

The Globalization of Economic Production and International Migration:
An Empirical Analysis of Undocumented Mexican Migration to the United States

Abstract

This paper investigates the relationship between the globalization of economic production and international migration by focusing on the U.S.-Mexico border region. We describe undocumented Mexican migration to the U.S. in the context of global economic restructuring, and review two structural theoretical explanations of international migration. We use retrospective data gathered from the Mexican Migration Project and two quantitative modeling techniques to test for whether FDI in the Mexican manufacturing sector predicts the probability of having migrated to the U.S. without documents in the previous five years. We disaggregate the analyses by gender in order to examine how the estimates vary for males and females. The analyses reveal that higher levels of manufacturing sector FDI in border communities are associated with lower probabilities of undocumented migration. However, this effect better predicts the probability of undocumented migration for males. The findings are discussed in the context of previous research and directions for future research are elaborated.

Introduction

Movements of capital and labor across national boundaries are integral to the historical process of globalization. Over the past thirty years in particular, globalization has been characterized by both the geographic dispersal of economic production into less-developed countries (LDCs) (Dicken 2006; Held et al. 1999) and an increase in the prevalence of international migration from LDCs (Castles and Miller 2003). Underlying the global dispersal of economic production are marked increases in the scope and scale

of foreign direct investment (FDI) by transnational corporations (TNCs) (Stallings 2007; UNCTAD 1993). These macrostructural changes are contended to influence the prevalence of international migration patterns in LDCs (UN 2006; UNCTAD 1996; WB 2006). Yet relatively little empirical evidence is brought to bear on the question of whether, or how, the global dispersal of economic production impacts migration patterns in LDCs.

The Mexican border region provides an opportunity to investigate this question. Economic restructuring has resulted in substantial inflows of FDI and dramatic increases in export manufacturing operations in Mexican border communities. The expansion of FDI-fueled export manufacturing operations has in turn generated large internal flows of migrants to Mexican border communities. There is continuing debate, however, over whether the expansion of manufacturing production in Mexican border communities increases or decreases the prevalence of migration to the U.S.

This paper addresses the larger question of the relationship between the globalization of economic production and international migration by examining undocumented international migration from Mexican border communities to the United States. We are primarily interested in undocumented Mexican migration because it represents the largest share of Mexican migration to the U.S. (Passel 2006). However, disaggregating the study of migration is also justified on empirical grounds, as previous research reports qualitative differences between documented and undocumented Mexican migration to the U.S. (Massey, Durand, and Malone 2002).

The analysis advances previous empirical efforts specifically in three respects. First, it explicitly tests the efficacy of manufacturing sector FDI in the border region as an

explanation of migration after controlling for the effects of other important individual and community structural-level variables. Second, it employs a modeling strategy that investigates the degree to which the findings differ according to gender. The analysis also utilizes a dataset with expanded geographical coverage of Mexican communities, employs a broader time horizon than previous studies, and empirically assesses the robustness of estimates by applying two different quantitative modeling techniques.

We begin by describing undocumented Mexican immigration to the U.S. and the relationship between foreign investment and industrialization along the U.S.- Mexico border. We review two competing structural theories of international migration, and discuss previous research on the relationship between border industrialization and Mexican migration. We then conduct a series of multivariate statistical analyses to assess the relationship between the density of FDI in manufacturing operations and the prevalence of undocumented migration to the U.S. across community types and gender. We discuss the findings in the context of previous research in this area, and suggest opportunities for future research.

Undocumented Mexican Migration to the U.S.

Migration from Mexico to the U.S. is the largest sustained flow of migration in the world (Castles and Miller 2003; Massey et al. 2005). Undocumented migration grew after the cancellation of the Bracero Program in 1964 and the subsequent implementation of policies that criminalized a large portion of Mexican migration (Massey, Durand, and Malone 2002). Undocumented Mexican migration continued to increase throughout the 1990s, climaxed in 1999, and declined slightly after 2001, although it remains above the

early-1990s levels (Passel and Suro 2005). Between 2001 and 2005, an estimated 1.5 million undocumented Mexicans entered the U.S.

Undocumented migration now dominates the flow of Mexican migrants to the U.S., representing an estimated 80-85 percent of the total flow, and Mexicans are the largest contingent of undocumented migrants in the U.S., comprising 56 percent, or 6.2 million, of the estimated 11 million undocumented migrants (Passel 2006). The majority of undocumented migrants currently in the U.S. entered after the implementation of the North American Free Trade Agreement NAFTA in 1994 (Passel 2006), although historically, Mexican migration to the U.S. has been similarly influenced by other measures of economic integration (Massey 1987).

Indeed, Mexican migration to the U.S. is a consequence of the economic integration of the two countries, the scale and scope of which was increased in latter half of the 20th century as a result of a series of economic policy initiatives designed to facilitate economic development (Massey, Durand, and Malone 2002; Portes and Bach 1985; Portes and Rumbaut 1996). These initiatives have integrated Mexico into the larger global political-economic context as a major exporter of manufactured goods. Mexico's increased involvement in the global political-economic context has, in turn, impacted the patterns of undocumented Mexican migration (Fernandez-Kelly and Massey 2007).

Mexico and the Globalization of Economic Production

The Bracero program (1942-1964) was designed to counteract labor shortfalls in the agricultural sector as a result of the U.S. war effort (Massey, Durand, and Malone 2002). The program brought nearly 5 million Mexicans to the U.S. as temporary guest

workers between 1942 and 1964 (Massey, Durand, and Malone 2002: 39). The program also stimulated significant Mexican migration to the U.S.-Mexico border region, where labor contractors selected migrants for work in the U.S. (Martin 1992).

The U.S. cancelled the Bracero program in 1964, creating a large unemployed population in border communities (Esparza, Waldorf, and Chavez 2004). Mexico subsequently initiated the Border Industrialization Program (BIP) in 1965 in large part to alleviate unemployment among former *braceros*. The BIP was designed to generate manufacturing employment in export-production plants known as *maquiladora* or *maquilas* (Sklair 1993). In order to finance the expansion of export production, the BIP allowed 100 percent foreign ownership of assembly plants located within 20 kilometers of the U.S.-Mexico border (Martin 1992).

In general, maquilas import duty-free components, assemble these components into finished products, and then export the finished products. Finished products are exported primarily to the United States, which only taxes the value-added, in this case labor, in the process of production (Delgado Wise and Cypher 2007).

Since the BIP, Mexico has become a member of NAFTA and has implemented a broad set of neoliberal economic reforms designed to move the domestic economy away from an import substitution platform toward an export-oriented platform for industrialization (Middlebrook and Zepeda 2003). A significant portion of the state sector has been privatized and deregulated, financial markets have been liberalized, and Mexico has become increasingly open toward the global economy (Middlebrook and Zepeda 2003; Pastor Jr. and Wise 1998).

Economic restructuring and NAFTA also entailed the relaxation of restrictions on foreign direct investment (FDI) (Middlebrook and Zepeda 2003). As a result, the influence and importance of FDI in the domestic economy has increased substantially (Mattar, Moreno-Brid, and Peres 2003). In 1990, the stock of FDI equaled 8.3 percent of GDP; in 2005, it equaled 27.3 percent of GDP (UNCTAD 2006). The influx of FDI has transferred a significant portion of ownership, or control, over domestic economic operations to foreign corporations. In 1997, 130 (26 percent) of the largest 500 corporations in Mexico were foreign owned (Butler, Pick, and Hettrick 2001). The U.S. is the primary source of FDI, representing 83 percent of total inflows in 2000, and accounting for roughly 60 percent of total FDI inflows between 1981 and 2000 (Mattar, Moreno-Brid, and Peres 2003), and 70 percent of foreign-owned firms (Butler, Pick, and Hettrick 2001).

The manufacturing sector of the economy has received approximately 50 percent of the total annual FDI inflows since 1994 (UNCTAD 2006). It is estimated that maquilas alone receive approximately 25 percent of total FDI in Mexico (Twomey 1993). As a result, maquilas have become an important component of the Mexican economy, representing approximately 2 percent of GDP, 14 percent of total manufacturing production, 24 percent of total imports, 39 percent of total exports, and employing over 1 million Mexicans (Butler, Pick, and Hettrick 2001).

Maquila production, and therefore FDI in the manufacturing sector, is particularly concentrated along the U.S.-Mexico border (Butler, Pick, and Hettrick 2001; Kopinak 1996; Nunez 1990; Peters 2003; Sklair 1993; Twomey 1993). The expansion in maquila export production has generated rapid population growth in the border region (Fullerton

Jr. 2003; Sklair 1993; Young and Fort 1994). Between 1950 and 2000, population in the Mexican border region increased 677 percent, from 868,000 to 5.9 million (Anderson 2003). By 1995, one in every six Mexicans lived in the border region (Peach and Williams 2003).

Although it has attracted a large and growing population in the border region, there is still considerable uncertainty regarding whether FDI inflows along the U.S.-Mexico border inhibits or promotes undocumented Mexican migration to the U.S. The need for research in this area has been expressed repeatedly over the past three decades (Fernandez-Kelly 1983; Kopinak 2005; Martin 1992).

Theoretical Framework

Structural explanations regarding the relationship between FDI and migration include opposing arguments grounded in neoclassical economic theory and political economy theory. In general, neoclassical economic theory contends that FDI should reduce migration by decreasing both the influence of ‘push’ and ‘pull’ factors.

On the push side, FDI should directly and indirectly generate employment, and employment should decrease the necessity of migrating abroad in search of work. FDI directly generates employment by hiring labor into production operations (Sauvant, Mallampally, and Economou 1993). FDI indirectly generates employment through forward and backward linkages with the domestic economy. For example, the manufacturing operations funded by FDI may contract for supplies with local businesses (backward linkages) and sell its products to consumers locally (forward linkages), both of which should expand the local economy, generate additional employment, and further reduce the need to migrate abroad (UNCTAD 1996).

