LEAVING TO THE SOUTH:
NAFTA, THE GREAT RECESSION,
AND AMERICAN EMIGRATION TO MEXICO

By

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ABSTRACT

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Migration between the United States and Mexico is mainly studied as a unidirectional flow. However, the other side of the US-Mexico migration story is increasingly relevant. This study focuses on migration of native-born Americans to Mexico in the context of neoliberal globalization from 1990 to 2010. Following Mullan and Ayala (2015), this investigation of educational selectivity of American emigrants adopts the dual-flow model, hypothesizing an expansion flow during the rise of neoliberal globalization in North America and an austerity flow when economic austerity was the policy in the United States. Using data from the 1990, 2000, and 2010 US and Mexican censuses, this study investigates the changes in migration selectivity. Results from binary logistic regression show that during the rise of neoliberal globalization migrants were negatively and positively selected for migration by education. Additionally, they show that during the fall of neoliberal globalization migrants were only negatively selected for migration by education. The results support the hypothesis of a duality of migration flows. This is evidence of changes in the North American migration system. Furthermore, these findings challenge the view of Mexico as solely a migrant sending state and are indicative of strides in the development process in Mexico. Migration scholars and policymakers must pay attention to this migration flow to address the social, cultural, and economic implications of increasing American emigration to Mexico.

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INTRODUCTION

Simultaneous with its history as a destination of *im*migration, the United States now has significant *e*migration (Croucher, 2012; Klekowski von Koppenfels, 2013; Topmiller, Conway, & Gerber, 2011). Between three and seven million Americans[1] live outside of the United States, with more than one million living just across the U.S. northern and southern borders (Castles, de Haas, & Miller, 2014; Croucher, 2012; Klekowski von Koppenfels, 2013). According to Mexico's national decennial census of 2010, over 700,000 Americans live in Mexico, more than double the number in the previous census. The population of American emigrants in Mexico is not homogeneous. While many may be the children of Mexican citizens living in the United States and many others may be elderly retirees (Topmiller et al., 2011), there has been an increase in the number of Americans migrating to Mexico in almost all age groups. However, relatively little research has been conducted on Americans living south of the border (c.f. Croucher, 2009a, 2009b; Mullan & Ayala, 2015; Topmiller et al., 2011).

The U.S. Government has always closely monitored and assessed the number, origin, regional distribution, and socio-economic characteristics and experiences of immigrants through direct enumeration of foreign born in the decennial census, border control data collection systems, and special designed surveys of immigrants both here and in countries of origin. However, the Government does not track emigration from the U.S., alleging cost ineffectiveness and the "trivial" magnitude of the phenomenon (GAO, 2004). Contrariwise, the *Censo General de Población y Vivienda* (hereafter the Mexican Census) indicates that over the last 25 years, the number of American-born in Mexico has increased exponentially, and has changed in characteristics over this time period.

A small, but growing, body of research indicates that emigration from the U.S. is not necessarily new (e.g. Boyd, 1981; Cuddy, 1977; Dashefsky, DeAmicis, Lazerwitz, & Tabory, 1992; Finifter, 1976), and there is consensus that this migration flow will continue (e.g. Croucher, 2012; Klekowski von Koppenfels, 2014; Rappl, 2010, Topmiller et al., 2011). Within general American out-migration, emigration to Mexico has always been most significant and has increased markedly between 1990 and 2010. In this study, I investigate this emigration from the U.S. to Mexico and, following Mullan and Ayala (2015), I theorize that 1990-2010 emigration can be explained by two distinct periods of neoliberal globalization, creating an *expansion* emigration flow and an *austerity* emigration flow.

Using data from the 1990, 2000, and 2010 U.S. and Mexican censuses, I investigate the selectivity of American migration to Mexico, focusing in particular on whether or not American emigration to Mexico changed first after implementation of the North American Free Trade Association (NAFTA) and then again after the economic recession of 2008. After a review of the existing literature on U.S. emigration in general and emigration to Mexico in particular, I hypothesize emigration to Mexico to be either the result of the economic expansion that accompanied neoliberal globalization during the 1990s or the result of the economic austerity that followed the global economic crisis of 2008. Following a discussion of data sources and methods, I test and discuss the hypotheses using binary logistic regression. I conclude with an assessment of the relevance of my findings to the growing body of literature on U.S. emigration.

LITERATURE REVIEW

While existing research theorizes U.S. emigration to have numerous causes, Americans living abroad are typically viewed as elite, privileged migrants (Croucher, 2009a, 209b; Klekowski von Koppenfels, 2014). The economic, social, cultural, and religious push and pull factors of American emigration remain understudied. Scholars have theorized determining factors to be a desire to experience the world and a drive for adventure, escape from American politics and the U.S. Government, and flight from persecution in form of homophobia or racism (Croucher, 2012; Klekowski von Koppenfels, 2014). Yet, Dashefsky and colleagues (1992) suggested that these rather conventional 'push-pull' driven analyses are not adequate explanations of the decisions behind American emigration.

Researchers have examined U.S. expatriates in a number of countries and along a number of different dimensions. Some have looked at groups in specific areas, such as Australia (Bardo & Bardo, 1981; Cuddy, 1977; Finifter & Finifter, 1980a, 1980b, 1982, 1989; Mosler & Catley, 1998), Canada (Boyd, 1981) Denmark (Thomas, 1990), Mexico (Croucher, 2009a, 2009b), and Europe (Klekowski von Koppenfels, 2014). Others have looked at American emigration more broadly, some qualitatively (e.g. Croucher, 2009b; Dashefsky et al., 1992; Klekowski von Koppenfels, 2014) and some quantitatively (e.g. Bratsberg & Terrell, 1996; Fernandez, 1995; Jenson, 2013; Schwabish, 2011; Woodrow-Lafield, 1996, 1998). Dashefsky and colleagues' (1992) undertook a unique cross-national comparative approach, focusing on Americans in Canada, Australia, and Israel; their work is notable for its connection of emigration to suicide, questioning whether emigration is a sociological or a social psychological phenomenon.

The qualitative, multi-sited approach taken by Dashefsky and colleagues (1992) also elaborates carefully on the motives underlying U.S. emigration. They develop a four-part

typology of the goals of American emigration: self-expressive, self-instrumental, others-expressive, and others-instrumental. *Self-expressive* includes personal motives such as adventure and travel, alienation, and identity. Job opportunities and educational attainment fall into the *self-instrumental* category. *Others-expressive* incorporates family unity and a spousal desire to leave. Finally, *others-instrumental* includes medical and educational service personnel.

