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IS INTERNATIONAL MIGRATION A SUBSTITUTE FOR SOCIAL SECURITY?*

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Abstract

The focus on short-term macroeconomic factors, including unemployment and wages, is insufficient to explain international migration. Institutional factors, bound to change only in the long run, can potentially have a large impact on migration flows. To illustrate this, we analyze Mexico-U.S. migration focusing on social security coverage, an important indicator of job formality. Using retrospective longitudinal data from the Mexican Migration Project, we find that workers are more likely to migrate to the United States when they lack social security coverage, suggesting that job formality discourages international migration. By old age, a history of short-term or moderate migration does not seem to significantly improve a worker's prospects of exiting the labor force. However, substantial migration experience (10 years or more) does help workers without social security contributions match the retirement prospects of nonmigrants with social security coverage, indicating that long-term migration experience effectively acts as a substitute for social security.

Key words: International migration, social security, retirement, informal economy, Mexico.
Classification JEL: F22, H55, J26.

Introduction

There is certainly no shortage of international migration theories (Massey et al. 1998). While they diverge in disciplinary approach and micro/macro focus, they all stress differences in structural factors between sending and receiving countries. Among these, levels of employment and wages, as well as macroeconomic fluctuations, have long been prominent in migration studies.

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In studying international migration flows, researchers often privilege these short-term powerful variables, relegating long-term institutional factors to the background.

Among these institutional factors, we believe that the degree of economic formality should be moved to the forefront of migration research. While informal economic arrangements are by no means exclusive of developing countries (Portes, Castells & Benton 1989), the large majority of jobs in advanced industrial economies pay taxes and carry a variety of fringe benefits. Social security provides an essential component of job formality by guaranteeing workers a flow of income in case of disability or upon reaching old age, and by giving dependents financial support in case of a worker's premature death. This institution is present in quite different levels of development around the world. While in developed countries social security generally achieves universal coverage, in the developing world coverage varies widely. In the poorest countries arrangements for old age security continue to be informal, beyond the reach of the state (see World Bank 1994).

We believe that the focus on short-term macroeconomic factors, including unemployment and wages, is insufficient to explain international migration. Institutional factors, bound to change only in the long-term, can potentially have a large impact on migration flows. To illustrate this, we analyze Mexico-U.S. migration focusing on social security coverage, which reaches less than forty percent of the working population in Mexico[1] and is nearly universal in the United States.[2]

We pose two questions. First, does lack of social security coverage act as an incentive for international migration? Empirically, we seek to answer this question by verifying whether those workers without social security coverage in Mexico are more likely to migrate to the United States than those who hold formal jobs, covered by Mexican social security. We recognize, however, that most migrant workers are young and not yet evaluating their retirement prospects. Therefore, we would refrain from openly postulating that Mexican workers migrate in search of social security. Rather, we view social security as a prominent indicator of job formality, and migration as a response to the lack of opportunities associated to the informal economy.

Our second empirical question complements the first one: Is migration effective at providing migrants with social security? Empirically, we would answer in the affirmative if migration improved migrants' long-term retirement prospects. A positive answer to both empirical questions would suggest a positive answer to the question that we posed as the title of this article. If workers are more likely to move when they lack social security coverage, and international migration significantly improves their retirement prospects, then migration acts as a substitute for social security.[3]

Finding the answer to these questions is important for two reasons. From a policy point of view, if international migration were a substitute for social security, then the Mexican state would be significantly failing at providing old age security to its citizens and more emphasis should be placed on the expansion of social security coverage. Second, from a demographic point of view,

[1] Instituto Nacional de Estadística, Geografía e Informática, http://www.inegi.gob.mx/est/contenidos/espanol/rutinas/ept.asp?t=msoc06&c=1884, accessed on February 19, 2006.

[2] Social Security Administration, Annual Statistical Supplement 2005, released February 2006, http://www.ssa.gov/policy/docs/statcomps/supplement/2005/prog_desc.pdf, accessed on February 19, 2006.

[3] Sana and Massey (2000) asked questions that were approximately similar to these and reached positive answers. We partially replicate their work, expand it, and reach conclusions that are quantitatively more precise, as explained in the data and methods section.

future migration trends might be predicted more accurately by taking into account the effect of institutional factors such as social security, in addition to the widely acknowledged short-term factors such as devaluations and wage fluctuations.

1. Theory

The new economics of labor migration (Stark & Bloom 1985, Stark 1991) defines migration as a risk management tool that households use to overcome market failures. In a context where the family is still the unit of production, those households in areas where access to credit is expensive or unavailable are at a competitive disadvantage. In rural areas, this is maximized when affordable insurance against weather-related risks is absent as well. By sending a family member to work away from home, a household makes an investment that is recovered when the migrant's remittances arrive. These remittances compensate for absent or poorly functioning local markets for capital and insurance.

Remittances are central to this theoretical narrative. Migration is not the result of a decision made by an isolated individual, but is part of a household strategy framed by an implicit or explicit contractual arrangement between the family and the migrant (Stark & Lucas 1988). This contract is enforced by altruism, which ensures voluntary compliance and eliminates the need for costly legal safeguards (Stark & Lucas 1988). Thus, the theory implicitly assumes a cohesive, traditional family, the members of which are likely to trust, and remain loyal to, each other (Sana & Massey 2005). Besides altruism, instrumental gain motivates remittances as well. The expectation to inherit land or other wealth appears as a common theme in the remittances literature (de la Brière et al. 2002; Hoddinott 1992; Stark & Lucas 1988), yielding the concept of "tempered altruism" or "enlightened self-interest," which posits both altruism and individual gain as motivations to remit when the migrant's return is likely (Lucas & Stark 1985).