On the pull side, neoclassical economic theory contends that FDI should increase wage levels in the host country, both directly and indirectly, and therefore decrease the wage differentials between countries over time (Sauvant, Mallampally, and Economou 1993). Migrants move abroad in part to take advantage of the difference in wage levels between countries (Borjas 1989). FDI should effectively raise productivity in the host country, and rising levels of productivity should yield rising wages. Rising wages in the host country should diminish the wage differential between countries, reducing an important impetus to migrate abroad.

Neoclassical economic theory thus predicts that manufacturing sector FDI will be associated with lower levels of undocumented Mexican migration to the U.S. The deterrent effect of manufacturing sector FDI should be strongest for individuals in border communities because manufacturing sector FDI is particularly concentrated there. Because males and females are presumed to be rational, utility-maximizing individuals, the deterrent effect of manufacturing sector FDI should hold for both males and females.

While both political economy theory and neoclassical economic theory posit that FDI in the export manufacturing sector tends to expand employment, political economy theory contends that it is necessary to view the effects of FDI in the larger context of economic development (Sassen 1988). In this respect, political economy theory generally argues that FDI increases international migration levels for two related reasons. First, FDI has mobilizing effects on the population that make migration likely (Sassen 1988). In particular, FDI disrupts “traditional work structures,” which in turn increases migration levels (Sassen 1988: p. 97). Development often displaces large segments of the population from rural areas (Massey 1988), which in turn generates large rural-urban

migration streams and the problem of overurbanization (London 1986; 1987; London and Smith 1988; Timberlake and Kentor 1983). Thus, rising employment in the export manufacturing sector is not often sufficient to absorb the large population of laborers that is displaced by economic development.

In addition, FDI in the export manufacturing sector exacerbates the problem of displacement because it tends to incorporate new segments of the population into the labor force, particularly female labor, which is considered to be more amenable to the type of work characterized by export manufacturing (Braunstein 2006; Fernandez-Kelly 1983; Salzinger 2003; Sassen 1988; Tiano 1994; UNFPA 2006; Young and Fort 1994). Thus, the disruptive effects of foreign investment on traditional work structures are twofold: “young men are left without mates and partners, (and) the households are left without a key labor factor” (Sassen 1988: p. 97). Without viable employment opportunities in the industrializing urban areas, displaced males, which are more likely to migrate abroad to begin with (Massey et al. 2005), are therefore further compelled to search for work abroad.

Second, concomitant with the breakdown of traditional work structures, FDI promotes migration abroad by creating cultural-ideological linkages with the source country (Sassen 1988). FDI has a long recognized westernizing effect on inhabitants in receiving countries:

“These workers are using their labor power in the production of goods or services demanded by people and firms in the U.S. or any other highly developed country. The distance between a job in the off-shore plant or office and in the on-shore plant or office is subjectively reduced. Under

these conditions emigration may begin to emerge as an option actually felt by individuals” (Sassen 1988: p. 19-20).

These cultural, or ideological, linkages connect the relatively small portion of the populace that works in foreign investment-sponsored facilities to developed countries. However, the effects of such linkages on emigration are broader, as such individuals also create a “linkage for potential migrants” through social networks (Sassen 1988: p. 20). Thus, political economy theory contends that FDI is critically important for understanding international migration from developing countries: “In an ‘isolated’ country, that is one lacking extensive direct foreign investment, emigration would be quite unlikely to emerge as an option” (Sassen 1988: p. 20).

Political economy theory thus hypothesizes that manufacturing sector FDI will be associated with higher levels of undocumented Mexican migration to the U.S. The stimulating effect of manufacturing sector FDI should be strongest for individuals in border communities because manufacturing sector FDI is particularly concentrated there.

The effects of FDI should be similar for males and females, but for different reasons. Females should be particularly influenced by the effect of manufacturing sector FDI because they are more prevalent in the export manufacturing sector. Females in border communities are therefore expected to have higher probabilities of undocumented migration than females in non-border communities. Manufacturing sector FDI is also expected to be positively associated with the probability of undocumented migration for males in border communities. Because manufacturing sector FDI has historically employed a larger share of females, it is expected to crowd out males from the labor

market while disrupting traditional work structures, both of which should increase the probability of making an undocumented migration to the U.S. for males.

Previous Research

While previous investigations are relatively scant, they generally find support for neoclassical economic theory. On a macrostructural level, there is some empirical evidence that FDI in export manufacturing is associated with lower levels of emigration from LDCs. Specifically, FDI stocks in the secondary sector of the host economy, which includes manufacturing production, were associated with lower levels of net emigration over a series of ten-year time spans in a cross-national analysis of 61 LDCs, although the finding was not strictly statistically significant (Sanderson and Kentor 2006).

The negative effect of FDI in the manufacturing sector on emigration is supported in analyses of Mexican migration situated at lower levels of analysis and using a variety of methods. A survey analysis of 739 maquila workers in Mexican border cities reported that there were no significant differences between maquila workers and non-maquila workers in their propensity to migrate to the U.S., and only 3 percent of maquila workers said they would consider quitting their job to migrate to the U.S. (Seligson and Williams 1981). A more recent survey analysis indicated that 85 percent of maquila workers had no desire to migrate to the U.S. and only 21 percent preferred a job in the U.S. (Carrillo Huerta 1991). Employment in maquilas is also associated with lower levels of INS apprehension rates with a one-month lag, which suggests that maquilas lower the rate of undocumented migration to the U.S. (Davila and Saenz 1990).

Perhaps the most direct assessment of the relationship between FDI and Mexican emigration is Massey and Espinosa's (1997) analysis. They found that the annual growth

rate of FDI in Mexico was negatively related with the probability of first or repeat migrations to the U.S. Data constraints, however, prohibited a more specific analysis of how the effects of FDI vary across regions or community types in Mexico (Massey et al. 2005: 93).

These findings are contradicted, however, by studies that either argue or demonstrate that maquilas are associated with a tendency toward higher levels of emigration to the U.S. Maquilas are contended to be part of a ‘stepwise’ incremental migration process (Conway 1980) in which rural inhabitants migrate to the to industrialized regions in order to accumulate the financial and social resources necessary to undertake future migrations abroad. Specifically, it is argued that rural Mexicans form expectations about employment opportunities in maquilas, but because maquilas are not able to provide employment for all of those displaced from the rural interior, migrants use the border region to generate resources to continue their migrations into the U.S. (Rivera-Batiz 1986). Similarly, a survey analysis of migrants in California and the Mexican state of Baja California reports that migrants employed in export production in northern Mexico, which is ostensibly financed through significant portions of FDI, increased the prevalence of emigration to the U.S. (Zabin and Hughes 1995). Subsequent surveys of Mexican migrants in California found that employment in export production reduced the costs and risks associated with moving to the U.S., which turned such employment into a “staging ground” for U.S. migration from the southern state of Oaxaca (Zabin and Hughes 1995: 416).

Methods and Data

The analysis uses secondary data from the Mexican Migration Project (MMP). The MMP is a publicly available dataset derived from a collaborative research project based at Princeton University and the University of Guadalajara in Mexico. The MMP includes household surveys from 107 communities in Mexico over the period, 1982-2004. The most recent update of the dataset includes surveys of inhabitants situated in the border region, which allows comparisons of migration patterns among border and interior communities. Data are collected on 150-200 households in each community, and households are selected randomly from a census of each community. Data on social, economic, and demographic characteristics are collected on all members of the household. In addition, the MMP includes limited data on community characteristics at the time of the survey. While the MMP purposively samples communities in primary sending regions of Mexico, systematic comparison between the MMP and a nationally-representative survey of the Mexican population found that the MMP data are generally representative of the Mexican population (Massey and Zenteno 2000).

The analyses predict the *probability of having made an undocumented migration to the U.S. in the previous five years*. The dependent variable has two categories: made an undocumented migration to the U.S.; did not make an undocumented migration to the U.S. The analyses are limited to migration patterns in the previous five years in order to ensure a reasonable time span between the independent and dependent variables.

The independent variable of primary theoretical interest is FDI in the manufacturing sector. These data are not collected as part of the MMP. The MMP does, however, collect information on the *number of manufacturing operations in the municipality*. Because FDI in maquila operations is concentrated particularly along the

border (Butler, Pick, and Hettrick 2001; Kopinak 1996; Nunez 1990; Peters 2003; Sklair 1993; Twomey 1993), this variable is theoretically appropriate as a proxy measure for the influence of FDI on migration patterns.

However, to further ensure that the number of manufacturing operations is an adequate proxy measure of the effect of FDI, we correlated the stock of FDI in the secondary sector (FDISEC) with the total number of manufacturing operations (ln) in communities surveyed for each year (FACTORY). FDISEC and FACTORY were highly correlated ($r = 0.82$).

To test for whether other theoretically-relevant variables included in the analysis may explain FDISEC independently of FACTORY, we then regressed FDISEC on FACTORY and controlled for community type (border, urban interior, rural interior) and a time trend (analysis not shown). The results indicated that FACTORY was positively associated ($p < .001$) with FDISEC, but neither border ($p = .49$) nor urban interior ($p = .70$) community types (rural interior = reference category) explained variation in FDISEC. The effect of FACTORY was also independent of the time trend in FDISEC ($p < .001$). As a result, it is reasonable to conclude that the density of manufacturing operations adequately represents the influence of FDI in the analyses.

In order to test for differences between the effect of FDI in border communities and the effect of FDI in non-border communities, manufacturing production is interacted with an indicator for the community type (urban interior community and border community). Border communities are defined as communities situated in a Mexican state that is geographically contiguous to the U.S. The sample used in the analyses includes border communities in the states of Baja California Norte, Chihuahua, and Nuevo Leon.

Rural interior community is the reference category and is excluded from the analysis.

The number of manufacturing operations is logarithmically transformed to correct for a skewed distribution.