Drawing parallels to Emile Durkheim's *Suicide* and noting that alienation was a driving force in American emigration, Dashefsky and colleagues emphasize self-expressive motives as best explaining emigration. However, in the 22 years since the book was published, major changes have occurred in the American and global economies that would make the self-instrumental explanation more feasible than the self-expressive model. Migration as a search for employment is increasingly common among American emigrants (Castles et al., 2014; Wennersten, 2008). Specifically, Castles and colleagues suggest that American emigrants are commonly highly skilled workers. The increasing prevalence of the *self-instrumental* category suggests that American emigration is becoming a rational, economic choice and reaction to shifts in the global economy.

Table 1. Top 10 countries by American population

Rank	Country	American population	Percentage of top 10	Source
1	Mexico	739,918	42.4%	2010 Census (IPUMS)
2	Canada	316,165	18.1%	2011 Census
3	United Kingdom	183,183	10.5%	2010 World Bank Estimate[a]
4	Germany	159,326	9.1%	2010 World Bank Estimate
5	Australia	81,672	4.7%	2010 World Bank Estimate
6	France	70,803	4.1%	2008 Census
7	West Bank and Gaza	56,289	3.2%	2010 World Bank Estimate
8	Japan	52,449	3.0%	2010 World Bank Estimate
9	Philippines	44,788	2.6%	2010 World Bank Estimate
10	Spain	38,712	2.2%	2010 World Bank Estimate

Source: Author's tabulations from World Bank data (Ratha & Shaw, 2007) and national censuses
[a] World Bank does not specify country of birth.

The number of Americans living abroad has been most recently estimated to fall between 2 and 7 million people and more widely spread than any emigrant group (Klekowski von Koppenfels, 2014). Table 1 shows Mexico as the prominent destination for American emigration, followed by Canada. This suggests that proximity to the U.S. is clearly a factor in country destination, but is certainly not only force driving American emigration. Emigration to Mexico has increased exponentially since 1990, rising from an American-born migrant stock of 198,230 in 1990, to 358,399 in 2000, to 739,319 in 2010. This increase has been seen in all age groups, as shown in Figures 1 and 2, with the exception of the eldest.

Figure 1. Total Americans in Mexico by age category, 1990-2010
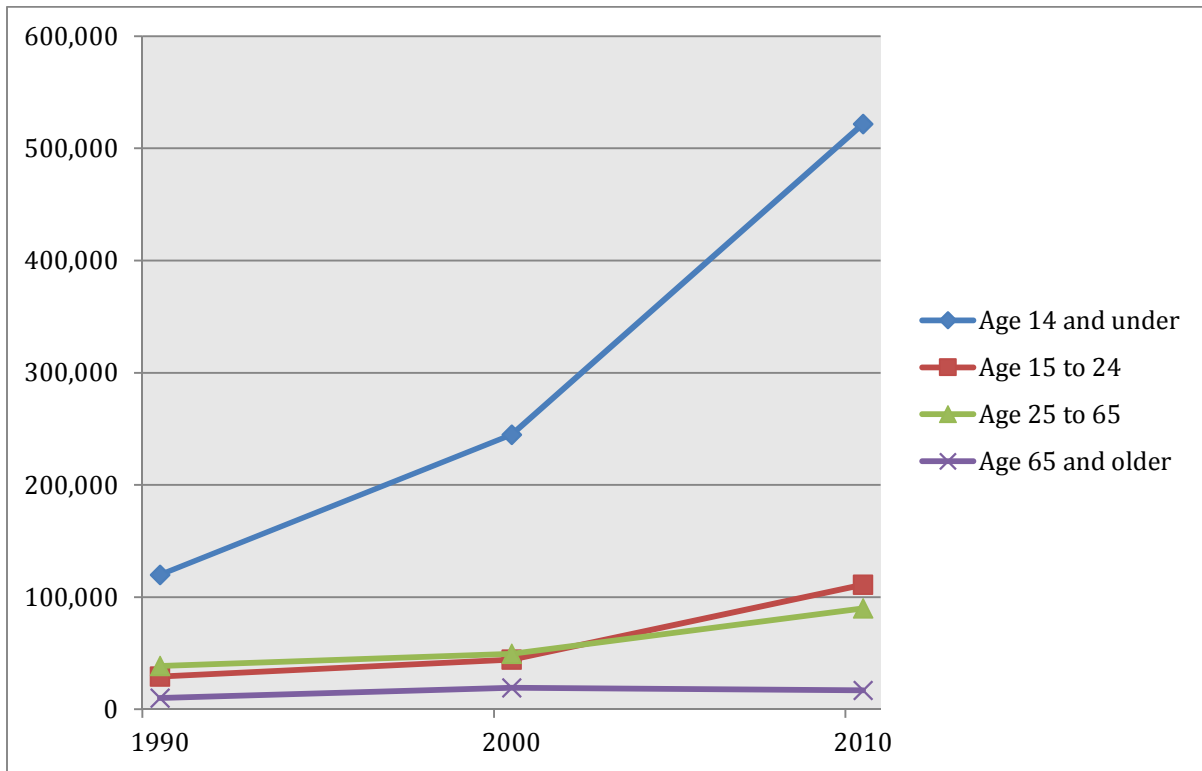
Source: Author's calculations based on IPUMS data from Mexican Census.