In sum, the new economics of labor migration focuses on a particular kind of labor migrant: the short-term, target-oriented worker, most likely male, who identifies strongly with his family of origin, and who expects to return rather than settle in the host country. Since this profile fits the typical Mexican labor migrant,[4] it should not be surprising that the theory has been extensively tested, we would argue successfully, on Mexico-U.S. migration (Massey & Espinosa 1997; Stark & Taylor 1989; Taylor 1987; Taylor & Wyatt 1996).

Consistent with the conceptualization of migration as a response to undeveloped markets for capital and insurance, Sana and Massey (2000) added lack of social security protection to the list of market deficiencies that encourage migration. This is not a departure from the narrative of the new economics: while retirement is awarded on an individual basis, social security covers

[4] There is some debate on whether this profile has been changing. Durand, Massey and Zenteno (2001) argue that continuity rather than change characterizes the profile of the typical Mexican migrant to the United States. Marcelli and Cornelius (2001), analyzing a different data source, contend that permanent settlement has become more likely among Mexican migrants in the United States. Massey, Durand and Malone (2002) concur that returning probabilities declined during the 1990s.

surviving spouse and dependents and is therefore a family benefit. Hence, migration can still be considered a household strategy and remittances, in this case, consist of entitlements and future retirement benefits to the migrant, or pension benefits to his surviving spouse or dependents.

Lack of social security coverage constitutes one of the primary features of the informal economy. Economic informality has been defined as "a process of income generation characterized by one central feature: it is unregulated by the institutions of society, in a legal and social environment in which similar activities are regulated" (Castells & Portes 1989:12). The latter is important: lack of social security coverage in Mexico represents informality because about 40 percent of the Mexican labor force is covered and social security has a seven-decade history. Informality can be found among various elements of the production process, among which the status of labor is prominent. Undeclared occupations, deprivation of social benefits required by the law, or payment under the legal minimum wage, are all examples of informal labor (Castells & Portes 1989:13). Since the 1980s, the informal economy has expanded in Latin America. Employment growth in the formal sector of the economy stagnated in most countries and precarious employment took a disproportionate share of job creation (Tardanico & Menjívar Larín 1997, Portes & Hoffman 2003). In Mexico, social security coverage expanded in the second half of the 1990s after the reform of the system regulated by the *Instituto Mexicano del Seguro Social* (IMSS), but it stagnated in 2000-2004, and it certainly did not improve among low-income workers (Scott 2005).

The traditional view of the informal economy posited that workers hold informal jobs, receiving low wages and no benefits, because formal jobs are not available to them. Thus, the informal economy is their only way to join the workforce at all and generate income (Castells & Portes 1989:26). This view has been criticized. The empirical record shows that, at least among most micro-entrepreneurs in Latin America, informality appears to be a voluntary choice, not inferior to salaried formal employment. More generally, the benefits of formality are not free. Taxes paid on account of eligibility for a future pension benefit, for example, represent foregone consumption today. Throughout Latin America, a history of fiscal mismanagement has given workers good reasons not to trust their governments to honor their long-term commitments. In his review of research and survey data collected throughout Latin America, Maloney (2004) shows that, under multiple circumstances, informal employment can be an acceptable substitute for formal employment. In any event, the question seems to be whether informal jobs match the benefits of formal jobs. We doubt anyone will suggest that it is formal jobs that are a substitute for the benefits of the informal economy. We contend that, in the search for the best substitute, international migration is a plausible contender.

In the case of Mexico-U.S. migration, while the research record suggests that unemployment in Mexico does not play a major role as a push factor for international migration, it has been postulated that informal labor does (U.S. Commission on Immigration Reform & *Secretaría de Relaciones Exteriores de México* 1997). From the point of view of the new economics of labor migration, lack of retirement insurance and other benefits places workers at risk, acting as an incentive to consider migration as a risk-management option. The typical migrant, however, is too young to worry about retirement. Other job benefits such as health insurance or paid vacations are certainly more appealing. Most likely, potential migrants simply consider that, given the stagnation in formal employment, quitting a formal job carries a high level of risk. As abandoning an informal job becomes comparatively less risky, the potential financial rewards of international migration become more tempting. It follows that participation in the informal economy acts as a push factor

for international migration. In this sense, international migration is a response to the failure of the state to provide the benefits of formal jobs to all its citizens.

If this were the case, does migration pay off? In other words, does migration effectively substitute for the benefits that the state fails to guarantee? This question can only be answered after defining the specific aspect of informality that migrant workers intend to overcome. We focus on social security and restrict the analysis to returned migrants. The benefit in question is retirement or, more generally, the ability to withdraw from the work force in old age. If migration to the United States made it possible for older Mexican workers to withdraw from the work force, just as those who have earned pension eligibility through the Mexican social security system do, then international migration would effectively be a substitute for social security.

2. Data and Methods

2.1 Data

We use data collected by the Mexican Migration Project (MMP), a binational research endeavor based at Princeton University and the University of Guadalajara (http://mmp.opr.princeton.edu/). After a few initial communities studied in 1982-83, the MMP has been conducting migration surveys in Mexican communities every year since 1987. As of this writing, the MMP database features data from 107 communities. Typically, the field team interviews 200 households in each community in Mexico, followed a year later by a small number of interviews carried out in the United States to migrants from those same communities who have settled north of the border. The Mexican communities are not selected randomly. Therefore, the MMP data cannot be used to infer descriptive estimates for Mexico as a whole. Such an attempt would lead to biased estimates. However, the households interviewed within each community are selected randomly, so that the data can be used for causal analysis, as we do in this paper. Furthermore, the MMP collects data unavailable from other sources of migration research, making it especially valuable to understand the migration process in detail (Zenteno & Massey 1998, Massey & Zenteno 1999). The data collected in the United States come from interviews that follow a snowball sampling methodology. We do not use U.S. data in this paper, which means that we do not include settled migrants in our analysis, but only returned migrants and those who are temporarily in the United States but based in Mexico.