The analyses control for important individual-level characteristics that may influence the probability of migrating to the U.S., including *age*, *years of education* and *marital status*. The tendency to migrate increases with age up to a certain point and then decreases over time (Massey et al. 2005). The analyses controls for this non-linear effect by including a quadratic term for age (*age-squared*) in the model.

It has also been shown that the probability of migrating is strongly influenced by the prevalence of migratory social networks. Persons who have migrated previously to the U.S., or within Mexico, are expected to have expanded their knowledge of the labor market in these areas and to have established contacts that lower the costs and risks of moving in the future (Massey 1990a; 1990b). The ‘network effect’ or the ‘cumulative causation of migration’ has been found to be one of the strongest predictors of Mexican migration (Durand, Massey, and Charvet 2000; Massey 1999; Massey et al. 2005; Massey, Durand, and Malone 2002; Massey and Espinosa 1997).

The analyses control for the ‘network effect’ in three respects. To control for the effect of migratory social capital gained from migratory experience in the U.S., the analyses include a measure of *time spent in the U.S. on previous migrations*. This variable is measured in month units, and is logarithmically transformed to correct for a skewed distribution. To control for the effect of migratory social capital gained from migratory experience within Mexico, the analyses include a measure of *number of domestic migrations*. Finally, the accumulated amount of information gained and the

social networks developed as a result of previous migrations to the U.S. becomes part of the social structure in which potential migrants make decisions about moving (Massey 1987; Portes and Bach 1985). The analyses therefore also include a measure of *community migratory social capital*, measured as the proportion of the community that has migrated to the U.S.

In addition to community migratory social capital, the analyses include two additional terms to control for potentially confounding effects situated in the community structure. The *level of inequality* is contended to increase the probability of emigrating by increasing the sense of relative deprivation in the community (Stark 1991; Stark and Taylor 1989). The analyses control for the effect of relative deprivation in the community by controlling for the level of income inequality in the community. This measure is expressed as the absolute value of the difference between the proportion of the economically active population earning less than the minimum wage and the proportion of the economically active population earning at least twice the minimum wage.

Finally, in analyses that include data gathered over time, it is necessary to control for the influence of a time trend in the dynamic under study (Wooldridge 2006). The analyses therefore include a set of *time indicators* to control for the influence of factors that could alter the trend in migration over time, such as policy changes, natural disasters, and inter-societal conflict among other factors. Specifically, the time indicators represent four important time periods over which the data were collected: the immediate post-IRCA period (1987-1993); the NAFTA period (1994-2000); and the immediate post-September 11 period (2001-2004). The pre-IRCA period (1982-1986) is the reference category and is excluded from the analysis.

The sample is limited to Mexican-born, non-U.S. citizens over 18 years of age who were interviewed in Mexico. Complete information on the variables included in the analyses was available for 67,264 individuals in 95 communities over the time period, 1982-2004.

Modeling Strategies

Estimation Techniques

The analysis utilizes two different quantitative modeling techniques: multivariate logistic regression modeling and generalized hierarchical linear regression (GHLM). Using multiple modeling techniques provides more confidence in the parameter estimates by testing the robustness of the estimates over different modeling techniques. If an estimate is statistically significant in logistic regression models and GHLM models, it is more reasonable to assume that the estimates are not an artifact of a particular modeling strategy than if only one modeling technique was applied.

Logistic regression is an appropriate modeling technique for analyses with a qualitative outcome variable (Chatterjee, Hadi, and Price 2000). For analyses with a dichotomous outcome, logistic regression estimates the probability that the outcome takes one of two values (0 or 1). Using ordinary least squares regression (OLS) to estimate a model with a dichotomous outcome variable results in nonsensical predicted values for the outcome variable (i.e. predicted values above 1 or below 0), and it violates the OLS assumptions of normality and homoskedasticity (Pampel 2000).

The general model for the logistic regression analysis is expressed in Eq. (1):

$$\pi = \ln[P_i / (1-P_i)] = \beta_0 + \beta_1 x_i + B_k x_i + e_i$$

where π is the log-odds of person i migrating to the United States from Mexico, x_i is a vector of variables describing person i , and e is the residual, or error term, for person i .

Logistic regression, however, may result in inaccurate estimates when the data are clustered, or nested, in design. Data are clustered when lower-level units are nested within higher-level units. For example, the MMP data include information on individuals nested within communities. These data are measured at two levels of analysis: the individual-level; and the community-level. Clustered, or multilevel, data are likely to exhibit correlated error structures because the units are not completely independent (Raudenbush and Bryk 2002). That is, individuals in a particular context are likely to share characteristics because they share the same social context (Hox and Kreft 1994). This similarity among individuals within a particular context results in increased standard errors in regression coefficients from an OLS regression analysis, making Type I errors of inference more likely (Guo and Zhao 2000; Hox and Kreft 1994). GHLM relaxes the assumption of independence by allowing more complex error structures, which provides less biased estimates of parameters and more accurate standard errors (Guo and Zhao 2000). In this respect, hierarchical linear models are an advancement over traditional OLS regression models for clustered data because they are able to model the dependence of observations in the data rather than treat the dependence as a problem to be avoided (Diprete and Forristal 1994; Gelman and Hill 2007; Snijders and Bosker 1999).

The general model for the GHLM analysis is expressed in Eq. (1) and Eq. (2). At the individual level (level 1):

$$\ln [P_{ij}/(1-P_{ij})] = \beta_{0j} + \sum \beta_k x_{ijka} + r_{ij} \quad (1)$$

where $\ln [p_{ij}/(1-p_{ij})]$ is the log-odds of person i in community j migrating to the United States from Mexico, x_{ija} is a vector of j individual-level variables describing person i in community a , and r_{ij} is the residual, or error term, for person i in community j .

The individual-level intercepts (β_{0j}) are then modeled at the community-level (level 2):

$$\beta_{0j} = \gamma_{00} + \sum \beta_k z_{ma} + u_{0j} \quad (2)$$

where γ_{00} is the grand overall mean solution for the equation, z_{ma} is a vector of m community-level variables describing community a , and u_{0j} is the residual, or error term, for community j . Conceptually, each community's mean probability of migrating to the U.S. is predicted by a vector of community level factors and a random error term associated with each community.

Because the models include a large number of level-2 units, we estimate the coefficients using GHLM with robust standard errors (Raudenbush and Bryk 2002). This strategy provides more confidence in the estimates because it ensures that estimates are less dependent on the distribution of the random effects at level 1 or level 2 (Gelman and Hill 2007).

The Gendered Nature of Mexican Migration

In addition to employing two different modeling techniques, the analyses explicitly account for the influence of gender on migration patterns. Men and women are embedded in social contexts differently, and as a consequence, their roles, responsibilities, interactions and relations to power are quite different (West and Zimmerman 1987). Thus, the effects of both individual and structural factors on migration patterns are likely to differ by gender (Curran and Rivero-Fuentes 2003;

Morokvasic 1984; Pedraza 1991; Zlotnik 1995). However, despite the importance of gender for understanding migration patterns, few studies explicitly incorporate gender into an empirical analysis of migration (Curran et al. 2006). Indeed, the relatively few studies that do account for the gendered nature of migration only include gender as a control variable, and do not include separate models for males and females (Cerrutti and Massey 2001; Kanaiaupuni 2000).

The analyses presented here address the deficiencies of previous migration analyses in two respects. First, the sample is extended beyond household heads, which are often males, to include all household members. This strategy ameliorates the “male bias” inherent in previous migration studies that results from the tendency to only interview men (Pessar 2003). Second, the investigation includes two related analyses for each modeling technique. These analyses are differentiated by how each treats the effect of gender on migration. One set of models assesses the probability of having migrated to the U.S. in the previous five years for both males and females. These models control for the effect of gender by including a gender term (“male”) in the models. The purpose of these models is to test for whether manufacturing sector FDI in the border region predicts the probability of undocumented migration to the U.S. independently of any effect of gender. The second set of models decomposes the dependent variable by gender and then models the probability of having migrated to the U.S. in the previous five years for males and females separately. The purpose of these models is to test for whether, and how, manufacturing sector FDI in the border region affects male and female migration patterns differently.

Sample Characteristics

Table 1 presents descriptive statistics for the sample used in the logistic regression analysis. The descriptive statistics are organized by community type in order to describe the characteristics of the three different community types included in the analysis. In general, the different community types are similar with respect to gender composition, mean age and mean percentage of individuals who have never married. Communities in the border region, however, have higher average levels of education (8.9 years) compared to individuals in urban interior (7.3 years) and rural interior (5.9 years) communities. Notably, individuals in the border region exhibit lower levels of undocumented migratory experience on each measure of undocumented migration. Individuals in the border region have: lower levels of U.S. migratory experience (9.6 months) compared to individuals in urban interior (9.9 months) and rural interior (14.6 months) communities; lower levels of previous migrations (.14) than individuals in urban interior (.30) and rural interior (.46) communities; and a lower percentage had made an undocumented migration to the U.S. in the previous five years (1.7) compared to urban interior (7.0) and rural interior (11.0) communities. It is also worth noting that the prevalence of domestic, or internal, migrations is similar across community types, which suggests that internal migration patterns do not differ significantly across communities.

TABLE 1 ABOUT HERE

Results

In general, the estimates are robust across modeling techniques. Thus, we discuss most of the findings without referring to a particular modeling technique, while noting when estimates differ substantively across modeling techniques. Where estimates do differ across techniques, the difference is most often in the estimation of the standard

error for the coefficient, and not in the coefficient estimate. More specifically, the logistic regression estimates underestimate the standard errors for some of the coefficients compared to the standard errors produced by the GHLM regression. This is to be expected when using GHLM with robust standard errors, which provides more conservative estimates of the regression coefficients (Raudenbush and Bryk 2002).

Pooled Gender Analyses

Table 2 presents results from the logistic regression analysis that predicts the probability of migrating to the U.S. for both males and females and table 4 presents the results from the GHLM analysis. Model 1 only includes individual level predictors. As is reported in previous studies (Massey 1987; Massey and Espinosa 1997), the findings here reveal that undocumented migrants are more likely to be male, young, and less educated.

