001; Donato and Patterson 2004).[4] Finally, in separate models I also test the specific effect that changes in the labor demand in key sectors of the U.S. economy had on the educational selectivity of migrants from 2005 to 2012. I expect the decline in labor demand in top employment sectors for Mexican-born workers to be most strongly associated with a decrease in the relative odds of migration of less educated Mexican men.

[4] See footnote 5 below for results of regression models for Mexican women.

Data and Measurements

Data for this study are drawn from the Mexican National Occupation and Employment Survey (*Encuesta Nacional de Ocupación y Empleo, ENOE*), which is the primary employment survey in Mexico (INEGI 2010). The ENOE collects information from all individuals residing in a large nationally-representative sample of Mexican households. The sample of households is not only nationally-representative but is also representative of each of the 31 Mexican states and the Federal District, four levels of urbanization and 32 major cities. Like employment surveys in other countries, the ENOE has a rotating panel structure in which individuals are interviewed five times in consecutive quarters. Panels are staggered such that 20% of the sample is in their first, second, third, fourth and fifth interview respectively. After the initial interview, each time a household is sampled the roster of household members is compared against that from the previous interview. Any losses or additions to the household roster are noted. For every household member that is no longer present, a reason is given. One of the reasons is international migration; others are internal migration within the state, internal migration to another state and death.

In the analysis below, I define an international migrant as any individual who was living in the household in the first interview but who migrated abroad during the course of the following year (four additional quarters). Observing migration over a one-year period rather than over a single quarter makes the migration estimates more stable and eliminates the need to adjust for seasonal variations. I use data from all panels of the ENOE that are observed for four full quarters (five interviews) from the first quarter of 2005 when the ENOE series began, to the third quarter of 2013, which is the most recent available wave. This period spans 35 quarters and includes 31 complete panels (those that are observed for a full year). Because I am interested in examining the effect of U.S. labor market conditions on the odds of emigration I limit the sample

to individuals of working age (15 to 55 years). As discussed in the previous section, I limit the sample to men because they are much more likely to migrate independently in search of work.[5]

In the first part of the analysis below, I use random-effects logit models to test the effect of employment conditions in the U.S. on individuals' odds of migrating abroad. Quarter-specific error terms are used to capture unmodeled heterogeneity for each time point. Aggregate measures of economic performance are lagged since it will take some time for individuals residing in Mexico to receive and react to information about economic conditions in the U.S. Specifically, all economic measures are calculated by taking the corresponding average for the four quarters preceding the first interview for each respondent.[6] To make the coefficients for the baseline category easier to interpret in the selectivity models, all economic variables are centered at their means for the entire time period considered.

Economic Conditions in the U.S. – To test the effect of the overall growth in the U.S. economy on individuals' odds of migrating, I first introduce as a predictor the average seasonally-adjusted GDP growth rate in the U.S. over the previous four quarters. Second, because the overall growth rate does not necessarily reflect the labor market conditions for Mexican immigrants in the U.S., I also include as a predictors several different proxy measures of employment opportunities for Mexican immigrants. I begin with the unemployment rate for Mexican-born men. As discussed in a previous section, this measure has several disadvantages. First, the unemployment rate for

[5] Women account for 21.1% of all international migrants during the time period considered, and only 12.6% of migrants moving for work reasons. I tested the models presented in Table 3 using the sample of women in the ENOE. Women's odds of migrating were found to increase significantly with the overall rate of growth in GDP. However, women's migration decisions were unaffected by labor market conditions in the U.S. None of the coefficients for employment gains were statistically significant.

[6] The association between the economic indicators and the odds of migrating was found to be even stronger when shorter lags were used. For example, models that used the average employment levels during the previous year resulted in larger and more significant coefficients than those using average employment levels from two years before, suggesting that potential migrants are reacting rather quickly to changes in employment conditions.

Mexican-born men is only available on an annual basis, leading to a loss of information regarding short-term fluctuations. Second, estimates of the unemployment rate for Mexican-born men obtained from the March CPS will are limited by the substantial under-representation of undocumented migrants in U.S. data sources (Genoni et al. 2012). Finally, using the unemployment rate for Mexican-born men as a predictor of immigration also introduces the potential for reverse causation since a decrease in migration may result in the presence of fewer Mexican-born men seeking jobs, thus contributing to a lower unemployment rate.

As a second measure of employment opportunities for Mexican immigrants I use the unemployment rate for Mexican-American men. While this measure is available on a quarterly basis, it is limited by the fact that it not only captures the employment status of Mexican men who have recently migrated, but also that of Mexican-American men whose families have been in the U.S. for several generations. The labor market opportunities for second and third generation Mexican-American men will generally be different from the opportunities available to new immigrants.

Finally, I derive an alternative set of measures of the labor demand for Mexican immigrant men from reports of the job gains in industrial sectors that employ the largest share of Mexican-born male workers. Table 1 shows the percentage of Mexican-born male workers employed in the top five industrial sectors according to results from the March CPS for 2006 and 2011.[7] As discussed in previous sections, the construction sector employs by far the largest share of Mexican-born men, followed by manufacturing, leisure and hospitality, professional business services, and wholesale and retail trade. Together these five sectors employed over 80% of Mexican-born male workers in 2006. In the regression models below I use as a predictor the

[7] Information for earlier and later years is not currently available from the Current Population Survey Annual Tables for Foreign-born Population.

average number of jobs gained in these top five sectors combined. I also use as alternative predictors the number of jobs gained in the top three sectors, and in the top overall sector, namely construction. The number of jobs gained in each sector is obtained from the Business Employment Dynamics (BDM) series compiled by the BLS (measured in hundreds of thousands of workers). BDM statistics are generated from a census of all establishments whose workers are covered by state unemployment insurance programs.[8]

Economic Conditions in Mexico – I control for the economic conditions in Mexico by using the local unemployment rate and average wages (measured in pesos per hour worked). Because the ENOE contains representative samples of 32 major cities, I am able to obtain accurate estimates for these cities for each quarter. The unemployment rate and mean wages for other locations are approximated by the corresponding state-level values. As explained below, the regression models also control for the economic conditions at the individual and household levels, including individuals' employment status and household income. Together, all these measures should capture the effect that the improving economic situation in Mexico may have had on the decline in international migration.