By far the largest age group is the youngest population. Topmiller and colleagues (2011) suggested that this is likely due to the high number of children born to Mexican parents that were temporary residents of the United States and eventually returned to Mexico with their American-born—and via *jus soli* American-citizen—children. These Mexican nationals appear as American emigrants, though they may have had little agency in the migration decision. This is less likely to be the case of older migrant groups. Topmiller and colleagues (2011) focused on retirees and thus excluded children from their study. I focus on working-age individuals between the ages of 25 and 65. The number of recent emigrants from the U.S. to Mexico between the ages of 25 and 65 at the time of the census rose from 8,100 in 1990 to 13,058 in 2000 to 23,399 in 2010 (see Figure 2).
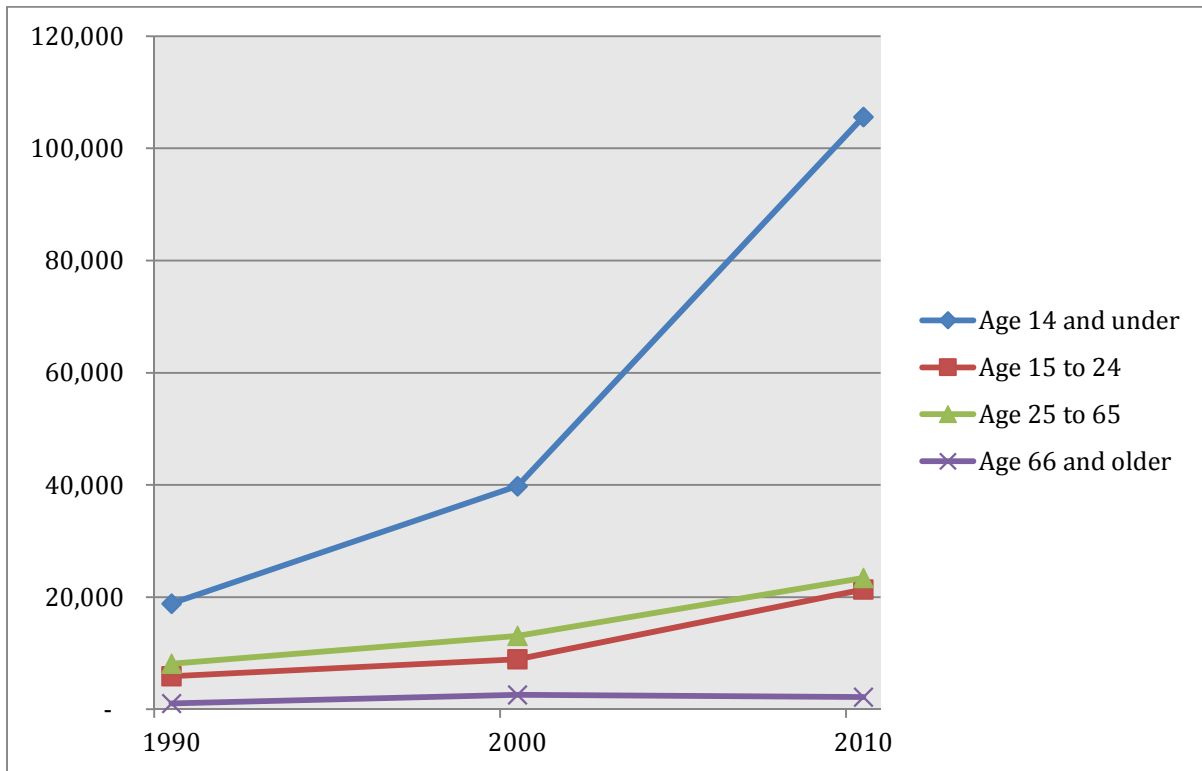
Figure 2. Recent American emigrants[a] in Mexico by age category, 1990-2010

Source: Author's calculations based on IPUMS data from Mexican Census.
[a] Recent emigrants are those who lived in the United States five years prior to enumeration in the respective Mexican Census.

THEORY

Studies of international migration typically focus on the migrant group in their destination country. However, migration is a process that starts long before arrival in a new home and the forces moving one toward migration are not one-dimensional. Major theories of international migration account for the forces in play at both ends of the migration process; most true to this theoretical approach are the push-pull theory and the neoclassical theory. These two functionalist theories examine the contextual forces that influence migration. While these theories do not account for the agency that is so crucial in much of migration studies, they are useful as descriptive models (Castles et al., 2014). In this investigation of the major contextual forces that influence migration from the United States to Mexico, the push-pull and neoclassical theories provide an important foundation on which other studies can build with other data sources. These theoretical approaches in conjuncture with neoliberal globalization create a framework in which these flows of American emigration have existed.

American adults who move across the southern border would be most likely migrating in search of employment. Though Topmiller and colleagues (2011) found that retirement migration is common, more recent data shows a decrease in the number of retirement age American emigrants in Mexico (see Figures 1 and 2 above). Migration in search of employment would be expected during the expansionist ideology of neoliberal globalization and in response to the global economic crisis that brought economic austerity. Since 1990, migration from the U.S. to Mexico has existed in these two distinct contexts that resulted in two surges of population flows. After the passing of NAFTA on January 1, 1994, the Mexican and the U.S. economies increasingly integrated and movement from the United States to Mexico was in a period of *expansion flows* in response to neoliberal globalization. This spurred movement of less- and

more-skilled Americans into lower and higher sector jobs south of the border. However, following the 2008 global economic recession, movement from America was in a period of *austerity flows*, where movement was driven by poor economic conditions in the United States and less-skilled emigrants moved into lower sector jobs in Mexico.

Neoliberal Globalization, NAFTA, and Expansion Flows

Neoliberal Globalization. Definitions of both globalization and neoliberalism are elusive, especially as they relate to international migration (Mullan, 2013). Broadly defined, neoliberalism a set of economic policies and practices based on the ideas of the free market and free trade (Harvey, 2005; Payne & Phillips, 2010). Payne and Phillips (2010) found that it is based on opening a country to the free market where prices will set themselves based on economic force. They conceptualized neoliberalism as a grand theory that could theoretically be applied to numerous countries, claiming that neoliberalism is a 'one size fits all' approach. As a development plan or strategy, neoliberalism has been implemented time and time again with varying success (Broad & Cavanagh, 2009). These neoliberal policies were common among Latin American countries that focused on inward-looking development (Payne & Phillips, 2010). Yet, its widespread implementation is not a sign of its success. Broad and Cavanaugh (2009) argued that neoliberalism is individualizing and benefits large corporations more than people, adding that it is singly focused and unsustainable.

Despite a surfeit of scholarship on the subject, globalization remains difficult to define (Robinson, 1998). One conceptual approach is to understand globalization as it relates to increased interconnectedness (Held et al., 1999). Castles and colleagues (2014) found that it is commonly conceptualized as primarily an economic process that is highlighted by increased cross-border flows in finance and trade. They added that it also includes cross-border flows of

democratic values, cultural and media practices, and people. Guhathakurta, Jacobson, and

DelSordi (2007) also focused on the important connection between human mobility and

globalization, noting that it is often ignored in discussions of trade and connectivity. The starting

point for globalization is up for debate. Globalization conceptualized as simply an increase in

global connectivity could be theorized to have begun centuries ago; however, after 1980 there

was a clear change in international connectivity (Dollar, 2005). Castles et al.(2014) found that

"[t]he current globalization paradigm emerged in the context of neoliberal strategies" (p. 33).