TABLES 2 AND 4 ABOUT HERE

Males are approximately four times as likely as females to have made an undocumented migration in the previous five years (calculated as $[e^B]$). The probability of making an undocumented trip decreases with age in a non-linear manner. As individuals age, the probability of migration decreases, but this effect weakens at older ages. Higher levels of education are associated with lower probabilities of having migrated to the U.S. without documents in the previous five years.

Similarly, being single is also associated with a lower probability of migrating to the U.S. without documents. While being single has been shown to increase the likelihood of making an undocumented migration (Massey and Espinosa 1997), the effect

of marital status may differ across genders. We examine this in the subsequent gender-decomposed models.

It appears that the effect of migratory social capital gained from previous migrations differs depending on the type of migration. Previous migrations to the U.S. positively influence the probability of having migrated without documents to the U.S. This finding supports the cumulative causation theory of migration. More time spent in the U.S. on previous migrations likely enables the migrant to establish and develop social resources that reduce the cost and risk of migrating, therefore making subsequent migrations more likely. The results indicate that previous migrations within Mexico, however, do not have an effect on the probability of having migrated to the U.S. without documents. It appears that domestic migrations do not generate the type of social networks that promote undocumented migrations to the U.S.

The time trend indicators provide evidence to suggest that, compared to the pre-IRCA period (1987), the probability of making an undocumented migration to the U.S. was higher in the 1990s, but then decreased between 2001 and 2004. These findings are consistent with Passel and Suro's (2005) description of undocumented migration after IRCA in 1986. The coefficients for these indicators, however, are not consistent predictors of undocumented migration across the models.

Model 2 includes community structure variables in addition to the individual level variables. The results indicate that migration patterns differ across community types. In general, individuals in rural interior communities are more likely to have made an undocumented migration to the U.S. than individuals in the border region or urban interior communities. The border context exerts a strong negative effect on

undocumented migration probabilities: individuals located in the border region are only 29 percent as likely as individuals located in rural interior communities to have made an undocumented migration to the U.S. Urban interior communities are also associated with lower undocumented migration probabilities, although the effect is weaker compared to border communities.

The results provide support for neoclassical economic explanation of the relationship between the prevalence of manufacturing sector FDI and migration patterns. The probability of having made an undocumented migration to the U.S. is lower in communities where manufacturing sector FDI is more prevalent, regardless of the type of community in which the operations are located.

The results provide evidence that the density of social networks at the community level is positively associated with undocumented migration to the U.S., as the probability of migrating to the U.S. for an individual is much higher in communities where a larger proportion of the community has migrated to the U.S. This finding is consistent with previous studies (Massey and Espinosa 1997), which report that the cumulative causation theory of migration is a robust explanation of migration at a variety of levels of analysis.

We find marginal evidence that the aggregate level of inequality in a community is associated with undocumented migration. Both the logistic and GHLM models indicate that higher levels of inequality in the community are associated with higher probabilities of having made an undocumented migration. The relationship, however, is not statistically significant in the GHLM analysis.

In order to examine whether the effects of manufacturing sector FDI differ across community types, model 3 includes interaction terms for community type and the number

of manufacturing operations. Figure 1 presents a graphical depiction of the interaction. The figure illustrates how the pattern of the interaction varies across different levels of the other independent variables. A covariate contribution index was created that represents the composite influence of all the other covariates in the model. We indicate the level of this index at the 25th, 50th and 75th percentiles in the figure.

FIGURE 1 ABOUT HERE

The results are consistent with neoclassical economic theory. Compared to the level of manufacturing sector FDI in rural interior communities, manufacturing sector FDI in border communities is associated with lower probabilities of having made an undocumented migration to the U.S. The main effect for border community (border community) indicates that the probability of having migrated to the U.S. is higher in border communities *without* manufacturing operations. This finding further underscores the importance of manufacturing sector FDI in deterring undocumented migration to the U.S. from border communities. The density of manufacturing sector FDI is also associated with lower probabilities of undocumented migration in rural areas. However, we do not find evidence that the effect of manufacturing sector FDI in urban interior communities is statistically different from the effect of manufacturing sector FDI in rural interior communities.

Gender-Decomposed Analysis

Various theories of migration suggest that migration patterns are differentiated by gender. Thus, we decompose the dependent variable by gender and re-estimate the models for males and females separately. Table 3 presents results from the logistic

regression analysis that predicts the probability of migrating to the U.S. for males and females separately and table 5 presents the results from the GHLM analysis.

TABLES 3 AND 5 ABOUT HERE

Models 4 and 7 only include individual-level predictors. The results indicate some significant differences in the predictors compared to the pooled gender analysis. The probability of migrating decreases with age, but the negative effect of age diminishes only at higher ages only for males. We do not find evidence of a non-linear effect of age on migration for females. Education also has a negative effect on the probability of undocumented migration, but this effect is consistent only for males. The results indicate that marital status is only a significant predictor of undocumented migration for females. However, the effects of migratory social capital were consistent across models, modeling techniques, and gender. For both males and females, higher levels of U.S. migratory social capital increase the probability of having made an undocumented migration to the U.S. Domestic migratory social capital does not seem to be related to the probability of undocumented migration for either males or females.

Models 5 and 8 include community structural predictors in addition to the individual level predictors. The effects of manufacturing sector FDI and community type are similar across genders, but the estimates are not consistently significant across modeling techniques. The density of manufacturing sector FDI is negatively associated with undocumented migration probabilities for both males and females. This effect, however, is only consistent across modeling techniques for males. The results provide evidence that individuals in the border region have lower probabilities of undocumented migration than those in rural interior communities. This relationship holds for both males

and females and is significant across modeling techniques. Individuals in urban interior communities are also less likely than those in rural interior communities to have made an undocumented migration to the U.S., but this effect is only significant in the logistic regression analysis.

Community migratory social capital again has a strong positive relationship with undocumented migration probabilities for both males and females. This effect is consistent across modeling techniques and holds for both the pooled gender analysis and the gender-decomposed analysis.

The evidence for the impact of inequality is more mixed. It appears that higher aggregate levels of inequality are associated with higher probabilities of undocumented migration for males only. Inequality does not have an effect on the probability of undocumented migration for females. The relationship between inequality and undocumented migration for males, however, is not consistent across modeling techniques.

Models 6 and 9 include interaction terms for manufacturing operations and community type in order to identify whether the effect of manufacturing sector FDI on migration differs by community type for males and females. The findings suggest that, compared to manufacturing sector FDI in rural interior communities, manufacturing sector FDI in border communities is associated with lower undocumented migration probabilities only for males. Manufacturing sector FDI in border communities does not predict the likelihood of undocumented migration for females. This relationship is consistent across modeling techniques, and is consistent with neoclassical economic theory.

We do not find evidence that the relationship between manufacturing sector FDI and undocumented migration is different between urban interior areas and rural interior areas for either males or females. The results provide only marginal evidence that manufacturing sector FDI in rural interior communities is associated with lower undocumented migration probabilities. This relationship is significant for both males and females in the logistic regression analysis, but is not significant in the GHLM analysis.

Discussion and Conclusion

This study examines the broader relationship between economic globalization and international migration by investigating the relationship between manufacturing sector FDI in border communities and undocumented Mexican migration to the U.S. The most important finding of the multivariate analyses is that, overall, manufacturing sector FDI in border communities is associated with lower levels of undocumented migration to the U.S. However, when the analysis is disaggregated by gender, the findings suggest that the relationship between manufacturing sector FDI and undocumented migration only holds for males. Manufacturing sector FDI in border communities does not predict the probability of undocumented migration to the U.S. for females. These findings are consistent across logistic regression and generalized hierarchical linear regression modeling techniques.

The findings are also generally consistent with previous research on Mexican migration (Carrillo Huerta 1991; Massey and Espinosa 1997; Seligson and Williams 1981) and lend further credence to neoclassical economic explanations of international migration, at least as they pertain to the case of Mexican migration. Similarly, the findings are also supported by a pilot study carried out by one of the authors in June

2007. Interviews of maquila workers in two communities in Juarez, Mexico indicated that approximately 70 percent (17/24) of those surveyed were not considering making an undocumented migration to the U.S. These responses were consistent across age, gender, length of time employed in the maquila, and years lived in Juarez.

The results support the structural neoclassical economic theory of migration. Neoclassical economic theory contends that FDI-financed production operations should lower the level of undocumented migration by expanding employment levels and offering relatively higher wages than domestic operations, both of which should reduce the need to migrate abroad (cf. Sauvart, Mallampally, and Economou 1993). While our data preclude an investigation into the specific mechanisms linking manufacturing sector FDI in the border context to lower levels of undocumented migration, it seems plausible that the employment generated by maquilas along the border, and the higher wage levels associated with these jobs, may indeed serve to reduce the level of undocumented migration to the U.S. Compared to females, males are more often responsible for providing wage income to support the household (Hatton and Williamson 2006; Massey 1987). As a result, males are likely more sensitive than females to changes in employment levels and wage levels both domestically and internationally. Migration patterns reflect this tendency, as males have historically represented a higher percentage of migrants (Castles and Miller 2003; Zlotnik 1995).

While we find evidence to support the structural neoclassical economic explanation of migration, however, our findings suggest that the neoclassical economic explanation of migration could be strengthened by incorporating gender into the conceptual framework. Neoclassical economic theory is effectively blind to the effect of

gender on migration because it treats migration as an outcome of decisions made by homogenous, rational, utility-maximizing individuals (cf. Portes and Borocz 1989; Wood 1982). Yet the impacts of global economic restructuring on migration patterns clearly differ across genders (Ehrenreich and Hochschild 2004; Massey et al. 2005). Incorporating gender into neoclassical economic theory could better illuminate the specific causal mechanisms that impact migration patterns.

We do not find evidence to support the political economic explanation of migration. Higher densities of manufacturing sector FDI were not associated with higher probabilities of undocumented migration for either males or females.