The MMP collects data on all members of the household, but the most detailed data concerns the household head. Household heads are designated by the respondents, who traditionally choose an adult man who owns the property or the oldest man in the household. Since female household heads are a small minority in the MMP data, we limit all our analysis to males. Data on the household head includes a complete labor history, set up as a longitudinal file in which each record is a person-year. The occupation listed each year corresponds to the job held for the longest time within the year, although U.S. jobs take precedence over Mexican jobs. Migration history is embedded in this labor history, as different variables indicate, for any given year, whether the household head visited the U.S., what number of trip this was, how many months of U.S. experience had he accumulated until then, and so on.

2.2 Social security coverage

Reformulated in statistical terms suitable to be tested with this longitudinal data set, our first question is: Is lack of social security coverage a significant predictor of a new U.S. trip? To answer this, we specified a discrete-time logistic regression where trip in year t is the dependent variable and social security coverage and other predictors in year t-1 are the independent variables. We model the likelihood of a first U.S. trip and of subsequent trips separately. As outlined by the cumulative causation theory of international migration, as workers accumulate migration experience, the migration process creates its own new incentives to repeat and perpetuate itself (Massey et al. 1998). Then, prior migration experience is a positive predictor of future migration experience, but since migration experience prior to the first trip is zero, separate models are required to predict a first trip and subsequent trips. The models are then specified as:

$$\log [p/1\text{-}p]_t = \beta_0 + \beta_1 S_{t-1} + \beta_j X_{j,\, t-1} \quad (1)$$

$$\log [p/1\text{-}p]_t = \beta_0 + \beta_1 S_{t-1} + \beta_j X_{j,\, t-1} + \beta_k M_{k,\, t-1} \quad (2)$$

where equation (1) corresponds to the first trip and equation (2) to subsequent trips, t and t-1 indicate years, p denotes probability of migrating, S represents a dichotomous variable measuring social security coverage, X is a vector of the remaining explanatory variables in model 1, and M represents a vector of indicators of migration experience that affect the probability of subsequent trips. In both cases, for the purposes of this paper, we are only interested in the results we obtain for the social security coefficient. We estimated both models for all trips and for undocumented trips only.

Social security coverage has value 1 in any given year if the job listed for that year contributed to Mexican social security, either to the IMSS or the public sector schemes for federal, state, armed forces and *Petróleos Mexicanos* (PEMEX) employees. This question was asked during the first round of MMP surveys in 1982-83, but was afterward dismissed until its reintroduction in 1999. Sana and Massey (2000), who estimated similar models also using the MMP data, worked with the data collected in five communities in 1982-83 after reconstructing the social security information from raw data files. Those files are not available to the public, and we therefore do not use those early data. Instead, we work with the data collected since 1999, which includes communities 72 through 107, an updated and far larger database than the one that Sana and Massey used. It is worth repeating that 1999 and onwards are the years when the data were *collected* but, as we work with retrospective longitudinal labor histories, the analysis includes earlier years.

2.3 Timing of exit from the labor force

Our second question concerns whether migration improves the migrant's retirement prospects. For this analysis, we predict the likelihood of exiting the labor force at or after age 55, dismissing all the respondents who had withdrawn from the labor force earlier. In order to answer whether

migration is a substitute for social security, the most meaningful comparisons are those between nonmigrants eligible for social security retirement and migrants who do not qualify for state-sponsored retirement. We set the social security eligibility threshold at 120 cumulative months of social security contributions and refer to those who meet this minimum as "vested." We use this term merely as a label, but our threshold does approximate that established by Mexican law. The Mexican social security system was reformed in 1997, and the new rules drastically changed the contributions required for old age retirement, from 500 to 1,250 weeks (Grandolini & Cerda 1998). Our threshold of ten years approximates the earlier requirement, which remained valid for those who were contributing as of the time of the reform. Classifying our workers by social security contributions and length of migration experience, we compute Kaplan-Meier survival functions for men age 55 and older, where "survival" is defined as staying in the labor force.

After this initial description, we formulate a multivariate model, again using discrete-time logistic regression, as follows:

$$\log [p/1\text{-}p]_t = \beta_0 + \beta_1 S_{t-1} + \beta_2 M_{t-1} + \beta_3 SM_{t-1} + \beta_j X_{j,\, t-1} \qquad (3)$$

where p represents the probability of exiting the labor force in year t, all predictors are measured as of year t-1, S indicates cumulative months of social security contributions, M indicates cumulative months of migration experience, SM is an interaction term for the previous two, and X represents a vector of the rest of the explanatory variables. The interaction term is included so that β_1 represents the effect of cumulative months of social security coverage when there is no migration experience and β_2 represents the effect of cumulative months of migration experience when there is no history of social security coverage. This way, we directly address whether migration experience substitutes for social security coverage, which will be the case if β_2 is not significantly lower than β_1.

We operationalize exit from the labor force as taking place on the first year for which the respondent reports to be "retired". Often, respondents would not report retirement but either persistent unemployment or simply no labor force activity. In these cases, we defined them as retired on the first year of a spell of at least three consecutive years in this situation. For this analysis, we used all 107 MMP communities. We restricted the analysis to years 1966 to 2001—with the independent variables lagged one year, this corresponds to the period 1965-2000.