Immigration Law Enforcement – I control for the effect of border enforcement on individuals' odds of migrating using the four alternative indicators described previously. In most of the models I use the total number of border patrol agents assigned to the Southwest sector.[9] The number of border patrol agents assigned to the Southwest sector is a better measure than the total

[8] For details of the BDM series see http://www.bls.gov/bdm/.
[9] Information on border patrol staffing was retrieved from the U.S. Customs and Border Protection website http://www.cbp.gov/linkhandler/cgov/border_security/border_patrol/usbp_statistics/usbp_fy12_stats/staffing_1993_2012.ctt/staffing_1993_2012.pdf.

number of agents in the country because this sector covers the border with Mexico. While line watch hours would be a preferable measure since they capture the time actually spent by agents patrolling the border, line watch hours are only available until 2009. However, line watch hours were found to be strongly correlated with staffing in the Southwestern sector between 1993 and 2009 ($r = 0.99$). To check the robustness of my findings I test models using three alternative measures of immigration law enforcement. I first use the number of deportations (removals) of Mexican citizens in the preceding year obtained from reports by the U.S. Department of Homeland Security (2012b). Second, I assess the impact of increases in 287(g) agreements by using as a predictor the total size of the population living in jurisdictions that have signed an agreement with the federal government to aid in the identification and processing of undocumented migrants.[10] Finally, I also use the total number of employers using E-Verify to check employees' work eligibility.[11] With the exception of the 287(g) program for which we know the exact month in which each agreement was signed, all other indicators of immigration law enforcement are only available on an annual basis. Information from the previous calendar year is used for all these variables. The four indicators of immigration law enforcement are strongly correlated. For example, the correlation between the number of agents in the Southwestern sector and the number of deportations is 0.99, while that between the number of agents and the measures of the 287(g) and E-Verify programs are 0.93 and 0.92, respectively. Because including more than one indicator of immigration law enforcement in the same models may lead to problems associated with multicollinearity, they are tested separately.

[10] Dates of the signing of agreements were obtained from the U.S. Immigration and Customs Enforcement webpage (http://www.ice.gov/foia/library/) as well as from Rodríguez, et al. (2010). Population estimates were obtained from the Census Bureau (http://www.census.gov/popest/index.html). Only agreements signed until 2010 are included because the program underwent several revisions after that date.

[11] Data for the E-Verify program was obtained from U.S. Department of Homeland Security web page (http://www.uscis.gov/e-verify/about-program/history-and-milestones).

Changes Associated with Fertility Decline – As discussed previously, declining fertility rates in Mexico over the past several decades are expected to alter the age and family structure of the Mexican population, and consequently the overall rate of international migration among Mexican men. Because older men are less likely to migrate, an increase in men's age could contribute to a reduction in the international migration rate. Similarly, men from larger families and those with more dependent children are expected to migrate more frequently to sustain their families. A reduction in the size of households and the number of dependent children as a result of fertility could therefore also reduce the rate of migration. The statistical models account for these demographic changes associated with the long-term fertility decline by controlling for men's age and the total number of residents and children living in the household. Finally, the regression models also control for the mean age of men in the community of origin to account for the gradual aging of the local population as a result of the long-term fertility decline. An aging of the local population may lead to lower odds of migration among Mexican men (net of individual men's own age) by altering the age-specific labor supply. For example, if individuals of different ages are not perfectly substitutable in the labor market, a smaller cohort size may lead to lower labor supply and higher wages for young men.

Individual Characteristics – In addition to the age of men and their household structure, the statistical models also control for the educational attainment, marital status, and employment condition of respondents, as well as whether they were born in another state. Changes in migrant selectivity will be measured by comparing the corresponding coefficients for all these variables before and after the onset of the recession. In subsequent models, the measures of economic conditions in the U.S. will also be interacted with respondents' education in order to test their

effect on the educational selectivity of Mexican migrants. Educational attainment is controlled using dummies for five categories: less than a primary education (used as the baseline category), complete middle school (*secundaria*), complete high school or technical degree, and complete college or more. Marital status is controlled using dummies for four categories: single (used as the baseline category); married; cohabiting; and separated, widowed or divorced. Married and cohabiting men are expected to migrate at higher rates given their need to support families at home. I control for whether an individual was born out of his current state of residence in order to account for step migration. Individuals who previously migrated from another part of Mexico are thought to be predisposed to migrate to the U.S. (Fussell 2004).

Men's employment status at the time of the first interview is entered as a predictor in all the regression models. Four employment categories are distinguished: not economically active; employed in the informal sector; employed in the formal sector; and unemployed. Non-economically active men are expected to have the lowest odds of migrating since they will be less inclined to move in search of work. Among those who are economically active, unemployed men will be most likely to migrate given their need to find work. Following Villarreal and Blanchard (2013), I expect men employed in the informal sector to have significantly higher odds of migrating than those in the formal sector since they face generally worse employment conditions in their communities of origin. The regression models also control for the total household income in thousands of pesos per month at the time of the first interview (i.e., before migration). A greater household income will generally reduce the incentive to migrate as there will be less need to generate additional income by sending family members abroad.

A large research literature on international migration has found that greater ties to former community members who have migrated increase the odds of migration (e.g., Davis et al. 2002; Curran and Rivero-Fuentes 2003). I control for the effect of international migrant networks by

including as a predictor the proportion of the municipal residents who were return migrants in 2000 according to the population census.[12] The regression models also control for the level of urbanization of the communities of origin. Four levels of urbanization are distinguished: cities or towns with less than 2,500 residents (used as the baseline category); 2,500 to 14,999 residents; 15,000 to 99,999 residents; and 100,000 residents or more (including the 32 oversampled cities). Individuals living in more rural areas are expected to have higher odds of migration (Massey et al. 1987; Fussell and Massey 2004). Finally, research on international migration has also documented significant differences in emigration rates across regions of Mexico (Duran et al. 2001). In particular, migration rates are much higher from the historic migration region in central Mexico as well as from states located along the northern border with the U.S. I control for these regional differences using dummy variables for the historic migration region as defined by Durand et al. (2001), and the border states. Table 2 presents descriptive statistics for all individual and household variables included in the analysis.

Descriptive Results

Figure 1a shows the annual rate of international migration for Mexican men along with the GDP growth rate in the U.S. from 2005 to 2012. Each data point in the migration series (scaled on the left axis) represents the total number of migrants per thousand residents for the year that begins in each quarter rather than the quarterly rate to avoid seasonal fluctuations. A three-quarter moving average is also used to further smooth out short-term fluctuations. The international migration rate indeed declined dramatically during this time period from 26.2 to 6.3 migrants per thousand between the first quarter of 2005 and the third quarter of 2012, the most

[12] See Lindstrom and Lauster (2001), Hamilton and Villarreal (2011), and Villarreal and Blanchard (2013) for the use of this type of measure. Return migrants are all those who were living abroad five years prior to the census.

recent quarter for which information is available (a decrease of 76% in less than 7 years).[13] Second, no clear relation is evident between the decline in economic growth during the U.S. recession and the international migration rate from Mexico. The migration rate begins to fall before the recession officially starts in 2008 and continues its downward trend even after the economy begins to recover in 2009 (the correlation between the two series is 0.13). Figure 1b superimposes the international migration rate with the overall GDP growth in Mexico. Again, no simple relation is detectable between aggregate growth in Mexico and international migration (r = 0.11). The migration rate seems to be unaffected by the Mexican recession which begins slightly after the U.S. recession and ends earlier.