The lack of support for political economic theory, however, may be a result of the particular form of migration examined in this analysis. Females confront a variety of social constraints when making a decision to migrate, including gender socialization and normative expectations (Curran and Rivero-Fuentes 2003; Hondagneu-Sotelo 1994). Similarly, the risks of international migration are perceived to be greater for females because of a “culture of domesticity” (Kanaiaupuni 2000). Thus, while females have been very prevalent in domestic migrations within Mexico, they are less likely than males to migrate internationally (Donato 1993).

As a result, it is likely that Mexican female migration patterns are qualitatively different from Mexican male migration patterns (Curran and Rivero-Fuentes 2003). For example, Mexican females may be more likely to make documented migrations to the U.S. than undocumented trips, following their husbands or male partners who migrated previously (Cerrutti and Massey 2001). If this is the case, then it may be necessary to further disaggregate the analysis of Mexican migration by the type of migration

(documented and undocumented) in addition to gender. While an analysis of this sort was beyond the scope of this paper, the findings reported here suggest that this would certainly be a worthwhile area for future research.

More generally, our analysis of Mexican migration also has implications for the broader relationship between economic globalization and migration. We find evidence that economic globalization does indeed influence international migration from Mexico to the U.S. Specifically, the incorporation of Mexico into the global political-economic context, which has occurred largely through manufacturing sector FDI, is associated with lower probabilities of undocumented male migration from Mexico to the U.S.

Our analysis of undocumented Mexican migration, however, cannot be definitive on the question of whether or not economic globalization, manifested as the dispersal of FDI-financed manufacturing operations, promotes or inhibits emigration in other countries. Indeed, our findings may reflect the idiosyncratic socio-historical nature of Mexico-U.S. political and economic relations. Nevertheless, our analysis does, however, provide evidence to suggest that future cross-national analyses are worthwhile. Such analyses would shed light on the increasingly important questions of whether and how global, macrostructural factors are associated with the rising levels of international migration worldwide.

References

- Anderson, Joan B. 2003. "The U.S.-Mexico Border: A Half-Century of Change." *Social Science Journal* 40:535-554.
- Borjas, George J. 1989. "Economic Theory and International Migration." *International Migration Review* 23:457-485.
- Braunstein, Elissa. 2006. "Foreign Direct Investment, Development and Gender Equity: A Review of Research and Policy " United Nations Research Institute for Social Development
- Butler, Edgar W., James B. Pick, and W. James Hettrick. 2001. *Mexico and Mexico City in the World Economy*. Boulder, CO: Westview Press.
- Carrillo Huerta, Mario M. 1991. "The Impact of Maquiladoras on Migration in Mexico." Pp. 69-102 in *The Effects of Receiving Country Policies on Migration Flows*, edited by S. Diaz-Briquets and S. Weintraub. Boulder, CO: Westview Press.
- Castles, Stephen and Mark J. Miller. 2003. *The Age of Migration, Third Edition*. New York: The Guilford Press.
- Cerrutti, Marcela and Douglas S. Massey. 2001. "On the Auspices of Female Migration from Mexico to the United States." *Demography* 38:187-200.
- Chatterjee, Samprit, Ali S. Hadi, and Bertram Price. 2000. *Regression Analysis By Example, Third Edition*. New York, NY: John Wiley and Sons.
- Conway, Dennis. 1980. "Step-Wise Migration: Toward a Clarification of the Mechanism." *International Migration Review* 14:3-14.
- Curran, Sara R. and Estela Rivero-Fuentes. 2003. "Engendering Migrant Networks: The Case of Mexican Migration." *Demography* 40:289-307.

- Curran, Sara R., Steven Shafer, Katherine M. Donato, and Filiz Garip. 2006. "Mapping Gender and Migration in Sociological Scholarship: Is It Segregation or Integration?" *International Migration Review* 40:199-223.
- Davila, Alberto and Rogelio Saenz. 1990. "The Effect of Maquiladora Employment on the Monthly Flow of Mexican Undocumented Immigration to the U.S., 1978-1982." *International Migration Review* 24:96-107.
- Delgado Wise, Raul and James M. Cypher. 2007. "The Strategic Role of Mexican Labor under NAFTA: Critical Perspectives on Current Economic Integration." *Annals of the American Academy of Political and Social Science* 610:119-142.
- Dicken, Peter. 2006. *Global Shift: Reshaping the Global Economic Map in the 21st Century, Fifth Edition*. New York, NY: Guilford Press.
- Diprete, Thomas A. and Jerry D. Forristal. 1994. "Multilevel Models: Methods and Substance." *Annual Review of Sociology* 20:331-357.
- Donato, Katherine M. 1993. "Current Trends and Patterns of Female Migration: Evidence from Mexico." *International Migration Review* 27:748-771.
- Durand, Jorge, Douglas S. Massey, and Fernando Charvet. 2000. "The Changing Geography of Mexican Immigration to the United States, 1910-1996." *Social Science Quarterly* 81:1-15.
- Ehrenreich, Barbara and Arlie Russell Hochschild. 2004. "Global Woman: Nannies, Maids, and Sex Workers in the New Economy." New York, NY: Metropolitan Books.
- Esparza, Adrian X., Brigitte S. Waldorf, and Javier Chavez. 2004. "Localized Effects of Globalization: The Case of Ciudad Juarez, Chihuahua, Mexico." *Urban Geography* 25:120-138.

- Fernandez-Kelly, Maria Patricia. 1983. *For We are Sold, I and My People: Women and Industry in Mexico's Frontier*. Albany, NY: State University of New York Press.
- Fernandez-Kelly, Maria Patricia and Douglas S. Massey. 2007. "Borders for Whom? The Role of NAFTA in Mexico-U.S. Migration." *Annals of the American Academy of Political and Social Science* 610:98-118.
- Fullerton Jr., Thomas M. 2003. "Recent Trends in Border Economics." *Social Science Journal* 40:583-592.
- Gelman, Andrew and Jennifer Hill. 2007. *Data Analysis Using Regression and Multilevel/Hierarchical Models*. New York, NY: Cambridge University Press.
- Guo, Guang and Hongxin Zhao. 2000. "Multilevel Modeling for Binary Data." *Annual Review of Sociology* 26:441-462.
- Hatton, Timothy J. and Jeffrey G. Williamson. 2006. *Global Migration and the World Economy: Two Centuries of Policy and Performance*. Cambridge, MA: MIT Press.
- Held, David, Anthony McGrew, David Goldblatt, and Jonathan Perraton. 1999. *Global Transformations: Politics, Economics, and Culture*. Stanford, CA: Stanford University Press.
- Hondagneu-Sotelo, Pierrette. 1994. *Gender Transitions: Mexican Experiences of Immigration*. Berkeley, CA: University of California Press.
- Hox, Joop and Ita Kreft. 1994. "Multilevel Analysis Methods." *Sociological Methods and Research* 23:283-299.
- Kanaiaupuni, Shawn Malia. 2000. "Reframing the Migration Question: An Analysis of Men, Women, and Gender in Mexico." *Social Forces* 78:1311-1347.

- Kopinak, Kathryn. 1996. *Desert Capitalism: Maquiladoras in North America's Western Industrial Corridor*. Tuscon, AZ: University of Arizona Press.
- . 2005. "The Relationship Between Employment in Maquiladora Industries in Mexico and Labor Migration to the United States." Center for Comparative Immigration Studies, University of California-San Diego, San Diego, CA.
- London, Bruce. 1986. "Ecological and Political-Economic Analyses of Migration to a Primate City: Bangkok, Thailand ca. 1970." *Urban Affairs Quarterly* 21:501-526.
- . 1987. "Structural Determinants of Third World Urban Change: An Ecological and Political-Economic Analysis." *American Sociological Review* 52:28-43.
- London, Bruce and David A. Smith. 1988. "Urban Bias, Dependence, and Economic Stagnation in Noncore Nations." *American Sociological Review* 53:454-463.
- Martin, Philip. 1992. "Foreign Direct Investment and Migration: The Case of Mexican Maquiladoras." *International Migration* 30:399-422.
- Massey, Douglas S. 1987. *Return to Aztlan: The Social Processes of International Migration from Western Mexico*. Berkeley, CA: University of California Press.
- . 1988. "Economic Development and International Migration in Comparative Perspective." *Population and Development Review* 14:383-413.
- . 1990a. "The Social and Economic Origins of Immigration." *Annals of the American Academy of Political and Social Science* 510:60-72.
- . 1990b. "Social Structure, Household Strategies, and the Cumulative Causation of Migration." *Population Index* 56:3-26.
- . 1999. "Why Does Immigration Occur? A Theoretical Synthesis." Pp. 34-52 in *The Handbook of International Migration: The American Experience*, edited by C.

- Hirschman, P. Kasinitz, and J. DeWind. New York, NY: Russell Sage Foundation.
- Massey, Douglas S., Joaquin Arango, Graeme Hugo, Ali Kouaouchi, Adela Pellegrino, and J. Edward Taylor. 2005. *Worlds in Motion: Understanding International Migration at the End of the Millennium*. Oxford: Clarendon Press.
- Massey, Douglas S., Jorge Durand, and Nolan Malone. 2002. *Beyond Smoke and Mirrors: Mexican Immigration in an Era of Economic Integration*. New York, NY: Russell Sage Foundation.
- Massey, Douglas S. and Kristen E. Espinosa. 1997. "What's Driving Mexico-U.S. Migration? A Theoretical, Empirical, and Policy Analysis." *American Journal of Sociology* 102:939-999.
- Massey, Douglas S. and Rene Zenteno. 2000. "A Validation of the Ethnosurvey: The Case of U.S.-Mexico Migration." *International Migration Review* 34:766-793.
- Mattar, Jorge, Juan Carlos Moreno-Brid, and Wilson Peres. 2003. "Foreign Investment in Mexico after Economic Reform." Pp. 123-162 in *Confronting Development: Assessing Mexico's Economic and Social Policy Challenges*, edited by K. Middlebrook and E. Zepeda. Stanford, CA: Stanford University Press.
- Middlebrook, Kevin and Eduardo Zepeda. 2003. "On the Political Economy of Mexican Development Policy." Pp. 3-54 in *Confronting Development: Assessing Mexico's Economic and Social Policy Challenges*, edited by K. Middlebrook and E. Zepeda. Stanford, CA: Stanford University Press.
- Morokvasic, Mirjana. 1984. "Birds of Passage are also Women." *International Migration Review* 18:886-907.