Sana and Massey (2000) were also interested in the long-term effects of migration on retirement prospects, but their approach was different. First, they posed their question in terms of actual pension benefit, not simply exit from the labor force. In our view, that may have placed excessive confidence on the MMP interviewer's ability to distinguish an actual pension benefit from retirement without a benefit. In practice, if the respondent uses the terms "*jubilado*" or "*pensionado*" we can safely assume a retirement benefit. However, they often reply "*retirado*" as well, which in Spanish leaves room for ambiguity as to the existence of a monthly check. We prefer to simply look at exit from the labor force irrespective of the existence of a retirement benefit. We believe that this is a better test of the question at stake. If migration is a substitute for social security, then migrants should be more likely to exit the labor force than nonmigrants, whether they ensured a pension benefit or simply saved enough to guarantee a comfortable living.

A second methodological difference with the article by Sana and Massey (2000) is that they tackled this question with cross-sectional data, predicting the likelihood of receiving a pension benefit as of the survey year. Instead, we use again the longitudinal data to compute probabilities of exiting the labor force and the corresponding cumulative probabilities of retirement by age.

Lastly, it is worth coming back to a point made earlier: the MMP data set is not, and does not intend to be, representative of the entire Mexican population. Specifically, we verified that the percent of workers who are no longer in the labor force is, in the MMP data, consistently lower than the same percentage for the whole Mexican population recorded by Mexican official statistics. One reason for this is that the MMP has historically oversampled rural and small communities, where informal jobs are more common and the social security system is less developed than in large urban centers. Another reason is that the MMP was not intended to collect detailed data about old age. The MMP initial goal was to better understand the Mexico-U.S. migration process. The interviewers were trained to collect the best data they could on a phenomenon that, overwhelmingly, involves young people. We speculate that, when filling in a respondent's labor history, the interviewer may have often rushed to finish it with the last job rather than specifying a year of exit from the labor force. The resulting bias prevents us, or any researcher, from using the MMP data to estimate the prevalence of retirement in Mexico—in any event an unnecessary task given the availability of much better sources for it. Since we are only interested in causal analysis and the link between retirement and migration, this underreporting of retirement is not worrisome as long as it does not vary by migration status. We find no reason to expect that to be the case.

3. Results

3.1 Social security coverage

Table 1 shows summary statistics for the variables included in the models that estimate the probability of migratory trips. For the models on first trip, sample size was over 105,000 person-years, of which 1,128 (1.1%) corresponded to a first trip. Of these, most (793) were undocumented. Jobs held during one-third of person-years were reported to have contributed to social security. Most of these person-years were spent in married status, half as homeowner, about 31 percent as an agricultural worker, about 32 percent as a skilled manual worker, and about one in five as unskilled nonagricultural worker. Two macroeconomic indicators account for key push factors widely acknowledged in the migration literature.[5] A dummy variable indicates whether year t-1 was a devaluation year. Other things being equal, devaluations increase the appeal of the dollar adding an incentive for migration. In addition, the Mexican real interest rate is included in the models to reflect the cost of capital, which under the new economics of labor migration should be positively correlated with migration. Admittedly, these two variables are very limited if the goal is to measure macroeconomic influences on the probability of migration. However, as we show below, they are enough for our purposes, as the effect of social security coverage remains strong across models with and without period controls even as the effect of these two variables changes markedly.

[5] These data have also been taken from the MMP. See the Supplemental Data section on the MMP website.

All variables except trip are measured for year t-1, covering the period 1965-2000. This time span was subdivided into three period controls that correspond to milestones in US immigration policy. The first period concludes in 1985, right before the passing of the Immigration Reform and Control Act (IRCA) of 1986, which combined tighter border controls and employer sanctions with a general amnesty for undocumented immigrants who had been in the United States for at least five years. The second period starts with IRCA and concludes in 1995, preceding the Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA) of 1996, which boosted resources for border enforcement and attempted to reduce incentives for illegal immigration by, among other measures, greatly expanding grounds for deportation. In general, however, the effects of both IRCA and IIRIRA as illegal immigration deterrents seem to have been short-lived. In the long-run, undocumented migration continued to rise despite this legislation (Massey, Durand and Malone 2002).

Table 1
Summary of Variables Included in Discrete-Time Logistic Regression Models on the Probability of a First Migratory Trip and the Probability of Subsequent Migratory Trips

	Model for first trip				Model for subsequent trips			
Variable	**Mean**	**St.Dev.**	**Min**	**Max**	**Mean**	**St.Dev.**	**Min**	**Max**
Dependent variable								
Trip in Year t	0.011	0.103	0	1	0.046	0.209	0	1
Undocumented Trip in Year t	0.008	0.086	0	1	0.031	0.172	0	1
Independent variables (in year t-1)								
US Experience								
Cumulative US Experience (months)					41.795	58.843	1	468
Prior US Trips					2.473	3.046	1	40
Social Security Coverage	0.320	0.466	0	1	0.217	0.412	0	1
Age	33.954	13.799	15	97	41.882	13.490	15	94
Years of Education	6.221	4.487	0	23	4.576	3.714	0	18
Parent a U.S. Migrant	0.017	0.130	0	1	0.061	0.239	0	1
Assets								
Owns Home	0.501	0.500	0	1	0.675	0.469	0	1
Owns Land	0.128	0.334	0	1	0.183	0.387	0	1
Owns a Business	0.114	0.318	0	1	0.149	0.356	0	1
Marital Status								
Married	0.626	0.484	0	1	0.862	0.345	0	1
In Consensual Union	0.073	0.261	0	1	0.039	0.193	0	1
Single	0.301	0.459	0	1	0.099	0.299	0	1