This neoliberal globalization was the product of neoliberal policies expanding across

international borders, linking countries through economic policies of free trade and market

liberalization (Stiglitz, 2003). This was in large part due to the expansive neoliberal strategies of

the Reagan and Thatcher administrations in the 1980s (Castles et al. 2014), eventually leading to

the enactment of several key free trade agreements.

NAFTA. On December 17, 1992 the North American Free Trade Agreement (NAFTA)

was signed, creating a trilateral free trade deal between the United States, Mexico, and Canada.

That agreement came into force on January 1 1994 and became "the door through which

American workers were shoved into the neoliberal global market" (Faux, 2013). President

Clinton and President Salinas championed NAFTA as a method to decrease illegal migration

(Castles et al., 2014). It opened the trade market between the U.S., Mexico, and Canada, and

integrated the economies. This had significant effects on the U.S. and Mexican economies. The

new free trade agreement encouraged many firms to relocate to Mexico's northern states to low-

wage *maquiladoras* industries, which had previously existed but increased in numbers after

NAFTA (Larudee, 2007). NAFTA led to the displacement of more than 500,000 jobs from the

United States to Mexico from its initiation to 2006 (Scott et al., 2006). Workers in the United

States with a high school education or less were hardest hit by NAFTA, but those with more education were also affected, as they moved into low-skilled, low-wage jobs (Scott et al., 2006).

Expansion Flows. In the wake of this neoliberal boom, employment opportunities in Mexico came at the cost of job opportunities in the United States. NAFTA driven free trade greatly increased the import-export deficit for the United States and employment was exported as well as well (Castles et al., 2014). Jobs displaced from the United States to Mexico due to NAFTA were seen in all sectors but were more common in manufacturing and low-skilled labor, at about 60.8% of the displaced jobs, than in service sectors, which made up about 15.2% of the displaced jobs as of 2010 (Scott, 2011). Displaced service sector jobs were those that provided inputs to traded goods, including administrative and support services and professional, scientific, and technical services (Scott, 2011). A growing Mexican economy attracted workers of all skill levels—and education levels—to the opportunities put forth by neoliberal policies.

Declining Neoliberalism, The Global Economic Crisis, and Austerity Flows

Declining Neoliberalism. Just as NAFTA was not an overwhelmingly successful neoliberal policy for the United States, it was not necessarily a success for Mexico either. While the increasing number of *maquiladoras* industries due to NAFTA did increase Mexico's employment rate (Scott et al., 2006), such gains were not permanent. The economic prosperity from neoliberal policies declined in Mexico after 2000 when the number of manufacturers just south of the Mexican border declined as these companies moved to south and Southeast Asia, countries with lower wages than Mexico (Scott et al., 2006). Neoliberalism is based upon free markets and finding lower prices, especially wages. When lower prices were found outside of Mexico, the neoliberal policies no longer benefited the increasingly integrated U.S. and Mexican economies. The goal of NAFTA to increase trade flows and investment between the member

countries failed when opportunities elsewhere became the priority. Just as neoliberalism creates opportunities for investment, it quickly redirects them to where it can benefit the few as the cost of the many.

The Global Economic Crisis. The decline of the neoliberal dream culminated with the global economic crisis (GEC) of 2008. The effects of the GEC were felt most strongly in rich countries (Phillips, 2011). The GEC had a harsher impact on individuals in low-skill jobs (i.e. those that require less education), as these most vulnerable workers are easily displaced by more skilled works that move down the ladder and are easily removed from employment due to limited specialized training (Papademetriou & Terrazas, 2009). The GEC had global consequences and altered labor demands and migration flows (Castles et al., 2014). In the United States, which was at the heart of the GEC, unemployment rose due to this economic austerity.

Austerity Flows. A receding U.S. economy had a most devastating effect on low-skilled workers, pushing them to seek job opportunities elsewhere, while high-skilled workers had more employment options at home. This period of migration from the United States is driven by the push factor of economic austerity. This is similar to what Papademetriou and colleagues (2010) found in the large waves of austerity-driven emigration from Greece following the GEC. Simultaneously, this period is highlighted by the lessened pull factor for high skilled migrants in Mexico. The declining prosperity from NAFTA led to a lack of demand for more-skilled and more-educated migrants, but the pattern migration of less-skilled and less-educated migrants continued.

Migrant Selectivity

The decision to migrate is a multifaceted one. It often involves family strategizing, social networks, and knowledge of the economic conditions in the sending and receiving nations, among many other factors. The complexities of migration are so extensive that any grand theory will fall short; indeed Castles et al. (2014) argue persuasively against seeking or proposing any such grand theories. Despite the difficulty of predicting migration, particular personal characteristics have become key factors in determining migration. Neoclassical theory of migration is grounded in the concept that migrants (and potential migrants) have perfect knowledge of the employment possibilities in the sending and receiving countries (Castles et al., 2014; Harris & Todaro, 1970; Todaro, 1969). From this theoretical approach to studying migration, scholars can investigate how immigrants compare to those who do not migrate. Because migrants are not randomly selected, the interest lies in why some choose migration and others do not (Radu and Straubhaar, 2012). Through an investigation of the personal characteristics of migrants, economists and sociologist have become interested in whether migrants are positively or negatively selected (Rendall and Parker, 2013).

Migrants are positively selected when they are more skilled than those that do not migrate. Conversely migrants are negatively selected when they are less skilled than those that do not migrate. Immigration is typically selective of more skilled—and more educated—individuals (Chiswick, 2008; Rendall and Parker, 2013), but this usually found when studying migration to developed countries (Caponi, 2010; Chiquiar and Hanson, 2002, 2005; Ibarraran and Lubotsky, 2007; Portes and Rumbaut, 2014). Educational attainment is a frequently used measure of migrant selectivity. It has been used in numerous studies of migration from Mexico to the United States (e.g. Caponi, 2010; Chiquiar and Hanson, 2002, 2005; Ibarraran and Lubotsky,

2007; Rendall and Parker, 2013). These studies of international migration investigate the selectivity of migrants from developing countries to developed countries. Just as immigrants from Mexico to the U.S. are not randomly selected, neither are those who traverse that border in the other direction. In the wake of the rise and "fall" of neoliberal globalization, the United States experienced emigration to Mexico. As the two flows of emigration were not homogeneous, the selectivity of migration for this population is of interest.