- Nunez, Wilson Perez. 1990. *Foreign Direct Investment and Industrial Development in Mexico*. Paris: Organization for Economic Cooperation and Development.
- Pampel, Fred C. 2000. *Logistic Regression: A Primer*. Thousand Oaks, CA: Sage.
- Passel, Jeffrey S. 2006. "The Size and Characteristics of the Unauthorized Migrant Population in the U.S.: Estimates Based on the March 2005 Current Population Survey." Pew Hispanic Center, Washington, D.C.
- Passel, Jeffrey S. and Roberto Suro. 2005. "Rise, Peak, and Decline: Trends in U.S. Immigration, 1992-2004." Pew Hispanic Center Washington, D.C.
- Pastor Jr., Manuel and Carol Wise. 1998. "Mexican-Style Neoliberalism: State Policy and Distributional Stress." Pp. 41-81 in *The Post-NAFTA Political Economy: Mexico and the Western Hemisphere*, edited by C. Wise. University Park, PA: Pennsylvania State University Press.
- Peach, James and James Williams. 2003. "Population and Economic Dynamics on the U.S.-Mexico Border: Past, Present, and Future." Pp. 37-74 in *The U.S.-Mexican Border Environment: A Road Map to a Sustainable 2020*, edited by P. Ganster. San Diego, CA: Southwest Consortium for Environmental Research and Policy.
- Pedraza, Silvia. 1991. "Women and Migration: The Social Consequences of Gender." *Annual Review of Sociology* 17:303-325.
- Pessar, Patricia. 2003. "Engendering Migration Studies: The Case of New Immigrants in the United States." Pp. 20-42 in *Gender and U.S. Immigration: Contemporary Trends*, edited by P. Hondagneu-Sotelo. Los Angeles, CA: University of California Press.
- Peters, Enrique Dussel. 2003. "Industrial Policy, Regional Trends, and Structural Change in Mexico's Manufacturing Sector." Pp. 241-276 in *Confronting Development:*

- Assessing Mexico's Economic and Social Policy Challenges*, edited by K. Middlebrook and E. Zepeda. Stanford, CA: Stanford University Press.
- Portes, Alejandro and Robert L. Bach. 1985. *Latin Journey: Cuban and Mexican Immigrants in the United States*. Berkeley, CA: University of California Press.
- Portes, Alejandro and Jozsef Borocz. 1989. "Contemporary Immigration: Theoretical Perspectives on Its Determinants and Modes of Incorporation." *International Migration Review* 23:606-630.
- Portes, Alejandro and Ruben G. Rumbaut. 1996. *Immigrant America: A Portrait, Second Edition*. Berkeley, CA: University of California Press.
- Raudenbush, Stephen W. and Anthony S. Bryk. 2002. *Hierarchical Linear Models: Applications and Data Analysis Methods, Second Edition*. Thousand Oaks, CA: Sage.
- Rivera-Batiz, Francisco L. 1986. "Can Border Industries Be a Substitute for Immigration?" *American Economic Review* 76:263-268.
- Salzinger, Leslie. 2003. *Genders in Production: Making Workers in Mexico's Global Factories*. Berkeley, CA: University of California Press.
- Sanderson, Matthew R. and Jeffrey Kentor. 2006. "Globalization and International Migration: A Cross-National Analysis of Less-Developed Countries, 1970-2000." Paper presented at the annual meeting of the American Sociological Association, Montreal, Quebec, Canada.
- Sassen, Saskia. 1988. *The Mobility of Labor and Capital: A Study in International Investment and Labor Flow*. Cambridge: Cambridge University Press.
- Sauvant, Karl P., Padma Mallampally, and Persephone Economou. 1993. "Foreign Direct Investment and International Migration." *Transnational Corporations* 2:33-69.

- Seligson, Mitchell A. and Edward J. Williams. 1981. *Maquiladoras and Migration: Workers in the Mexico-United States Border Industrialization Program*. Austin, TX: University of Texas Press.
- Sklair, Leslie. 1993. *Assembling for Development: The Maquila Industry in Mexico and the United States*. San Diego, CA: Center for U.S.-Mexican Studies, University of California-San Diego.
- Snijders, Tom A.B. and Roel J. Bosker. 1999. *Multilevel Analysis: An Introduction to Basic and Advanced Multilevel Modeling*. Thousand Oaks, CA: Sage.
- Stallings, Barbara. 2007. "The Globalization of Capital Flows: Who Benefits?" *Annals of the American Academy of Political and Social Science* 610:201-216.
- Stark, Oded J. 1991. *The Migration of Labor*. Cambridge: Basil Blackwell.
- Stark, Oded J. and J. Edward Taylor. 1989. "Relative Deprivation and International Migration." *Demography* 26:1-14.
- Tiano, Susan. 1994. *Patriarchy on the Line: Labor, Gender, and Ideology in the Mexican Maquila Industry*. Philadelphia, PA: Temple University Press.
- Timberlake, Michael and Jeffrey Kentor. 1983. "Economic Dependence, Overurbanization, and Economic Growth: A Study of Less-Developed Countries." *The Sociological Quarterly* 24:489-507.
- Twomey, Michael J. 1993. *Multinational Corporations and the North America Free Trade Agreement*. Westport, CT: Praeger.
- UN. 2006. "International Migration and Development: Report of the Secretary-General." United Nations, New York, NY.

- UNCTAD. 1993. "World Investment Report, 1993: Transnational Corporations and Integrated International Production." United National Confernece on Trade and Development, Geneva.
- . 1996. "Foreign Direct Investment, Trade, Aid and Migration." Geneva: United Nations: Current Studies Series A, No. 29, UNCTAD/DTCI/27.
- . 2006. "World Investment Report, 2006: FDI from Developing and Transition Countries: Implications for Development." United Nations Conference on Trade and Development, Geneva.
- UNFPA. 2006. "State of the World Population, 2006: A Passage to Hope: Women and International Migration." United Nations Population Fund, New York, NY.
- WB. 2006. "Global Economic Prospects: Economic Implications of Remittances and Migration." World Bank, New York, NY.
- West, Candace and Don Zimmerman. 1987. "Doing Gender." *Gender and Society* 5:373-389.
- Wood, Charles H. 1982. "Equilibrium and Historical-Structural Perspectives on Migration." *International Migration Review* 16:298-319.
- Wooldridge, Jeffrey M. 2006. *Introductory Econometrics: A Modern Approach, 3rd Edition*. Mason, OH: Thomson Southwestern.
- Young, Gay and Lucia Fort. 1994. "Household Responses to Economic Change: Migration and Maquiladora Work in Ciudad Juarez, Mexico." *Social Science Quarterly* 75:656-670.
- Zabin, Carol and Sallie Hughes. 1995. "Economic Integration and Labor Flows: Stage Migration in Farm Labor Markets in Mexico and the United States." *International Migration Review* 19:395-422.

Zlotnik, Hania. 1995. "The South-to-North Migration of Women." *International Migration Review* 29:229-254.

Table 1: Descriptive Statistics

Person Characteristics	Border Communities		Urban Interior Communities		Rural Interior Communities	
	Mean or Percentage	S.D.	Mean or Percentage	S.D.	Mean or Percentage	S.D.
Pct. Male	47.5	---	47.7	---	46.2	---
Age	37.6	14.1	36.3	14.4	37.2	15.1
Years of Education	8.9	4.2	7.3	4.5	5.9	4.1
Pct. Born in State Interviewed	71.9	---	68.2	---	87.9	---
Pct. Never Married	20.0	---	22.1	---	21.6	---
Number Months Spent in U.S.	9.6	43.5	9.9	37.5	14.6	44.8
Number of U.S. Migrations	.14	.52	.30	1.1	.46	1.4
Pct. Migrated to the U.S. in Previous Five Years	1.7	---	7.0	---	11.0	---
Number Migrations within Mexico	.46	.77	.37	1.3	.46	1.5
N	7,497		28,306		31,461	
Community Characteristics						
Number of Factories	3,936	6,936	784	1,447	51	115
Pct. Migrated to the U.S.	12.0	---	17.7	---	24.0	---
Inequality	.37	.28	.24	.18	.26	.21
Pct. Illiterate	3.4	---	11.4	---	15.6	---
Public Investment in Housing (pesos)	131,304	1,555,589	9,945,357	261,000,000	350,897	1,570,886
Number of Government Clinics	15.6	17.3	38.4	133.7	6.6	6.2
Labor Force Participation Rate-Males	73.2	---	68.6	---	67.8	---
Labor Force Participation Rate-Females	35.3	---	21.8	---	15.8	---
N	12		34		49	

Table 2: Logistic Regression Coefficients Predicting Undocumented Migration to the United States