Table 1 (continued)

	Model for first trip				Model for subsequent trips			
Variable	**Mean**	**St.Dev.**	**Min**	**Max**	**Mean**	**St.Dev.**	**Min**	**Max**
Occupation								
Unemployed or not in labor force	0.082	0.275	0	1	0.072	0.258	0	1
Agricultural Worker	0.307	0.461	0	1	0.347	0.476	0	1
Unskilled Non-Agricultural Worker	0.208	0.406	0	1	0.234	0.424	0	1
Skilled Non-Agricultural Worker	0.317	0.465	0	1	0.287	0.452	0	1
Professional or Technician	0.085	0.279	0	1	0.061	0.239	0	1
Macroeconomic Predictors								
Devaluation Year	0.704	0.456	0	1	0.754	0.430	0	1
Mexican Real Interest Rate	5.049	13.849	-30.0	49.4	5.890	13.588	-30.0	49.4
Period Controls								
1966-1985	0.462	0.499	0	1	0.353	0.478	0	1
1986-1995	0.345	0.475	0	1	0.371	0.483	0	1
1996-2001	0.193	0.395	0	1	0.276	0.447	0	1
Observations (person-years)	105,783				16,140			

Table 2 shows the results from the discrete-time logistic regression analyses on the probability of a first trip. Four models are presented, for all trips and for undocumented trips only, with and without period controls. The inclusion of period controls affects some variables, most notably the two macroeconomic indicators included in the models. Arguably, the period controls would not be necessary if all period variations that matter were those reflected by those macroeconomic indicators. We report results with and without period controls, but leave this debate for the readers. For our purposes, what matters is that the estimated coefficient for our variable of interest, social security coverage, is negative as expected, and relatively large, producing odds ratios below 0.5 in all four models. In other words, those who hold jobs covered by social security are *less* likely to undertake a first trip to the United States than those who contribute to the social security system.[6] The

[6] A reviewer reasonably argued that, once a worker establishes social security affiliation, he has some vested interest in the social security system. Therefore, a definition of social security coverage that takes into account previous years could be more useful than our measure of social security coverage in period t-1 alone. We constructed a variable representing cumulative months of social security coverage in Mexico up to year t-1 to test this suggestion. When we substituted the cumulative variable for coverage in year t-1, we obtained, as expected, a negative and significant coefficient. However, when both coverage in year t-1 and the cumulative variable were in the model, the estimate for the latter was not significant—and even positive. We concluded that coverage in year t-1 is more effective to illustrate the problem under study. Certainly, it does make sense to expect cumulative contributions to have an effect, but in our models this effect is probably accounted for by the coefficient for age, a variable that is highly correlated (r=0.41) with cumulative social security contributions. Because age is a widely acknowledged predictor of migration we chose to keep age in the model and leave cumulative social security coverage out. In addition, the workers that realistically face the choice of migration are too young (in the Mexican context) to have contributed to the system for too long. For example, taking person-years for men in their twenties, 63% of them show no contributions and 12% show up to four years of cumulative contributions. Finally, since formal jobs are difficult to secure, it is likely that coverage in year t-1 is indeed what matters most. Ultimately, whether we use coverage in year t-1 or cumulative contributions, the essential finding is the same.

coefficient is highly significant and does not change much across the four different model specifications. Then, while our models are most likely far from being the best attempt at modeling migration, they do indicate with certainty that the relationship between social security coverage and Mexico-US migration is solid and in the expected direction.

Table 2
Discrete-Time Logistic Regression on the Probability of a First Trip (in year t)

	Any Trip		Undocumented Trip	
Independent Variables (in year t-1)	**Model 1**	**Model 2**	**Model 1**	**Model 2**
Social Security Coverage	-0.737 **	-0.719 **	-0.878 **	-0.854 **
	(0.101)	*(0.101)*	*(0.151)*	*(0.153)*
Age	-0.004	-0.006	0.021	0.015
	(0.023)	*(0.023)*	*(0.027)*	*(0.027)*
Age-squared	-0.001 **	-0.001 **	-0.001 **	-0.002 **
	(0.000)	*(0.000)*	*(0.000)*	*(0.000)*
Years of Education	0.001	-0.019	-0.028	-0.056 **
	(0.013)	*(0.012)*	*(0.016)*	*(0.014)*
Parent a U.S. Migrant	1.404 **	1.337 **	1.021 **	0.927 **
	(0.270)	*(0.278)*	*(0.254)*	*(0.262)*
Assets				
Owns Home	-0.129	-0.275 **	-0.049	-0.226 *
	(0.098)	*(0.097)*	*(0.107)*	*(0.100)*
Owns Land	0.087	0.148	0.140	0.216
	(0.147)	*(0.146)*	*(0.181)*	*(0.179)*
Owns a Business	-0.431 **	-0.492 **	-0.454 **	-0.516 **
	(0.125)	*(0.127)*	*(0.175)*	*(0.175)*
Marital Status (ref: Single)				
Married	0.384 **	0.326 **	0.445 **	0.372 **
	(0.093)	*(0.093)*	*(0.134)*	*(0.134)*
In Consensual Union	0.211	-0.010	0.327	0.056
	(0.148)	*(0.136)*	*(0.189)*	*(0.184)*
Occupation (ref: Agricultural Worker)				
Unemployed or not in labor force	-0.560 **	-0.480 **	-0.794 **	-0.685 **
	(0.172)	*(0.177)*	*(0.241)*	*(0.247)*
Unskilled Non-Agricultural Worker	0.164	0.127	0.172	0.124
	(0.127)	*(0.121)*	*(0.132)*	*(0.120)*
Skilled Non-Agricultural Worker	0.107	0.076	0.118	0.076
	(0.153)	*(0.153)*	*(0.155)*	*(0.155)*
Professional or Technician	-0.422	-0.393	-0.712 *	-0.680 *
	(0.217)	*(0.217)*	*(0.350)*	*(0.344)*