Figure 3 displays the educational attainment of Americans that self-selected for emigration in the five years before the 1990, 2000, and 2010 censuses. A smaller proportion of emigrants are among the least educated groups is in 2000 and 2010 compared to 1990. The proportion of emigrants with a secondary degree increased from 1990 to 2000 to 2010 and a similar trend was found for the proportion of emigrants with some post-secondary or technical education. The proportion of emigrants with a university degree did not follow this trend. The percentage of migrants with this level of education increased from 24.22 percent in 1990 to 32.90 percent in 2000, but this decreased to 24.62 percent in 2010. This suggests that there is an interesting trend in the educational selectivity of emigration from the United States to Mexico. However, the bivariate data presented here does not indicate whether these personal characteristics predicted migration in comparison with those that did not leave, nor does it account for how educational attainment has changed from 1990 to 2010. For these reasons, multivariate regression analysis is used to investigate the selectivity of emigration from the United States to Mexico before the 1990, 2000, and 2010 censuses.

Figure 3. Educational attainment of recent American emigrants in Mexico, 1990-2010
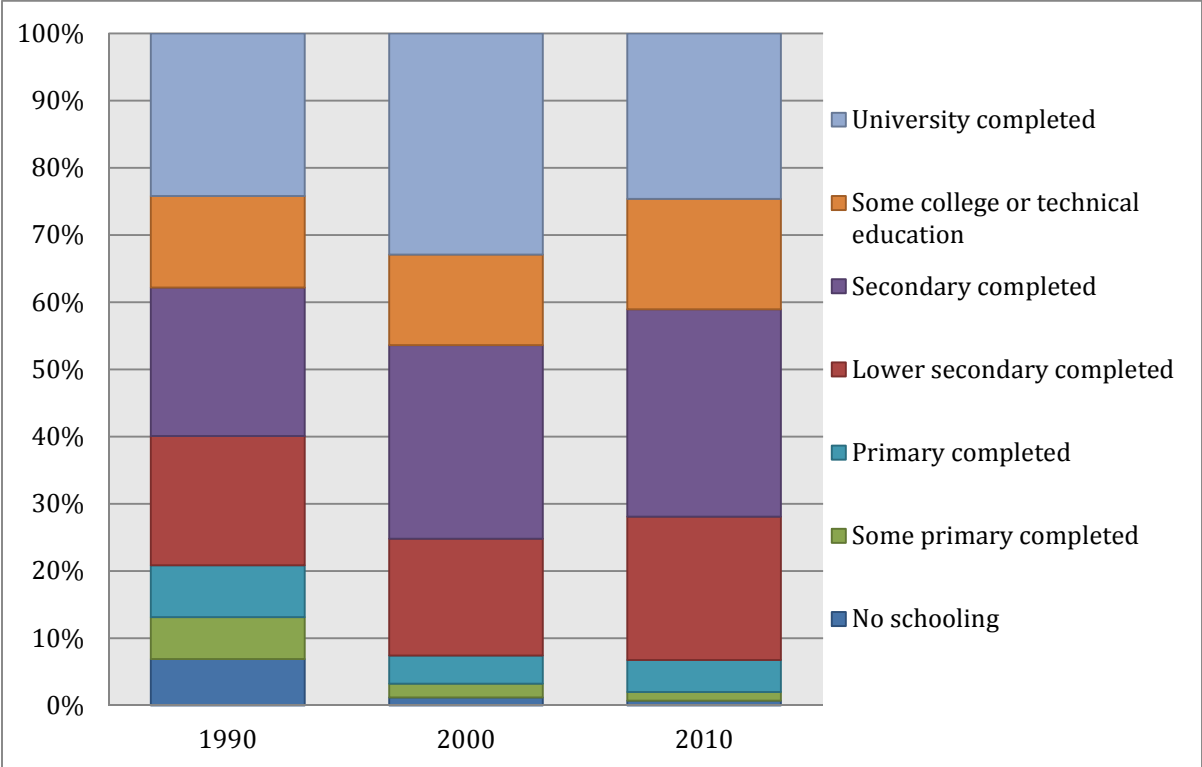
Source: Author's calculations based on IPUMS data from Mexican Census.

HYPOTHESES

Following Mullan and Ayala (2015), I hypothesize that changes in the economies of the United States and Mexico have led to two types of migration flows of Americans from the United States to Mexico: expansion flows and austerity flows. The expansion flow is highlighted by negative and positive selectivity and the austerity flow is highlighted by negative selectivity alone.

Hypothesis 1

In the period after the enactment of NAFTA and in the years approaching 2000, migrants from the United States to Mexico were both **negatively** selected due to the displacement of numerous manufacturing jobs from the United States to Mexico AND **positively** selected due to the creation of service sector jobs to support the trade industry during the neoliberal economic global boom. This negative and positive selection is based on educational attainment compared with the average of the population, which is secondary completion. Two sub-hypotheses are tested in this analysis. Hypothesis 1a: individuals with less than the average amount of education were more likely to move. Hypothesis 1b: individuals with more than the average amount of education were more likely to move.

Hypothesis 2

After the decline of neoliberal policies and with the devastating global economic crisis, migrants from the United States to Mexico were **negatively** selected in the years approaching 2010. They were negatively selected due to remaining effects of neoliberal policies and because the recession hit low-skilled workers the hardest. Migrants were not positively selected because the neoliberal decline was most prominent in the service sector. Two sub-hypotheses are tested here as well. Hypothesis 2a: individuals with less than the average amount of educational

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attainment were more likely to move. Hypothesis 2b: individuals with more than the average

amount of educational attainment were less likely to move.

DATA & MEASURES

Data

To compare education attainment of migrants and non-migrants, the data are drawn from two censuses, using existing valid and reliable cross-country data modeling techniques common in the economic literature on Mexico to U.S. migration (e.g. Caponi, 2010; Chiquiar and Hanson, 2002, 2005; Ibarraran and Lubotsky, 2007). The data for this study comes from the Minnesota Population Center's IPUMS-International public use microdata samples (PUMS) from the 1990, 2000, and 2010 Mexican Census (*Censo General de Población y Vivienda*) and the 1990, 2000, and 2010 U.S. Census.

There is a very low probability that individuals could be enumerated in the sample more than once, due to the inclusion of census data from three years. However, this would not alter the interpretation of the results because this study investigates how socio-demographic characteristics predict migration from the Untied States to Mexico at different points in time.