Figures 2a and 2b compare trends in employment in the U.S. (scaled on the right axis) with the international migration rate (scaled on the left axis). In contrast to the lack of association between the overall growth of the U.S. economy and international migration, these figures generally indicate a strong relation between the specific labor market conditions and the rate of migration. First, Figure 2a shows the international migration rate along with the inverse of the unemployment rate for Mexican-American men. The association between these two variables is very strong (r = 0.90). While the decline in migration seems to predate the increase in unemployment in late 2007, we must keep in mind that the annual migration rate is a leading indicator since it measures migration over the year that *begins* in each quarter (economic indicators are not lagged in these graphs). Figure 2b shows an even stronger association between job gains in the construction sector in the U.S. and the international migration rate from Mexico (r = 0.94).

[13] This decline in migration is consistent with previous estimates by Passel, et al. (2012, Table A2). Combining data from various sources, they estimate a decline in the total number of migrants form 550,000 in 2005 to 140,000 in 2010. This is equivalent to a decline of 76.6% when adjusted for the slight increase in the size of the Mexican population during the same time period.

The second part of the multivariate analysis below examines changes in the selectivity of migrants over time. To illustrate these changes, Figures 3a to 3d show the rate of migration for Mexican men according to their age, education, level of urbanization and the region of the country in which they reside. Figure 3a shows a clear shift in the selectivity of migrants by age. While young men (ages 15 to 25) are 69% more likely to migrate than older men (ages 26 to 55) in early 2005, by late 2009 the migration rate for men in the two age groups are nearly identical. A similar, although less dramatic change in the selectivity of migrants by educational attainment is observed in Figure 3b. Men with less than a middle school education are more likely to migrate compared to those with a middle school education or more throughout the time period considered. However, the decline in the annual migration rate for the less educated group is larger than that for the more educated group. By contrast, no changes in selectivity are visible by level of urbanization or region of the country. To highlight the similarity in the selectivity changes over time, the migration rate for men from small towns, and for men from the historic region are scaled on a different axis in Figures 3c and 3d, respectively. These two groups have much higher migration rates overall, but they experienced a nearly identical proportional decrease in migration during this time period than men from the other groups.

Multivariate Results

Table 3 shows the results of the random effects logit models predicting Mexican men's odds of migrating internationally. The coefficients for the time-varying measures of economic performance in the U.S. support the hypothesis that employment conditions in the U.S. contributed to the decline in migration. Job gains in the industries that employ the largest share of Mexican workers are significantly associated with increases in the odds of international migration. Conversely, and more reflective of the changes that actually took place during this

time, *declines* in employment in these industries are associated with *decreases* in the odds of migration. The effect of job losses in the top employment sector is particularly large. Based on the coefficient from Model 6, a decrease in employment gains in construction of the magnitude observed between 2005 and 2012 is associated with a decline in the odds of migration of 28.9%. Not surprisingly given the limitations of the annual unemployment rate for Mexican-born men, it is not found to be a significant predictor of international migration, although the sign of the coefficient is in the expected direction. By contrast, an increase in the quarterly unemployment rate for Mexican-American men is significantly associated with a decline in Mexican men's odds of migrating internationally.

Interestingly, the overall growth in GDP is not significantly associated with changes in the odds of migration, suggesting that such changes are driven specifically by labor demand, particularly in sectors of the U.S. economy employing the largest share of Mexican immigrants. The effect of employment gains is also net of the local economic conditions in Mexico. The coefficients for the unemployment rate and mean wages in Mexican communities nevertheless suggest that improving economic conditions at home decrease the odds of migration: A lower unemployment rate and higher average wages are both significantly associated with lower migration rates. The effect of job gains in the top industries employing Mexican-born workers is also net of changes in border enforcement. A greater number of border patrol agents assigned to the Southwest sector is generally associated with lower odds of international migration, but does not account for the effect of lower labor demand.

Changes in the age structure and household size, which could be attributed to the long-term decline in fertility, are small. Older men as well as men living in small households and in

households with fewer children are less likely to migrate.[14] However, changes in both the age of men and the household size during this eight-year period were small. The average age of men increased by 0.62 years, while the average number of household members and children per household declined by only 0.23 and 0.13, respectively. Taken together, changes in these three variables account for only a 3.2% decrease in the odds of migration between 2005 and 2012. The effect of changes in the mean age of men in the communities of origin is also small, accounting for a 8.1% decrease in the odds of migration.

The coefficients for the remaining variables are generally consistent with expectations. Men's odds of international migration generally decline with education. However, the decline is not quite linear. Men who have completed primary or middle school have the highest odds of migrating abroad. Married and cohabiting men, who have a greater need to support a family at home, have significantly higher odds of migrating internationally. Men employed in the informal sector are significantly more likely to migrate than those employed in the formal sector, while those who are unemployed are the most likely to migrate. Men living in households with higher income levels are significantly less likely to migrate. Finally, the odds of international migration are significantly lower for men from more urban areas, and for those living outside the historic migration region and the border states.

Table 4 shows the results of models used to test the robustness of the findings of the effect of employment gains using three alternative measures of immigration law enforcement. Only the coefficients for the economic conditions and immigration law enforcement are shown to conserve space. As discussed previously, the different measures of immigration law enforcement are strongly associated, and are therefore tested in separate models. They are all

[14] Note that the effect of an additional child is given by the sum of the coefficient for the number of household members and the coefficient for the number of children.

significant predictors of Mexican men's odds of migration in the expected direction. However, regardless of the measure of immigration law enforcement used, employment gains in the top sectors continue to be associated with higher odds of international migration among working-age Mexican men.

Changes in Selectivity

The second objective of this study is to examine changes in the selectivity of international migrants from Mexico during the period of declining migration, and to specifically test how changes in selectivity are tied to worsening economic conditions in the U.S. To this end, Table 5 compares the results of the same random effects logit models estimated separately for the time period before and after the onset of the recession that began in the first quarter of 2008.[15] The last column in Table 5 tests the statistical significance of the difference in coefficients between the two time periods. The results indicate some clear changes in migrant selectivity in the years following the recession. First, migrants became less negatively selected by age. Older men are still significantly less likely to migrate than younger men after the onset of the recession, but the difference in the odds of migration between older and younger men became smaller. For example, whereas before the recession men ages 36 to 45 had 40.1% lower odds of migrating than those ages 15 to 25, after the recession the odds of migrating of the former were only 13.1% lower. Second, migrants also became more positively selected by education. The odds of migrating increased significantly for men with completed middle school, high school, and college or more relative to those with less than a primary school education. These changes in the age and educational selectivity of Mexican migrants are consistent with an explanation that

[15] I also tested alternative models comparing the three years before the recession (2005-2007) to the three years during the recession (2008-2010). The results were consistent with those presented in Table 5, specifically with respect to the changes in selectivity of migrants by age, education and employment status.

attributes the decline in migration to worsening economic conditions in the U.S., since the U.S. economic recession disproportionately affected the employment prospects for young men with low education (Elsby et al. 2010; Bell and Blanchflower 2011; Pew Economic Mobility Project 2013). Similarly, the results of the regression models in Table 3 show a significant decrease in the odds of migration for men who are economically active compared to those who are not active, which is also consistent with an economic explanation for the overall decline in international migration.