Table 2 (continued)

Independent Variables (in year t-1)	Any Trip		Undocumented Trip	
	Model 1	Model 2	Model 1	Model 2
Macroeconomic Predictors				
Devaluation Year	0.519 **	0.195	0.621 **	0.162
	(0.088)	*(0.106)*	*(0.099)*	*(0.118)*
Mexican Real Interest Rate	0.005 **	-0.005	0.007 **	-0.007 *
	(0.002)	*(0.003)*	*(0.002)*	*(0.003)*
Period Controls (year t) (ref: 1966-1985)				
1986-1995		0.453 **		0.679 **
		(0.159)		*(0.143)*
1996-2001		1.334 **		1.686 **
		(0.224)		*(0.243)*
Constant	-3.936 **	-3.722 **	-4.415 **	-4.101 **
	(0.449)	*(0.428)*	*(0.419)*	*(0.408)*

Number of observations = 105,783 person-years.
Robust standard errors in parentheses, adjusted for clustering of migrants in communities.
** $p < 0.01$; * $0.01 < p < 0.05$

Table 3 shows the results for the models that we estimated for the probability of subsequent trips. Consistent with theoretical expectations, the new independent variables show the positive effect of migration experience on the likelihood of subsequent migration. Concerning the estimated coefficient for social security coverage, these models show essentially the same results as the models for a first trip, only that the coefficients are somewhat lower. Table 4 summarizes the results from all models. We show coefficients for the variable on social security coverage, and the inverse of their odds ratios. We see that those without social security coverage present odds of migrating that are, roughly, about twice as high as those who hold jobs covered by social security.

Table 3
Discrete-Time Logistic Regression on the Probability of a Subsequent Trip (in year t)

Independent Variables (in year t-1)	Any Trip		Undocumented Trip	
	Model 1	Model 2	Model 1	Model 2
U.S. Experience				
Cumulative U.S. Experience (months)	0.008 **	0.008 **	0.005 **	0.005 **
	(0.001)	*(0.001)*	*(0.001)*	*(0.001)*
Prior U.S. Trips	0.127 *	0.137 **	0.097	0.107
	(0.051)	*(0.053)*	*(0.056)*	*(0.060)*
Social Security Coverage	-0.702 **	-0.652 **	-0.683 **	-0.633 **
	(0.141)	*(0.134)*	*(0.201)*	*(0.199)*
Age	0.027	0.024	0.000	-0.008
	(0.028)	*(0.028)*	*(0.032)*	*(0.032)*
Age-squared	-0.001 **	-0.002 **	-0.001 *	-0.001 *
	(0.000)	*(0.000)*	*(0.000)*	*(0.000)*

Table 3 (continued)

Independent Variables (in year t-1)	Any Trip		Undocumented Trip	
	Model 1	Model 2	Model 1	Model 2
Years of Education	0.032	-0.005	0.002	-0.042
	(0.026)	*(0.025)*	*(0.029)*	*(0.028)*
Parent a U.S. Migrant	-0.358	-0.400	-0.172	-0.225
	(0.240)	*(0.270)*	*(0.393)*	*(0.446)*
Assets				
Owns Home	0.155	-0.040	0.055	-0.150
	(0.140)	*(0.135)*	*(0.160)*	*(0.139)*
Owns Land	-0.147	-0.074	-0.233	-0.155
	(0.206)	*(0.209)*	*(0.227)*	*(0.222)*
Owns a Business	-0.390 **	-0.457 **	-0.527 *	-0.584 *
	(0.143)	*(0.132)*	*(0.248)*	*(0.240)*
Marital Status (ref: Single)				
Married	0.073	0.032	0.237	0.178
	(0.160)	*(0.159)*	*(0.156)*	*(0.143)*
In Consensual Union	0.324	0.066	0.623 *	0.335
	(0.252)	*(0.233)*	*(0.301)*	*(0.282)*
Occupation (ref: Agricultural Worker)				
Unemployed or not in labor force	-0.053	-0.115	-0.125	-0.178
	(0.363)	*(0.356)*	*(0.404)*	*(0.386)*
Unskilled Non-Agricultural Worker	0.110	0.036	0.138	0.051
	(0.243)	*(0.235)*	*(0.266)*	*(0.253)*
Skilled Non-Agricultural Worker	-0.038	-0.113	-0.033	-0.113
	(0.235)	*(0.241)*	*(0.237)*	*(0.237)*
Professional or Technician	-0.428	-0.285	-1.363 **	-1.223 *
	(0.325)	*(0.321)*	*(0.516)*	*(0.500)*
Macroeconomic Predictors				
Devaluation Year	0.559 **	0.233	0.498 **	0.153
	(0.117)	*(0.143)*	*(0.113)*	*(0.131)*
Mexican Real Interest Rate	0.008 **	-0.002	0.007 *	-0.004
	(0.002)	*(0.003)*	*(0.003)*	*(0.006)*
Period Controls (year t) (ref: 1966-1985)				
1986-1995		0.646 **		0.634 **
		0.146		*(0.230)*
1996-2001		1.343 **		1.460 **
		0.232		*(0.297)*
Constant	-3.315 **	-3.124 **	-2.878 **	-2.558 **
	(0.488)	*(0.535)*	*(0.541)*	*(0.582)*