Study Sample

Consistent with sample selection strategies used in other studies (Caponi, 2007; Chiquiar & Hanson, 2002, 2005), my sample consists of people born in the United States age 25 to 65 at the time of the census. Furthermore, this range was selected to ensure that most or all of an individual's education was received in the United States and because working age individuals are of most interest to this study. Those included from the Mexican Census reported to having lived in the United States five years prior to the respective census. Those included from the U.S. Census reported to having lived in the United States five years prior, with the exception of individuals from the 2010 U.S. Census, who reported having lived in the United States one year prior. This ensures that the subsamples (migrants in Mexico and non-migrants in the U.S.) are as

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similar as possible with the exception of their migration status. Less than 0.02% of cases were dropped for missing key variables.

The Minnesota Population Center, which houses IPUMS-International, suggests the use of weights for most types of analysis.[2] The sample from the Mexican Census includes all recent migrant native-born Americans in Mexico that were available in the public use microdata sample.[3] The sample from the Mexican Census consists of American-born individuals age 25 to 65 that were living in the United States five years prior to the census (identified using the variable *MGCTRY2*). Only those that were expected to remain in the country for at least six months were enumerated in the Mexican Census (Topmiller et al., 2011). The sample from the Mexican Census (N = 3,428) contained 801 from 1990, 1,103 from 2000, and 1,524 from 2010.

The sample from the United States Census consisted of a 0.1% weighted sample[4] of American-born individuals age 25 to 65 from the census for 1990, 2000, and 2010 that were living in the United States five years prior to the 1990 or 2000 Census (identified using the variable *MGCTRY2*) or one year prior to the 2010 Census (identified by *MGCTRY3*). The sample from the U.S. Census (N = 379,921) contained 116,614 from 1990, 126,153 from 2000, and 137,154 from 2010.

Measures

The dependent variable is a binary dichotomy measuring whether or not an individual migrated from the U.S. to Mexico: staying (0) and moving (1). These outcomes are developed from an individual's location at the time of the census, which is either the United States or Mexico. Because all individuals in the sample were born in the U.S. and lived in the U.S. prior to the census, those enumerated in the Mexican Census are the movers.

The main independent variable is education, investigating how well education predicts migration from the United States to Mexico. Education is measured categorically and treated as dummy variables with the modal category—secondary education completed—for the combined sample as the reference outcome. The variable for education was developed from the harmonized educational attainment variable created by IPUMS-International. Each census educational attainment variable was recoded to create the universal variable for education level.

The year of the censuses is included as a key independent variable as an interaction term with education. Marital status and age are also included in the models as control variables. A squared age term is also included, as the relationship between migration and age is not necessarily linear.

METHODS

The effect of educational attainment on emigration is modeled with binary logistic regression. To investigate the change in the impact of education across the three census periods, interaction terms are included for the year 2000 and the year 2010. The interaction terms of year with educational attainment represent the difference in odds of migration for each level of educational attainment in 2000 and 2010 compared to 1990. Separate models were run for males and females, as migration patterns are different across sexes.

Binary logistic regression applies when the dependent variable is dichotomous, mutually exclusive for each observation, and coded so the probably of the event occurring is $P(Y=1)$. It is assumed that observations are independent and that the model has little multi-collinearity. Additionally, binary logistic regression requests a large sample size, as reliability of estimation declines with smaller samples. Finally, binary logistic regression assumes linearity of independent variables and log odds. This model meets all of these assumptions.

RESULTS

Descriptive Results

From Table 2 we see that educational attainment levels are higher among non-migrants than migrants. As one would expect, the average level of education increases with each census as well among migrants and non-migrants. A notable trend among migrants is the proportion of individuals with the lowest level of education. The proportion of migrants with the lowest amount of education decreased in each subsequent census from 20.85% to 7.43% to 6.76% with less than lower secondary completed. The proportion of migrants to have completed only lower secondary has an interesting trend. In 1990 it was 19.23% and this decreased to 17.35% in 2000, but then rose to 21.31% in 2010. The trend among those that have completed university is interesting as well, especially when compared to the educational trends among non-migrants. In 1990 24.22% had completed university. This increased in 2000 to 32.90% but then fell to 24.62% in 2010. When compared with the proportion of non-migrants to have completed college (22.40% in 1990, 26.52% in 2000, and 30.35% in 2010), we see that more migrants have completed college in 1990 and 2000 than non-migrants, but this is no longer true in 2010.

Table 2. Weighted descriptive statistics of variables in the analysis, samples from U.S. and Mexican censuses 1990, 2000, and 2010

	Migrants			Non-migrants			
	1990	2000	2010	1990	2000	2010	Combined
Education (%)							
Less than lower secondary completed	20.85	7.43	6.76	4.78	2.71	1.92	3.06
Lower secondary completed	19.23	17.35	21.31	9.51	6.96	5.37	7.18
Secondary completed	22.10	28.82	30.86	35.16	32.39	29.32	32.14
Some college or technical education	13.61	13.49	16.45	28.15	31.43	33.05	31.00
University completed	24.22	32.90	24.62	22.40	26.52	30.35	26.62
Sex (%)							
Male	54.43	51.84	52.88	49.01	49.15	49.40	49.20
Female	45.57	48.16	47.12	50.99	50.85	50.60	50.80
Age							
Mean	43.03	42.49	39.04	41.79	43.25	44.85	43.37
Standard deviation	12.63	12.92	12.39	11.45	10.86	11.59	11.37
Marital Status (%)							
Single, never married	13.23	15.41	15.74	15.26	17.14	23.16	18.72
Married	77.03	76.70	76.34	67.55	64.33	56.97	62.69
Divorced or separated	6.12	5.90	7.01	14.33	16.15	17.62	16.11
Widowed	3.62	1.99	0.92	2.85	2.37	2.26	2.48
Total number of observations	801	1,103	1,524	116,614	126,153	137,154	383,349

The sample of non-migrants is very evenly divided between males and females, with a slightly larger proportion of females in each census. The sample of migrants has a larger proportion of males to females (54.43% males in 1990, 51.84% in 2000, and 52.88% in 2010), suggesting that males are more likely to migrate from the United States to Mexico. The age trend shows that the migrant population is younger, while the non-migrant population is older. The marital status of migrants and non-migrants are quite different. A higher proportion of migrants are married (77.03% in 1990, 76.70% in 2000, and 76.34%% in 2010) than non-migrants (67.55% in 1990, 64.33% in 2000, and 56.97% in 2010). Additionally, a lower proportion of migrants are single (13.23% in 1990, 15.41% in 2000, and 15.74%% in 2010) than non-migrants (15.26% in 1990, 17.14% in 2000, and 23.16% in 2010). Furthermore, a smaller proportion of migrants are widowed, divorced, or separated than non-migrants. Typically

migrants are expected to be single, but this migration pattern is an exception. At this point an explanation for this is unclear, but the proximity of the migration and the sociocultural characteristics may be contributing that could be explored in future studies.