Changes in Educational Selectivity with Worsening Economic Conditions in the U.S.

Overall, the differences in migrant selectivity before and after the onset of the recession are consistent with what we would expect as a result of worsening economic conditions in the U.S.: The largest declines in migration took place among younger and less educated men whose employment prospects worsened the most during the recession. However, the forgoing analysis relied simply on the timing of the recession. As discussed previously, declines in labor demand in various sectors of the U.S. economy did not always coincide with the onset of the recession. To more explicitly examine the effect of changes in economic conditions on migrant selectivity, I therefore tested models in which the educational attainment of Mexican men is interacted with the measures of labor demand in different sectors of the U.S. economy. The results of these random coefficient models in which a quarterly error term is also introduced for education are presented in Table 6. Since educational attainment is likely to be a more important predictor of the employment prospects of younger men, separate models are tested for Mexican men in the youngest age category (15 to 25 years). This is also the age group with the highest migration rate, accounting for 43.5% of all international migrants during this time period. To simplify the interpretation of the results of the regression models, men's educational attainment is introduced

as a binary variable indicating whether an individual has completed a middle-school education (*secundaria*). However, results for models including multiple educational categories were consistent with those presented in Table 6. Only the coefficients for the baseline and interaction terms for education are shown in Table 6 to conserve space. All aggregate economic measures are centered such that the baseline coefficients may be interpreted as the effect of having a middle school education or more evaluated at the mean of the corresponding economic measure for the entire time period.

The results of the models for men of all ages show significant changes in educational selectivity with changing labor market demand. The changes in educational selectivity are even larger when the sample is restricted to only young men. The significant negative interaction between job gains in the top employment sectors and men's educational attainment indicate that employment gains lead to a more negative educational selectivity. Conversely, a decline in employment such as that observed since the mid-2000s leads to a more positive educational selectivity of Mexican migrants (i.e., the odds of migrating for more educated Mexican men increased relative to the odds of the less educated). This last finding makes sense because the top industrial sectors employ a disproportionate number of low skilled immigrant workers.

Conclusions

Over the past decade we have witnessed a dramatic decline in the rate of Mexican migration to the U.S. From a high of 25 migrants per thousand residents in 2005, the annual international migration rate from Mexico dropped to 7 per thousand by 2012. If sustained, this low migration rate is likely to have a profound effect on the ethnic and national-origin composition of the U.S. population. The lower migration rate may also have significant implications for labor markets on both sides of the border. It is therefore critically important to

understand the origins of this decline in migration. The results of the statistical analysis presented in this paper are generally consistent with an explanation that attributes the decline to the lower labor demand for Mexican immigrants in the U.S. The recent recession resulted in a severe contraction in key sectors of the U.S. economy that employ a disproportionate number of migrants. Decreases in labor demand in these sectors were found to be strongly associated with lower rates of migration for Mexican men. Second, the changes in migrant selectivity during this time period are also consistent with an economic explanation for the decline in international migration. The largest declines in migration occurred precisely among the demographic groups most affected by the recession, namely economically active young men with low levels of educational attainment.

Lower labor demand in the U.S. is not the only possible explanation for the decline in Mexican migration. In my analysis I also found some support for alternative explanations, including those that attribute lower migration rates to improvements in the Mexican economy, increases in border enforcement, and changes in the demographic structure of the Mexican population resulting from the long-term decline in fertility. However, none of these alternative explanations are able to account for the timing and severity of the decline in Mexico-U.S. migration since the mid-2000s. Economic conditions in Mexico simply did not improve sufficiently to warrant such a large decrease in international migration. The increasing trend in border enforcement predates the onset of the decline in migration by more than a decade. Alternative measures meant to capture more recent changes in immigration law enforcement also failed to fully account for the drop in migration. Finally, the direct effect of changes in the age and household structure of the Mexican population over the time period considered is too small to explain the migration decline.

The analysis of the effect of U.S. economic conditions on Mexican migration in this paper was made possible by a unique survey, the ENOE. No other survey has such detailed information regarding Mexican men's migration decisions since the mid-2000s, gathered on a quarterly basis from a nationally-representative sample of households. However, one limitation of the ENOE is that it does not distinguish the legal status of migrants. Because the economic recession is likely to have had an even larger effect on individuals migrating without legal documentation, the statistical models provide a lower-bound estimate of the effect of employment conditions on undocumented migration. This problem is partly mitigated by my exclusive focus on men, who are much more likely to migrate without documentation (Cerrutti and Massey 2004). Evidence from other sources suggest that while documented migration has increased relative to undocumented migration, a vast majority of Mexican men who migrate to the U.S. continue to do so without legal documentation. Results from the National Survey of Demographic Dynamics (*Encuesta Nacional de la Dinámica Demográfica*, *ENADID*) show that 89.1% of men who migrated to the U.S. from 2001 to 2006 did so without legal documentation, compared to 86.8% of men migrating in the period from 2004 to 2009.

Understanding the causal origins of the decline in migration from Mexico is important because it may tell us something about future trends. If the decline is primarily a result of worse employment prospects for migrants as a consequence of the U.S. recession, then Mexican migration may be expected to pick up again as the economy recovers. If, on the contrary, the decline is due to more permanent changes in the Mexican economy or demographic changes that are not easily reversible (such as fertility changes), then the migration rate may be expected to remain low. So far, migration rates do not appear to be bouncing back with improvements in the U.S. labor market. The descriptive figures continue to show low levels of migration despite a modest recovery in employment levels in the top sectors employing Mexican-born men after

2009. This divergence between the trends in employment and migration for later years would seem to contradict an economic explanation for the decline in migration. It is possible that the improvements in the employment prospects for migrants in the wake of the recession are still too small, or that it may take some time for information about better labor market conditions to travel back to communities of origin. Alternatively, however, the discrepancy between employment conditions and migration observed in the most recent quarters may indicate that other factors are at play. For example, the growing anti-immigrant sentiment in the U.S. could have served to dissuade Mexican men from migrating beyond the effect of greater local immigration law enforcement efforts considered in the statistical analysis. The increasing danger of crossing the border due to extortion and kidnappings at the hands of Mexican criminal organizations could have also served to inhibit migration (Amnesty International 2010; CNDH 2011).