Number of observations = 16,140 person-years. Robust standard errors in parenthesis, adjusted for clustering of migrants in communities.
** $p < 0.01$; * $0.01 < p < 0.05$

Table 4
Summary of Results: Effect of Social Security Coverage

	Any Trip		Undocumented Trip	
Model Predicting…	Model 1	Model 2	Model 1	Model 2
… a First Trip				
Coefficient	-0.737	-0.719	-0.878	-0.854
1 / (Odds Ratio)	2.090	2.052	2.407	2.348
… a Subsequent Trip				
Coefficient	-0.702	-0.652	-0.683	-0.633
1 / (Odds Ratio)	2.018	1.920	1.980	1.883

3.2 Timing of exit from the labor force

After verifying that job informality, specifically lack of social security coverage, encourages emigration, we turn to the question concerning whether international migration acts as a substitute for social security. We begin by presenting Kaplan-Meier survival functions for men age 55 and older, where "survival" refers to staying in the labor force. The groups are defined in terms of migration experience and social security contributions. Broken down by migrant status, we classified men as nonmigrants, short- and medium-term migrants (less than 120 cumulative months of migration experience), and long-term migrants (120 months or more). Each of these groups was in turn broken down into men with ten cumulative years of social security contributions, or "vested," and those not vested in the social security system. Results, up to age 80, are presented in Figures 1 and 2. Notice that survival probabilities at age 80 are quite high, reflecting the retirement underreporting in the MMP data. The reasons for this bias have been explained earlier. In this case, we must add that the graph starts with a universe of men age 54 in year t-1, *all of whom were working at the time*, which increases the low retirement bias—Mexican census statistics show that 22% of men are no longer in the labor force by age 55. Because we are not interested in estimating absolute levels of labor force participation, but significant differences across groups, bias is not a serious problem unless there are reasons to suspect that it varies across groups. We believe that there is no such differential bias in these data.

Figure 1 compares short- and medium-term migrants with nonmigrants, vested and not vested. Results suggest that social security vesting is a more reliable path to earlier retirement than international migration. Men in both vested groups retire significantly earlier than men in both nonvested groups, differences that Log-rank tests for equality of survival functions showed to be statistically significant. The difference in retirement patterns between vested nonmigrants and vested short- and medium-term migrants is largely nonsignificant. Retirement patterns of the two nonvested groups show, in the figure, some earlier retirement advantage for migrants. The difference approaches marginal significance (p-value for the Log-rank test=0.11).

Figure 2 substitutes long-term migrants for short- and medium-term migrants, and clearly shows that more migration experience secures earlier retirement for nonvested migrants. The survival functions indicate that nonvested nonmigrants retire substantially later than men in the

Figure 1
Kaplan-Meier Survival Probabilities of Staying in the Labor Force. Men Exiting at Age 55-80, by Social Security Vesting, Nonmigrants and Short-/Medium-Term Migrants

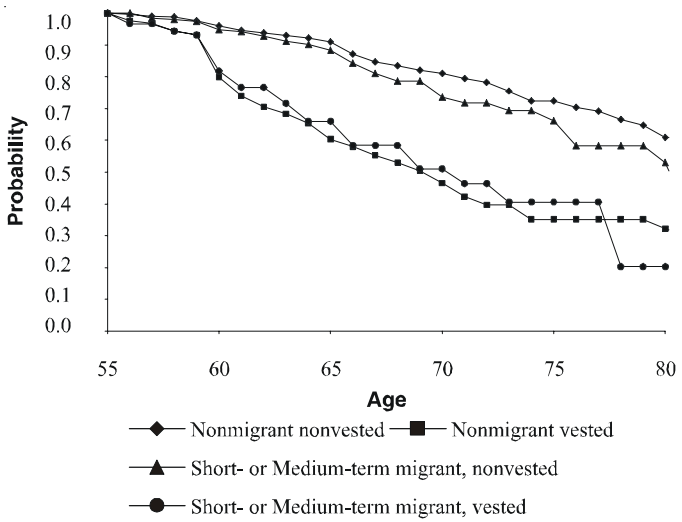
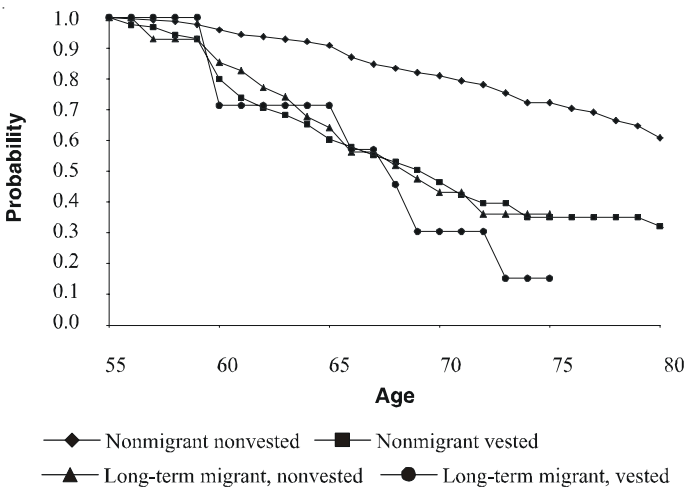


Figure 2
Kaplan-Meier Survival Probabilities of Staying in the Labor Force. Men Exiting at Age 55-80, by Social Security Vesting, Nonmigrants and Long-Term Migrants



other three groups. In turn, there is no significant difference between retirement patterns of vested nonmigrants and those of long-term migrants, vested (a small group) or not. Conceptually, the comparison of primary interest is that between vested nonmigrants and nonvested migrants. As the difference is largely nonsignificant (p-value for the Log-rank test=0.85), it appears that long-term migration does substitute for social security coverage.