Results from Binary Logistic Regression

The results of the binary logistic regression for males and females are presented in Table 3. This table shows the predicted odds of migration from the United States to Mexico for 1990, 2000, and 2010. The main predictor of migration for this study is educational attainment. The main effect of education is presented first—which can be interpreted as the effect of education in 1990—and the effect for 2000 and 2010 are included as interaction terms. The odds ratios presented in the table for education in 2000 and 2010 are the difference in the effect of educational attainment level in each year.

As seen in Table 3, in 1990, males with the least amount of education, that is less than lower secondary completed, are more than nine times as likely to migrate as males with secondary completed. Males with lower secondary completed are 3.26 times as likely to migrate as males with secondary completed. Males with university completed are 87 percent more likely to migrate when compared to males with secondary completed. These effects are significant at the $p<0.001$ level; however, the effect of having completed some college was not significant.

Table 3. Predicted odds ratios and standard errors (SE) of migration from the United States to Mexico for 1990, 2000, and 2010

	Males (N = 187,154)		Females (N = 196,195)	
	Odds Ratio	SE	Odds Ratio	SE
Less than lower secondary completed	9.14***	1.43	9.47***	1.64
Lower secondary completed	3.26***	0.52	3.86***	0.61
Secondary completed	reference		reference	
Some college or technical education	0.80	0.14	0.69*	0.12
University completed	1.87***	0.27	1.55**	0.25
Year 2000	2.20***	0.30	2.78***	0.36
Less than lower secondary completed × Year 2000	0.45**	0.12	0.34***	0.10
Lower secondary completed × Year 2000	0.75	0.18	0.90	0.21
Secondary completed × Year 2000	reference		reference	
Some college or technical education × Year 2000	0.72	0.17	0.53*	0.14
University completed × Year 2000	0.85	0.17	0.70	0.15
Year 2010	5.28***	0.74	6.01***	0.07
Less than lower secondary completed × Year 2010	0.41**	0.11	0.41**	0.12
Lower secondary completed × Year 2010	1.21	0.29	0.99	0.26
Secondary completed × Year 2010	reference		reference	
Some college or technical education × Year 2010	0.49**	0.13	0.68	0.20
University completed × Year 2010	0.38***	0.08	0.39***	0.10
Divorced or separated	0.43***	0.05	0.26***	0.03
Widowed	0.35***	0.06	0.26***	0.05
Never married	0.91	0.22	0.38***	0.08
Age	0.80***	0.02	0.72***	0.02
Age squared	1.00***	0.00	1.00***	0.00
Constant	0.01***	0.01	0.08***	0.05

***p<0.001; **p<0.01; *p<0.05 (two-tailed test)

The effects for 1990 are similar for females. Females with the less than lower secondary completed are 9.47 times as likely to migrate as females with secondary completed. As with males, females with lower secondary completed are more than three times as likely to migrate as females with secondary completed. Females with some college or technical education are less likely to migrate, 31 percent less likely, while females with university completed are more likely to migrate, 55 percent more likely, when compared to females with secondary completed. All of these effects are significant at the p<0.05 level or better.

As indicated by the Year 2000 variable in Table 3, the odds of migration increase for males and females in 2000 compared to 1990 when holding all other covariates constant. This is true for 2010 as well. In 2000, males and females are more than two times as likely to migrate as in 1990. In 2010, males are more than five times as likely to migrate as in 1990 and females are more than six times as likely to migrate as in 1990. These results are significant at the $p<0.001$ level.

The effect of education in 2000 (shown as "educational attainment level" $\times$ 2000) decreases the odds of migration for all education categories for males and females. However, these interaction effects are only significant for less than lower secondary completed for males at the $p<0.01$ level, less than lower secondary completed for females at the $p<0.001$ level, and some college or technical education for females at the $p<0.05$ level. The other interaction terms for 2000 were not significant, suggesting that there is not a significant difference between the effect of education on migration in 1990 and 2000 for these educational attainment levels.

For males and females, the significant interaction terms for 2010 have the effect of decreasing the odds of migration. The significant effects show a difference in the effect of education in 1990 and 2010. For females, these effects are significant for less than lower secondary completed at the $p<0.01$ level and university completed at the $p<0.001$ level. For males, significant interaction terms are less than lower secondary completed (significant at the $p<0.01$ level), some college (significant at the $p<0.01$ level), and university completed (significant at the $p<0.001$ level). As with 2000, the significant interaction terms for 2010 decrease the odds of migration compared to the reference group.

Non-significant interaction terms show that there is not a significant difference in the effect of educational attainment for a given year. As this was the case for the highest level of

education in 2000, it suggests that university completion has not changed in predicting migration between 1990 and 2000 and those with this level of education remain more likely to migrate in 2000. However, in 2010, the interaction effect is significant, showing that the effect of university education is different than in 1990. By taking the product of the odds ratios for university completion in 1990 and university completion in 2010, the model shows that university education decreases the odds of migration compared to secondary completion for males and females. In 2010, males with university completed are 29 percent less likely to migrate and females with university completed are 40 percent less likely to migrate.

Other significant interaction for 2000 and 2010 terms show that those with less than average education remain more likely to migrate than those with secondary completed, though these effects have decreased from 1990. Only for university completion in 2010 does the effect change to having a negative influence compared to the reference education level.

In sum, these results show that in 1990 those with less than or more than the average level of education are more likely to migrate than those with secondary completed. This does not change for 2000. While some of the interaction effects are significant, males and females with these levels of education remain more likely to migrate than the reference group. The non-significant interactions show that these effects do not significantly differ in 2000 from 1990. Thus, those with less than or more than the average level of education are more likely to migrate in 2000. This trend changes for males and females 2010. Those with less than the average are still more likely to migrate, due to limited effects from interaction terms and non-significant interaction terms. However, those with more than the average level of education, specifically those having completed university, are less likely to migrate than those that have only completed

secondary schooling. In 2010 a university education decreases the odds of migration relative to the reference group.