	Model 1		Model 2		Model 3	
	B (S.E.)	Odds Ratio	B (S.E.)	Odds Ratio	B (S.E.)	Odds Ratio
Male	1.41*** (.03)	4.08	1.50*** (.03)	4.50	1.50*** (.04)	4.50
Age	-.05*** (.008)	.95	-.04*** (.008)	.96	-.04*** (.008)	.96
Age ²	-.003*** (.0001)	.99	-.0004*** (.0001)	.99	-.0004*** (.0001)	.99
Years of Education	-.09*** (.004)	.91	-.06*** (.004)	.94	-.06*** (.004)	.94
Never Married	-.07** (.04)	.93	-.13*** (.04)	.89	-.12*** (.04)	.88
Months Spent in U.S. (ln)	.44*** (.02)	1.55	.31*** (.02)	1.36	.31*** (.02)	1.36
Domestic Migration	.001 (.01)	1.00	-.01 (.01)	1.00	-.003 (.01)	1.00
Factories (ln)			-.09*** (.01)	.91	-.08*** (.03)	.92
Border Community			-1.23*** (.10)	.29	.60** (.26)	1.81
Urban Interior Community			-.20*** (.03)	.82	-.36** (.13)	.70
Rural Interior Community	---	---	---	---	---	---
Community Migratory Social Capital			2.99*** (.13)	19.9	3.06*** (.13)	21.2
Inequality			.55*** (.08)	1.73	.56*** (.08)	1.75
Factory * Border Community					-.31*** (.05)	.73
Factory * Urban Interior Community					.03 (.03)	1.03
1987-1993	.28*** (.08)	1.32	.17* (.08)	1.18	.19* (.08)	1.21

1994-2000	.13 (.08)	1.14	.23** (.08)	1.26	.25** (.08)	1.28
2001-2004	-.12*** (.05)	.88	-.04 (.05)	.96	-.03 (.05)	.97
Intercept	-1.90*** (.17)		-2.31*** (.19)		-2.40*** (.20)	
	Likelihood Ratio	16393		15701		15644
	Pseudo R ²	.146		.182		.185
	N (Persons)	67264		67264		67264

*p<.05 ** p<.01 *** p<.001 (one-tailed test)

Table 3: Logistic Regression Coefficients Predicting Undocumented Migration to the United States

	Males			Females		
	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Age	-.03*** (.01) [.97]	-.02* (.01) [.98]	-.02* (.01) [.98]	-.09*** (.01) [.92]	-.08*** (.01) [.92]	-.08*** (.01) [.92]
Age ²	-.001*** (.0001) [.99]	-.001*** (.0001) [.99]	-.001*** (.0001) [.99]	.0003 (.0001) [1.00]	.0003 (.0001) [1.00]	.0003 (.0001) [1.00]
Years of Education	-.11*** (.01) [.90]	-.08*** (.01) [.93]	-.08*** (.01) [.93]	-.04*** (.01) [.96]	-.01 (.01) [.99]	-.01 (.01) [.99]
Never Married	(.04) (.04) [1.04]	-.01 (.05) [.99]	-.01 (.05) [.99]	-.46*** (.08) [.63]	-.48*** (.08) [.62]	-.48*** (.08) [.62]
Months Spent in U.S. (ln)	.41*** (.02) [1.50]	.27*** (.02) [1.31]	.26*** (.02) [1.30]	.49*** (.04) [1.63]	.39*** (.04) [1.47]	.39*** (.04) [1.47]
Domestic Migration	.01 (.01) [1.01]	-.004 (.01) [1.00]	-.002 (.01) [1.00]	-.02 (.04) [.98]	-.01 (.04) [.99]	-.01 (.04) [.99]
Factory (ln)		-.10*** (.02) [.90]	-.07* (.03) [.94]		-.06* (.03) [.95]	-.10* (.05) [.90]
Border Community		-1.23*** (.12) [.29]	.96** (.30) [2.61]		-1.30*** (.21) [.27]	-.49 (.57) [.62]
Urban Interior Community		-.23*** (.04) [.80]	-.27 (.15) [.76]		-.17** (.07) [.84]	-.54* (.25) [.58]
Rural Interior Community	---	---	---	---	---	---
Community Migratory Social Capital		2.96*** (.16) [19.2]	3.01*** (.16) [20.2]		3.09*** (.25) [21.9]	3.17*** (.25) [23.8]
Inequality		.73*** (.10) [2.01]	.77*** (.09) [2.15]		.07 (.15) [1.07]	.05 (.16) [1.05]

Factory * Border Community				-.39*** (.06) [.67]		-.11 (.10) [.89]
Factory * Urban Interior Community				.001 (.04) [1.00]		.09 (.06) [1.10]
1987-1993	.17 (.09) [1.19]	.10 (.10) [1.10]	.12 (.10) [1.13]	.58*** (.16) [1.79]	.36* (.17) [1.43]	.38* (.17) [1.46]
1994-2000	-.001 (.09) [1.00]	.14 (.10) [1.15]	.16 (.10) [1.17]	.46** (.16) [1.59]	.42* (.17) [1.52]	.44** (.17) [1.56]
2001-2004	.02 (.05) [1.02]	.06 (.06) [1.06]	.06 (.06) [1.07]	-.63*** (.11) [.54]	-.42*** (.12) [.66]	-.41*** (.12) [.66]
Intercept	-.53** (.20)	-.86*** (.23)	-1.06*** (.24)	-1.96*** (.30)	-2.40*** (.34)	-2.24*** (.38)
Likelihood Ratio	11150	10613	10582	5222	5029	5027
Pseudo R ²	.11	.15	.16	.07	.10	.11
N(Persons)	31661	31661	31661	35603	35603	35603
Note: Standard errors are in parentheses and odds ratios are in brackets						
*p<.05 ** p<.01 *** p<.001 (two-tailed test)						

Table 4: Multilevel Logistic Regression Coefficients Predicting Undocumented Migration to the United States

	Model 1		Model 2		Model 3	
	B (S.E.)	Odds Ratio	B (S.E.)	Odds Ratio	B (S.E.)	Odds Ratio
Male	1.53*** (.08)	4.63	1.53*** (.08)	4.63	1.53*** (.08)	4.63
Age	-.04*** (.01)	.96	-.04*** (.01)	.96	-.04*** (.01)	.96
Age ²	-.0003** (.0001)	.99	-.0003** (.0001)	.99	-.0003** (.0001)	.99
Years of Education	-.04*** (.01)	.96	-.05*** (.01)	.95	-.04*** (.01)	.96
Never Married	-.15*** (.05)	.86	-.15*** (.05)	.86	-.15*** (.05)	.86
Months Spent in U.S. (ln)	.29*** (.06)	1.34	.29*** (.06)	1.34	.29*** (.06)	1.34
Domestic Migration	-.01 (.01)	.99	-.01 (.01)	.99	-.01 (.01)	.99
Factories (ln)			-.14** (.06)	.87	-.12 (.08)	.88
Border Community			-1.61*** (.45)	.20	-.07 (1.04)	.93
Urban Interior Community			-.07 (.17)	.93	-.44 (.52)	.65
Rural Interior Community	---	---	---	---	---	---
Community Migratory Social Capital			3.81*** (.57)	45.0	3.95*** (.57)	52.0
Inequality			.33 (.37)	1.39	.54* (.33)	1.70
Factory * Border Community					-.27* (.17)	.76
Factory * Urban Interior Community					.07 (.12)	1.07
1987-1993	.54 (.66)	1.72	.32 (.38)	1.39	.39 (.39)	1.48

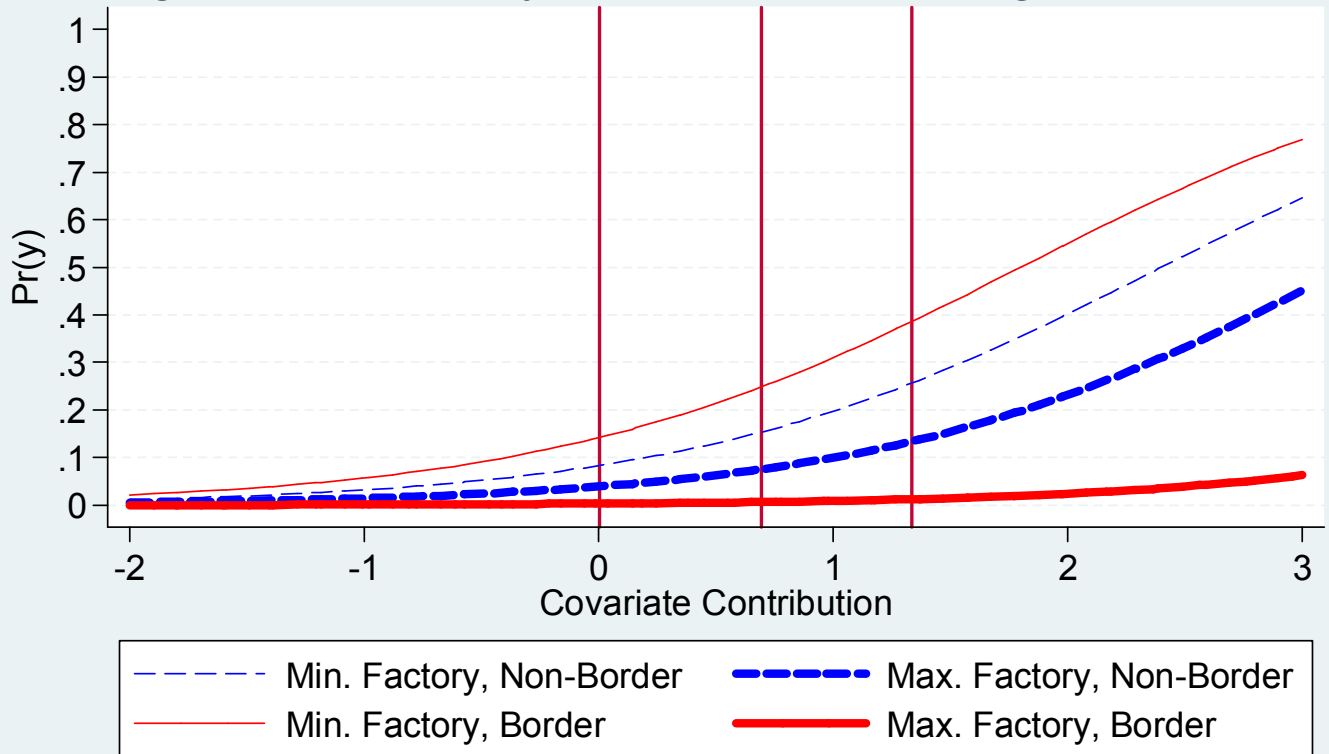
1994-2000	1.06*	2.89	.73*	2.07	.76*	2.15
	(.52)		(.37)		(.37)	
2001-2004	-.01		-.01		-.01	
	(.34)	.99	(.23)	.99	(.23)	.99
Intercept	-3.09***		-2.80***		-2.98***	
	(.54)		(.56)		(.53)	
	N (Persons)	67264		67264		67264
	N(Communities)	95		95		95