However, it is important to remember that migration trends tend to be sticky. Even if the decline in migration was due to lower employment opportunities, Mexican migration could remain low even after the demand for immigrant labor recovers if social mechanisms have been put into place that serve to reinforce a low migration regime. This is one of the fundamental insights of cumulative causation theory, now applied in reverse. Social norms that made migration a rite of passage for young rural men in traditional sending communities in Mexico could weaken and be replaced by norms discouraging migration, but only if migration rates remain low for an extended period of time.

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Table 1: Percent Mexican-born male workers employed in top five major industrial sectors

	2006	2011	% change
Construction	31.6	25.3	-19.9
Manufacturing	16.6	14.7	-11.4
Leisure and hospitality	15.2	13.7	-9.9
Professional and business services	10.9	12.5	14.7
Wholesale and retail trade	8.7	11.0	26.4

Notes: Includes only civilian men 16 years and over. Estimates obtained from published reports for foreign-born population from March CPS.

Table 2: Descriptive statistics for Mexican men according to their migration status

	All	Non-mig.	migrants
International migration (per 1,000)			
Age			
15 to 25 years	36.0	35.9	45.2
26 to 35 years	24.1	24.0	28.0
36 to 45 years	22.6	22.6	19.2
46 to 55 years	17.3	17.5	7.6
Education			
Less than primary	12.4	12.4	15.8
Complete primary	21.5	21.4	30.0
Complete middle school	34.7	34.7	36.6
Complete high school or technical degree	20.0	20.1	12.9
Complete college or more	11.4	11.5	4.7
Marital status			
Single	40.7	40.6	45.2
Married	43.2	43.3	40.7
Cohabiting	13.2	13.2	12.7
Separated, divorced or widowed	2.9	2.9	1.5
Born out of state	19.1	19.1	13.9
Employment			
Not economically active	16.1	16.2	14.6
Employed informal sector	49.8	49.6	65.5
Employed formal sector	30.1	30.4	13.8
Unemployed	3.9	3.9	6.2
Household Variables			
Ave. number of household members	4.9	4.9	5.5
Ave. number of children in household	1.0	1.0	1.3
Ave. household income (thsd. pesos per month)	8.1	8.1	5.8
Contextual Variables			
Mean wages (pesos per hour)	29.4	29.4	26.8
Unemployment rate	4.8	4.8	4.1
Ave. age of men	32.2	32.2	31.9
Int. migrant networks	4.5	4.4	7.4
Urbanization			
Pop. < 2,500	21.7	21.5	42.9
Pop. 2,500 to 14,999	12.2	12.2	15.8
Pop. 15,000 to 99,999	11.1	11.1	11.8
Pop. ≥ 100,000	54.9	55.3	29.5
Region			
Historic region	22.0	21.7	40.7
Border region	18.4	18.4	13.6

Notes: Weighted sample. All values are percentages of the corresponding group unless otherwise noted.

Table 3: Results of random effects logistic regression models predicting Mexican men's international migration

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Age (baseline 15 to 25 years)						
26 to 35 years	-0.027	-0.027	-0.027	-0.027	-0.027	-0.027
	(0.035)	(0.035)	(0.035)	(0.035)	(0.035)	(0.035)
36 to 45 years	-0.359**	-0.359**	-0.359**	-0.360**	-0.359**	-0.359**
	(0.040)	(0.040)	(0.040)	(0.040)	(0.040)	(0.040)
46 to 55 years	-0.939**	-0.939**	-0.939**	-0.939**	-0.939**	-0.939**
	(0.052)	(0.052)	(0.052)	(0.052)	(0.052)	(0.052)
Education (baseline less than primary)						
Complete primary	0.205**	0.205**	0.205**	0.205**	0.205**	0.205**
	(0.039)	(0.039)	(0.039)	(0.039)	(0.039)	(0.039)
Complete middle school	0.187**	0.187**	0.187**	0.187**	0.187**	0.187**
	(0.039)	(0.039)	(0.039)	(0.039)	(0.039)	(0.039)
Complete high school or technical degree	0.014	0.014	0.014	0.014	0.014	0.014
	(0.047)	(0.047)	(0.047)	(0.047)	(0.047)	(0.047)
Complete college or more	-0.207**	-0.207**	-0.207**	-0.208**	-0.207**	-0.207**
	(0.063)	(0.063)	(0.063)	(0.063)	(0.063)	(0.063)
Marital status (baseline single)						
Married	0.228**	0.228**	0.228**	0.228**	0.228**	0.228**
	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)
Cohabiting	0.135**	0.135**	0.135**	0.135**	0.135**	0.135**
	(0.043)	(0.043)	(0.043)	(0.043)	(0.043)	(0.043)
Separated, divorced or widowed	-0.077	-0.077	-0.077	-0.077	-0.077	-0.077
	(0.094)	(0.094)	(0.094)	(0.094)	(0.094)	(0.094)
Born out of state	0.168**	0.169**	0.169**	0.169**	0.169**	0.169**
	(0.034)	(0.034)	(0.034)	(0.034)	(0.034)	(0.034)
Employment (baseline not econ. active)						
Employed informal sector	0.309**	0.309**	0.309**	0.309**	0.309**	0.309**
	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)
Employed formal sector	-0.354**	-0.355**	-0.355**	-0.355**	-0.355**	-0.354**
	(0.046)	(0.046)	(0.046)	(0.046)	(0.046)	(0.046)
Unemployed	0.759**	0.758**	0.758**	0.758**	0.758**	0.758**
	(0.055)	(0.055)	(0.055)	(0.055)	(0.055)	(0.055)
Household Variables						
Number of household members	0.091**	0.091**	0.091**	0.091**	0.091**	0.091**
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Number of children in household	-0.067**	-0.067**	-0.067**	-0.067**	-0.067**	-0.067**
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Household income	-0.019**	-0.019**	-0.019**	-0.019**	-0.019**	-0.019**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Contextual Variables						
Mean wages	-0.043**	-0.043**	-0.044**	-0.043**	-0.043**	-0.044**
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Unemployment rate	0.060**	0.061**	0.063**	0.062**	0.062**	0.062**
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Ave. age of men	-0.124**	-0.127**	-0.130**	-0.130**	-0.129**	-0.130**
	(0.033)	(0.033)	(0.033)	(0.033)	(0.033)	(0.033)
Int. migrant networks	0.039**	0.039**	0.039**	0.039**	0.039**	0.039**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Urbanization (baseline <2,500)						
Pop. 2,500 to 14,999	-0.259**	-0.260**	-0.260**	-0.259**	-0.259**	-0.259**
	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)
Pop. 15,000 to 99,999	-0.468**	-0.467**	-0.467**	-0.467**	-0.467**	-0.467**
	(0.044)	(0.044)	(0.044)	(0.044)	(0.044)	(0.044)
Pop. ≥ 100,000	-0.755**	-0.754**	-0.754**	-0.754**	-0.754**	-0.753**
	(0.033)	(0.033)	(0.033)	(0.033)	(0.033)	(0.033)
Region						