These results support both parts of Hypothesis 1, which hypothesized negative and positive selection of American migrants to Mexico following the enactment of NAFTA and in the years approaching 2000. Hypothesis 1a states that individuals with less than the average amount of education were more likely to move and Hypothesis 1b states that individuals with more than the average amount of education were more likely to move. The results also support Hypothesis 2, which hypothesized negative selection of American migrants after the decline of neoliberal policies and the economic crisis in the years approaching 2010. Hypothesis 2a states that individuals with less than the average amount of education were more likely to move and Hypothesis 2b states that individuals with more than the average amount of education were less likely to move. This change in migration selectivity is discussed below.

DISCUSSION

The findings from the binary logistic regression show that selectivity of migration from the United States to Mexico has changed between 1990 and 2010. This is consistent with the theory that this pattern of migration existed in two distinct responses to rise and decline of neoliberal globalization in North America. Migration is a dynamic process and is influenced by personal characteristics, such as educational attainment, and responds to economic situations in sending and receiving nations. While the suggestion from the neoclassical theory of migration that migrants have complete knowledge of employment opportunities in sending and receiving states may seem overreaching, even without this assumption we can find that migrants respond to the economic situation in sending and receiving countries. The results presented here support this.

In the years approaching 2000, *expansion* migration prevailed. As NAFTA created job opportunities in Mexico, less-educated and more-educated Americans moved south of the border. Less-educated—and less skilled—migrants sought employment opportunities in the U.S.-owned *maquiladoras* in the north states of Mexico (Castles et al. 2014). More-educated—and more skilled—migrants moved into service sectors—such as administrative and support services and professional, scientific, and technical services—to support the manufacturing boom (Scott, 2011). The model supports this theory, showing that migrants were both negatively and positively selected for migration in the years approaching 2000.

The *austerity* migration flow from 2010 was highlighted by negative selection alone. Due to the declining prosperity of neoliberal policies in Mexico and the harsh impact of the GEC on low-skilled and less-educated migrants (Papademetriou & Terrazas, 2009), negative selection was expected. The expansionist ideology of NAFTA no longer attracted more-educated

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migrants to Mexico and the GEC extended the movement of less-educated migrants. The results

show that only individuals with less than average education were predicted to migrate in 2010.

The results show the change in how educational attainment predicts migration from the

United States to Mexico. As the interest lies in who moves and who stays, we can see that this

key socio-demographic component shows an interesting trend in migration selectivity. While

average education attainment levels have risen since 1990, additional education has lessened the

probability of migration. The descriptive statistics from Table 2 show that a larger proportion of

migrants than non-migrants had completed university in the 1990 and 2000 data, but this was no

longer the case for the 2010 data. This suggests that American emigrants to Mexico are

becoming less educated, and the logistic regression results confirm this idea. In 2010, a

university education makes one less likely to emigrate.

Neoliberal globalization policies increased migration from the United States to Mexico,

but this migrant group was not homogeneous. Neoliberal globalization increased the prosperity

of the Mexican economy temporarily. More-skilled migrants were attracted by the economic

prosperity under neoliberalism. When this declined, more-skilled migrants were less attracted to

Mexico, due to fewer employment opportunities in these sectors. The hopeful policies of

neoliberal globalization for development eventually failed to bring the long-term prosperity to

the increasingly integrated U.S. and Mexican economies and the GEC was the final push.

CONCLUSION

This investigation into the educational selectivity of American emigrants to Mexico during the rise and fall of neoliberal globalization adopts the dual-flow model (Mullan & Ayala, 2015): an expansion flow during the rise of neoliberal globalization in North America, accelerated by the signing of NAFTA, and an austerity flow when economic austerity was the policy in the United States. The expansion flows and austerity flows provide evidence to why emigration from the United States existed at such levels and adds understanding to who chooses to migrate. But this migration is also a signal of changes in Mexico. Neoliberal globalization and development may have changed the status of Mexico as a migrant sending state. And though Mexico remains a country of emigration, its rising level of immigration cannot be ignored.

Migration and development have often been linked through migration transition theories. These theories see migration as an intrinsic part of the development process, and more generally in the process of social transformation and globalization (Castles et al., 2014; Mullan & Doña-Reveco, 2013). Both sides of migration have an important relationship with the development process. In viewing the Zelinsky model, Castles and colleagues (2014) note that "as industrialization proceeds, labor supply declines and wage levels rise; as a result, emigration falls and *immigration increases*" (p. 47; emphasis added). Development leads to increased immigration and reduced emigration.

From this study of American emigration, it appears that Mexico has reached the stage of increasing immigration. Net migration is approaching and projected to approach zero (United Nations, 2014). This atypical flow of migration from the United States to Mexico is indicative of a change in the position of Mexico has solely a migrant sending state. Migration scholars must

pay close attention to the development of Mexico and the implications that has for Mexico in attracting migrants and the U.S. in the loss of human capital to its southern neighbor. The continued rise in the number of Americans in Mexico should be of interest to policymakers in the United States. This growing group of Americans living abroad needs future study with other data sources. While this study using census data shows that the population of Americans moving to Mexico is not homogeneous, surveys and ethnography will provide much more detail into the diversity and characteristics of American emigrants.

Migration scholars must pay attention to changes in the North American migration system. The U.S.-Mexican border is not traversed uni-directionally. American citizens continue to leave the United States for a multiplicity of reasons. This flow of migration from the U.S., to Mexico and elsewhere, is of the utmost importance for policymakers. Additional research is needed on which Americans emigrate, where they go, and why they leave. The expansion and austerity flows of Americans to Mexico may be an anomaly or it may evidence of a larger trend in emigration from the United States.

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[1] *American* refers to those born in the United States of America.
[2] Probability weights were applied for all data used in descriptive statistics and analyses. Weights were applied using the pweight commands in Stata 12. This is used for sampling weights, which are weights that denote the inverse of the probability that the observation is included because of the sampling design (StataCorp, 2011). The data was declared as survey data in the software using the svyset command and analyzed as such using the svy command. The data was organized with primary sampling units (PSUs) and clusters. The 1990 Mexican Census uses an expansion factor of 10 (flat weight) while other censuses used in this study use variable weights. Weights were assigned by the census agencies to adjust for true population characteristics.
[3] PUMS are 10% sample from 1990 and 2010 Mexican Census and 10.6% from 2000 Mexican Census.
[4] PUMS weights were automatically adjusted to reflect sample density by IPUMS-International during the data extract creation process.

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