*p<.05 ** p<.01 *** p<.001 (one-tailed test)

Table 5: Multilevel Logistic Regression Coefficients Predicting Undocumented Migration to the United States

	Males			Females		
	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Age	-.02* (.01) [.98]	-.02* (.01) [.98]	-.02* (.01) [.98]	-.08*** (.02) [.92]	-.08*** (.02) [.92]	-.08*** (.02) [.92]
Age ²	-.001*** (.0001) [.99]	-.001*** (.0001) [.99]	-.001*** (.0001) [.99]	.0003 (.0002) [1.00]	.0002 (.0002) [1.00]	.0002 (.0002) [1.00]
Years of Education	-.06*** (.01) [.94]	-.06*** (.01) [.94]	-.06*** (.01) [.94]	-.01 (.01) [.99]	-.003 (.008) [1.00]	-.002 (.008) [1.00]
Never Married	-.04 (.05) [.96]	-.04 (.05) [.96]	-.04 (.05) [.96]	-.47*** (.10) [.63]	-.47*** (.10) [.63]	-.47*** (.10) [.63]
Months Spent in U.S. (ln)	.25*** (.06) [1.29]	.25*** (.06) [1.28]	.25*** (.06) [1.28]	.36*** (.07) [1.43]	.35*** (.07) [1.43]	.35*** (.07) [1.43]
Domestic Migration	-.01 (.01) [.98]	-.01 (.01) [.98]	-.01 (.01) [.98]	-.04 (.05) [.96]	-.03 (.04) [.97]	-.03 (.04) [.97]
Factory (ln)		-.16*** (.06) [.85]	-.10 (.10) [.90]		-.08 (.06) [.93]	-.12 (.10) [.89]
Border Community		-1.47*** (.48) [.23]	.64 (1.00) [1.89]		-1.36*** (.37) [.26]	-1.02 (.98) [.36]
Urban Interior Community		-.10 (.17) [.91]	-.27 (.54) [.76]		-.06 (.17) [.94]	-.46 (.58) [.63]
Rural Interior Community	---	---	---	---	---	---
Community Migratory Social Capital		3.71*** (.59) [40.7]	3.83*** (.60) [45.9]		3.64*** (.59) [37.9]	3.76*** (.60) [43.0]
Inequality		.44 (.44) [1.56]	.71* (.40) [2.03]		-.10 (.37) [.91]	-.05 (.38) [.95]

Figure 1: Probability of Undocumented Migration to U.S.



Notes:

1: Males and females combined

2: Covariate contribution at 25, 50, and 75 percentile

Appendix A: Zero-Order Correlations for Pooled Gender Analysis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(1) Undocumented Migration	1.00																	
(2) Male	0.18	1.00																
(3) Age	-0.15	0.01	1.00															
(4) Age ²	-0.14	0.01	0.98	1.00														
(5) Education	-0.02	0.05	-0.41	-0.41	1.00													
(6) Never Married	0.08	0.07	-0.39	-0.32	0.21	1.00												
(7) U.S. Migratory Social Capital	0.12	0.17	0.05	0.03	-0.06	-0.07	1.00											
(8) Domestic Migratory Social Capital	-0.01	0.11	0.11	0.10	0.00	-0.08	0.02	1.00										
(9) Factory	-0.10	0.01	-0.01	-0.01	0.16	0.00	-0.07	-0.03	1.00									
(10) Border	-0.08	0.00	0.02	0.01	0.16	-0.02	-0.03	0.01	0.45	1.00								
(11) Urban Interior	-0.04	0.01	-0.03	-0.03	0.09	0.02	-0.05	-0.04	0.23	-0.30	1.00							
(12) Rural Interior	0.09	-0.01	0.02	0.03	-0.19	-0.01	0.07	0.03	-0.51	-0.33	-0.80	1.00						
(13) Community Migratory Social Capital	0.15	-0.02	0.00	0.01	-0.19	-0.01	0.18	-0.01	-0.38	-0.22	-0.14	0.28	1.00					
(14) Inequality	-0.02	0.00	0.01	0.01	0.03	0.02	-0.02	0.01	0.16	0.43	-0.24	-0.03	-0.19	1.00				
(15) 1982-1986	-0.001	-0.03	-0.03	-0.02	-0.08	0.02	-0.03	-0.07	0.03	-0.07	-0.07	0.11	-0.02	0.06	1.00			
(16) 1987-1993	0.04	0.00	-0.03	-0.02	-0.11	0.00	0.01	0.01	-0.13	-0.25	0.22	-0.06	0.21	-0.15	-0.15	1.00		
(17) 1994-2000	-0.04	0.01	0.04	0.03	0.14	-0.01	0.00	0.01	0.11	0.27	-0.19	0.02	-0.20	0.12	-0.26	-0.92	1.00	
(18) 2001-2004	-0.03	0.01	0.04	0.03	0.04	0.00	-0.03	0.02	-0.12	-0.15	-0.05	0.14	-0.29	0.13	-0.29	-0.30	0.32	1.00

N = 67284

Appendix B: Zero-Order Correlations for Males

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1) Undocumented Migration	1.00																
(2) Age	-0.20	1.00															
(3) Age ²	-0.19	0.98	1.00														
(4) Education	-0.05	-0.38	-0.39	1.00													
(5) Never Married	0.10	-0.45	-0.37	0.17	1.00												
(6) U.S. Migratory Social Capital	0.10	0.09	0.06	-0.11	-0.09	1.00											
(7) Domestic Migratory Social Capital	-0.03	0.14	0.12	-0.04	-0.11	0.00	1.00										
(8) Factory	-0.14	-0.02	-0.02	0.16	0.00	-0.10	-0.06	1.00									
(9) Border	-0.11	0.02	0.01	0.15	-0.02	-0.05	-0.02	0.45	1.00								
(10) Urban Interior	-0.06	-0.04	-0.04	0.10	0.01	-0.07	-0.03	0.23	-0.31	1.00							
(11) Rural Interior	0.13	0.03	0.03	-0.19	0.00	0.10	0.04	-0.51	-0.33	-0.80	1.00						
(12) Community Migratory Social Capital	0.19	0.01	0.02	-0.19	0.00	0.25	0.01	-0.37	-0.21	-0.13	0.26	1.00					
(13) Inequality	-0.01	0.01	0.01	0.02	0.02	-0.01	0.00	0.16	0.43	-0.24	-0.04	-0.19	1.00				
(14) 1982-1986	0.02	-0.05	-0.04	-0.06	0.04	-0.03	-0.06	0.04	-0.07	-0.05	0.09	-0.02	0.04	1.00			
(15) 1987-1993	0.05	-0.03	-0.02	-0.09	0.00	0.02	0.06	-0.13	-0.25	0.22	-0.06	0.20	-0.14	-0.13	1.00		
(16) 1994-2000	-0.06	0.04	0.03	0.11	-0.01	-0.01	-0.03	0.11	0.27	-0.20	0.02	-0.19	0.13	-0.24	-0.93	1.00	
(17) 2001-2004	-0.02	0.04	0.03	0.02	-0.01	-0.04	0.00	-0.12	-0.15	-0.06	0.15	-0.29	0.14	-0.30	-0.30	0.32	1.00

N = 31661

Appendix C: Zero-Order Correlations for Females

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1) Undocumented Migration	1.00																
(2) Age	-0.10	1.00															
(3) Age ²	-0.09	0.98	1.00														
(4) Education	0.01	-0.43	-0.42	1.00													
(5) Never Married	0.01	-0.33	-0.27	0.25	1.00												
(6) U.S. Migratory Social Capital	0.07	0.01	-0.01	0.00	-0.06	1.00											
(7) Domestic Migratory Social Capital	-0.02	0.08	0.07	0.04	-0.04	-0.01	1.00										
(8) Factory	-0.06	0.00	-0.01	0.16	0.01	-0.04	0.01	1.00									
(9) Border	-0.05	0.02	0.01	0.18	-0.01	-0.01	0.06	0.45	1.00								
(10) Urban Interior	-0.02	-0.03	-0.02	0.08	0.02	-0.02	-0.05	0.24	-0.30	1.00							
(11) Rural Interior	0.05	0.02	0.02	-0.19	-0.01	0.03	0.01	-0.51	-0.34	-0.80	1.00						
(12) Community Migratory Social Capital	0.12	0.00	0.01	-0.19	-0.02	0.13	-0.04	-0.39	-0.22	-0.15	0.29	1.00					
(13) Inequality	-0.04	0.02	0.01	0.03	0.02	-0.04	0.02	0.15	0.42	-0.24	-0.03	-0.19	1.00				
(14) 1982-1986	-0.01	-0.01	-0.01	-0.10	0.00	-0.02	-0.07	0.02	-0.08	-0.07	0.12	-0.02	0.08	1.00			
(15) 1987-1993	0.03	-0.03	-0.02	-0.13	0.01	0.00	-0.06	-0.13	-0.25	0.22	-0.07	0.22	-0.16	-0.15	1.00		
(16) 1994-2000	-0.03	0.03	0.02	0.17	0.00	0.01	0.09	0.12	0.27	-0.19	0.01	-0.20	0.12	-0.28	-0.91	1.00	
(17) 2001-2004	-0.04	0.04	0.03	0.05	0.00	-0.02	0.06	-0.11	-0.14	-0.05	0.14	-0.29	0.13	-0.09	-0.29	0.31	1.00

N = 35603