Historic region	0.519**	0.518**	0.517**	0.517**	0.518**	0.518**
	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)
Border region	0.347**	0.349**	0.351**	0.351**	0.351**	0.352**
	(0.044)	(0.044)	(0.044)	(0.044)	(0.044)	(0.044)
Economic Conditions						
GDP growth rate in U.S.	0.059	0.100*	0.079*	-0.041	-0.020	0.001
	(0.043)	(0.049)	(0.040)	(0.053)	(0.050)	(0.045)
Mexican-born unemployment rate (annual)		-0.025				
		(0.016)				
Mexican-American unemployment rate			-0.039**			
			(0.015)			
Employment gains in top 5 sectors				0.040**		
				(0.014)		
Employment gains in top 3 sectors					0.079**	
					(0.030)	
Employment gains in top sector (construction)						0.192**
						(0.069)
Border Enforcement						
Staffing in Southwest sector	-0.125**	-0.103**	-0.093**	-0.087**	-0.086**	-0.076**
	(0.007)	(0.016)	(0.014)	(0.015)	(0.016)	(0.019)
Constant	1.819	1.811	1.547	1.466	1.447	1.315
	(1.018)	(1.018)	(1.024)	(1.026)	(1.028)	(1.035)
N	622,869	622,869	622,869	622,869	622,869	622,869

*p<.05 **p<.01 (two-tailed tests)

Table 4: Results of random effects logistic regression models predicting Mexican men's international migration using alternative measures of immigration law enforcement

	Model 1	Model 2	Model 3
Economic Conditions			
GDP growth rate in U.S.	0.017	-0.088	0.018
	(0.055)	(0.052)	(0.064)
Employment gains in top sector (construction)	0.210*	0.280**	0.347**
	(0.095)	(0.043)	(0.061)
Border Enforcement			
Deportations (removals)	-0.498**		
	(0.185)		
Population under 287(g) agreements		-0.005**	
		(0.001)	
Employers using E-Verify			-0.107*
			(0.054)
N	622,869	483,080	622,869

Note: Models include all predictors shown in the baseline model in Table 3. Other coefficients not shown to conserve space. *p<.05 **p<.01 (two-tailed tests)

Table 5: Results of random effects logistic regression models predicting Mexican men's international migration before and after the onset of U.S. recession

	Before	After	difference
Age (baseline 15 to 25 years)			
26 to 35 years	-0.127**	0.119*	**
	(0.045)	(0.054)	
36 to 45 years	-0.513**	-0.140*	**
	(0.052)	(0.062)	
46 to 55 years	-1.174**	-0.637**	**
	(0.071)	(0.078)	
Education (baseline less than primary)			
Complete primary	0.185**	0.244**	
	(0.049)	(0.065)	
Complete middle school	0.119*	0.302**	*
	(0.050)	(0.064)	
Complete high school or technical degree	-0.085	0.170*	**
	(0.061)	(0.075)	
Complete college or more	-0.496**	0.143	**
	(0.087)	(0.092)	
Marital status (baseline single)			
Married	0.255**	0.203**	
	(0.047)	(0.056)	
Cohabiting	0.248**	0.002	**
	(0.057)	(0.067)	
Separated, divorced or widowed	-0.046	-0.123	
	(0.129)	(0.139)	
Born out of state	0.087	0.278**	*
	(0.045)	(0.051)	
Employment (baseline not econ. active)			
Employed informal sector	0.381**	0.206**	*
	(0.048)	(0.055)	
Employed formal sector	-0.221**	-0.551**	**
	(0.059)	(0.071)	
Unemployed	0.937**	0.551**	**
	(0.075)	(0.080)	
Household Variables			
Number of household members	0.080**	0.105**	
	(0.009)	(0.011)	
Number of children in household	-0.037*	-0.116**	**
	(0.017)	(0.021)	
Household income	-0.014**	-0.025**	*
	(0.003)	(0.003)	
Contextual Variables			
Mean wages	-0.049**	-0.036**	
	(0.005)	(0.005)	
Unemployment rate	0.052**	0.067**	
	(0.014)	(0.014)	
Ave. age of men	-0.077	-0.209**	*
	(0.043)	(0.050)	
Int. migrant networks	0.040**	0.039**	
	(0.002)	(0.003)	
Urbanization (baseline <2,500)			
Pop. 2,500 to 14,999	-0.194**	-0.354**	*
	(0.047)	(0.057)	
Pop. 15,000 to 99,999	-0.435**	-0.522**	
	(0.058)	(0.068)	
Pop. ≥ 100,000	-0.718**	-0.801**	
	(0.044)	(0.051)	

Region		
Historic region	0.549**	0.479**
	(0.040)	(0.048)
Border region	0.342**	0.364**
	(0.058)	(0.069)
Border Enforcement		
Staffing in Southwest sector	-0.085*	-0.120**
	(0.039)	(0.018)
Constant	0.113	4.162**
	(1.382)	(1.598)
N	243,136	379,733

*p<.05 **p<.01 (two-tailed tests)

Table 6: Results of random effects logistic regression models interacting U.S. labor market conditions with educational attainment of Mexican men

	All men			Young men		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Education						
Complete middle school or more	-0.004	-0.003	0.000	0.111*	0.114*	0.119*
	(0.029)	(0.029)	(0.029)	(0.053)	(0.053)	(0.053)
Economic Conditions						
Employment gains in top 5 sectors	0.053**			0.067**		
	(0.015)			(0.024)		
Employment gains in top 3 sectors		0.105**			0.132**	
		(0.031)			(0.049)	
Employment gains in top sector (construction)			0.251**			0.307**
			(0.071)			(0.113)
Interactions with Education						
Complete middle school * emp. gains top 5 sectors	-0.016*			-0.028*		
	(0.007)			(0.012)		
Complete middle school * emp. gains top 2 sectors		-0.033*			-0.059*	
		(0.013)			(0.025)	
Complete middle school * emp. gains top sectors			-0.075**			-0.131*
			(0.027)			(0.052)
N	622,869	622,869	622,869	228,360	228,360	228,360

Note: Models include all predictors shown in the baseline models in Table 3. Other coefficients not shown to conserve space.
*p<.05 **p<.01 (two-tailed tests)

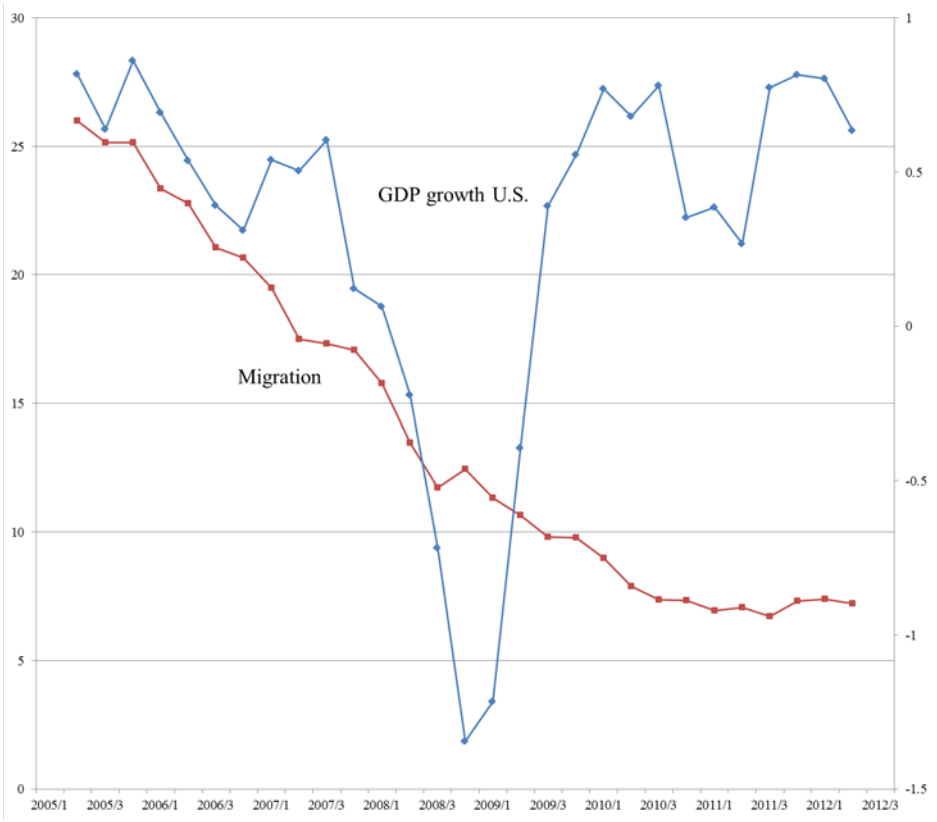

Figure 1a: International migration rate from Mexico and GDP growth in the United States

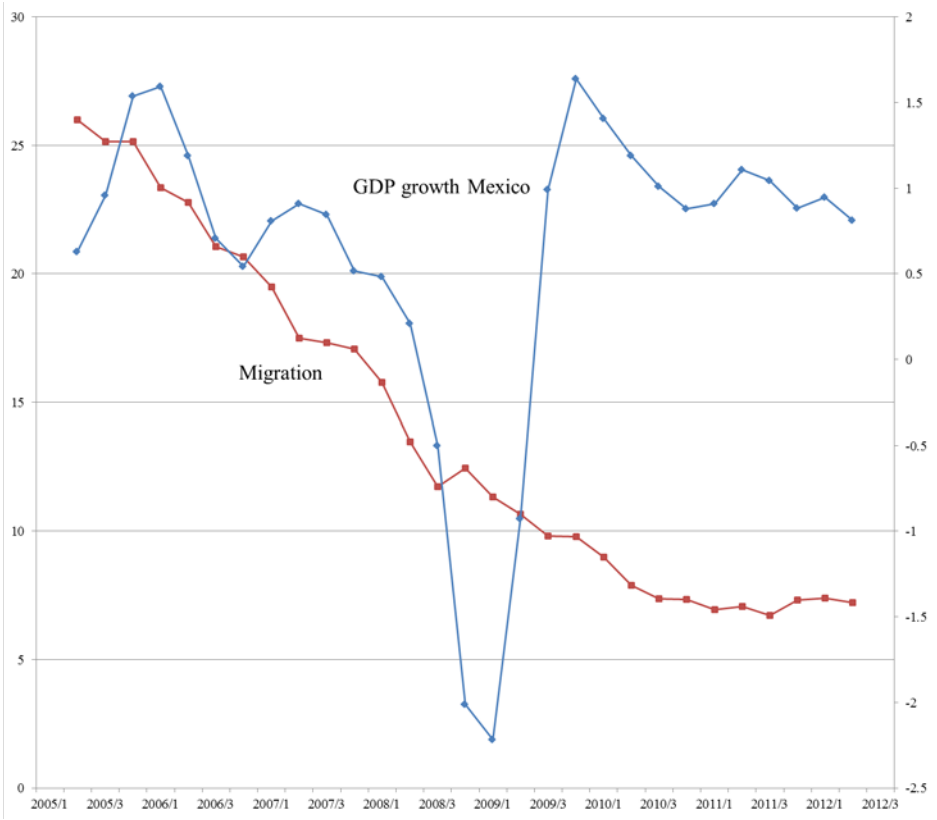

Figure 1b: International migration rate from Mexico and GDP growth in Mexico

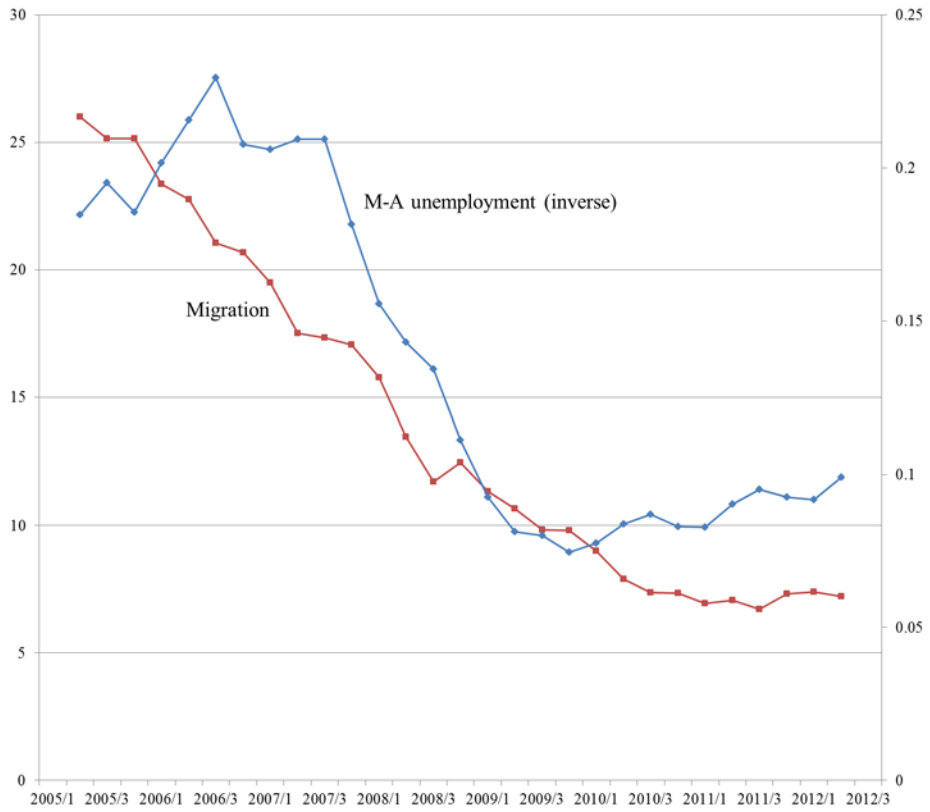

Figure 2a: International migration rate and Mexican-American employment rate (inverse)

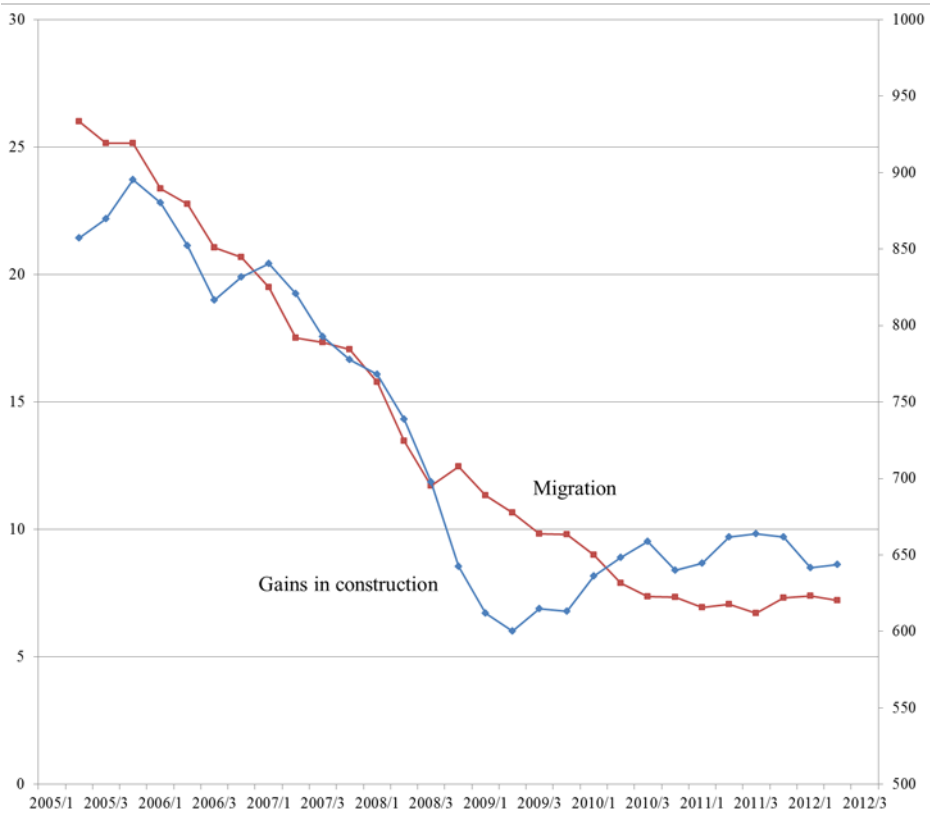

Figure 2b: International migration rate and job gains in construction

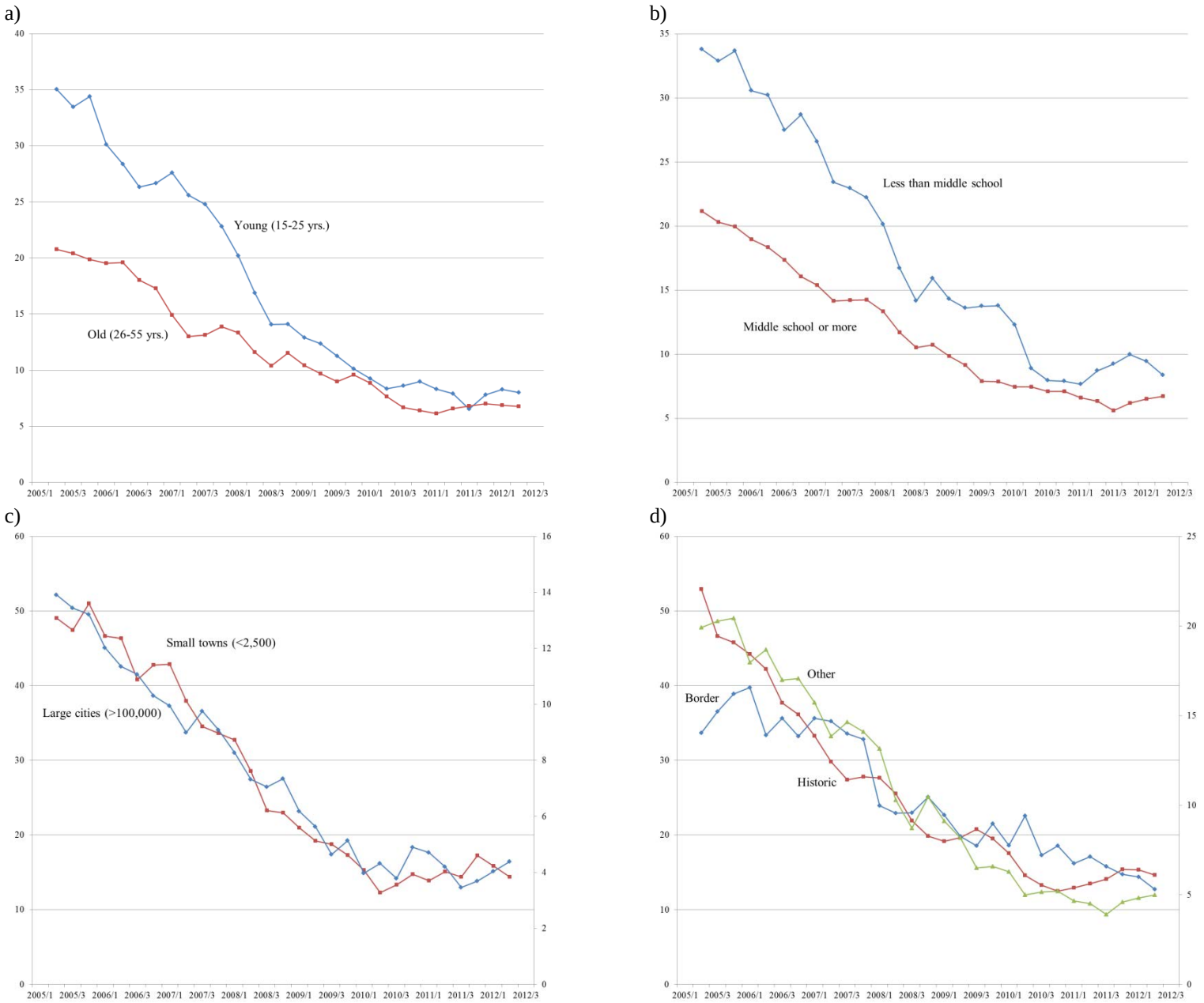

Figure 3: International migration rate for men by: (a) age, (b) education, (c) urbanization, and (d) region