Next, we turned to estimating the specific effects of cumulative months of both social security coverage and US migration experience controlling for other variables known to affect retirement probabilities. We did so by means of a discrete-time logistic regression model on the probability of exiting the labor force in year t, given controls in year t-1. Among the predictors we included the two variables of interest and an interaction term between the two, so that the coefficients for cumulative social security coverage and US migration experience reflect the effect of each of them when the other one is zero. Regression results are presented in Table 5. Both variables of interest showed positive effects. The effect of cumulative social security coverage was statistically significant and the effect of cumulative US migration experience was marginally significant (p-value=0.068). The coefficients were remarkably close (0.00271 for the former and 0.00245 for the latter), indicating that one month of US migration experience virtually substitutes for one month of social security coverage.

Table 5
Discrete-Time Logistic Regression on the Probability of Exiting the Labor Force#
Means, Estimated Coefficients, and Robust Standard Errors

Independent Variables	Mean	Estimated coefficient	Robust St Error
Cumulative coverage, US experience, and interaction term			
Cumulative months of Social Security Coverage	109.65	0.0027 **	0.0003
Cumulative Months of US Experience	17.92	0.0025	0.0013
Interaction term		0.0000	0.0000
Age	60.70	0.2273	0.1501
Age-Squared		-0.0012	0.0011
Years of Education	3.35	-0.0009	0.0180
Type of Occupation			
Agricultural Occupation	0.49	reference	
Unskilled Occupation	0.19	0.3325	0.2175
Skilled Occupation	0.25	0.7004 **	0.2350
Professional or Technical Occupation	0.06	0.4858	0.2837
Owns Business	0.22	-0.7265 **	0.2108
Owns at Least 10 Hectares	0.07	-0.3034	0.3540
Married	0.88	0.0651	0.1969
Number of Children	6.06	0.0256	0.0143
Parent a Migrant	0.02	0.1459	0.2632
Number of Migrant Siblings	0.26	0.0046	0.0746
In the US at the Time of the Survey ##	0.04	0.3366	0.3612

Table 5 (continued)

Independent Variables	Mean	Estimated coefficient	Robust St Error
Birth Cohort			
Pre-1910 Birth Cohort	0.01	-0.5613	0.5760
1910-1919 Birth Cohort	0.10	-0.8196 **	0.2442
1920-1929 Birth Cohort	0.27	-0.2551 *	0.1228
1930-1939 Birth Cohort	0.42	reference	
1940-1949 Birth Cohort	0.20	-0.5931 **	0.1568
Type of Community			
Rancho	0.20	reference	
Rural Town	0.30	0.1559	0.2703
Small City	0.20	0.0481	0.2380
Metropolitan Area	0.30	0.1289	0.2444
Constant		-13.8419 **	4.8925

Notes:
Number of observations = 12,583 person-years.
Number of events (labor force exits) = 351.
Exit in year t, all predictors as of year t-1.
Proxy for settlement.
Robust standard are adjusted for clustering of migrants in communities.
** $p < 0.01$; * $0.01 < p < 0.05$

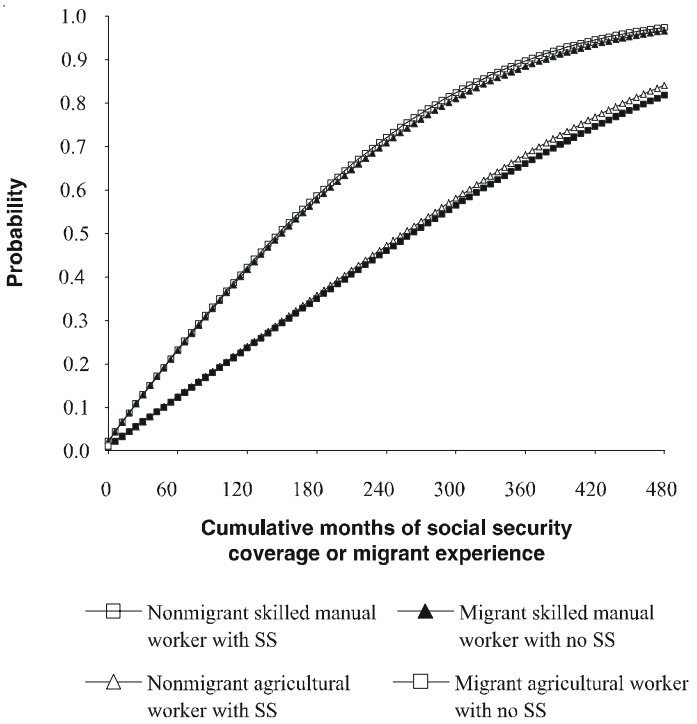
Figure 3 illustrates cumulative probabilities of exiting the labor force, predicted by the regression model, for agricultural and skilled manual workers under two scenarios: migrants with no social security contributions and nonmigrants with social security contributions.[7] The horizontal axis represents months of US experience or months of social security contributions, depending on the case. For each pair of cases, the figure shows the virtually exact trade-off between months of social security contributions and months of US experience. The gap between the two pairs, of course, corresponds to the large gap between retirement probabilities of agricultural and skilled manual workers.

4. Conclusion

Using retrospective longitudinal data collected by the Mexican Migration Project in 36 Mexican communities since 1999, we found that social security coverage is a strong predictor of migration decisions at the individual level. Other things being equal, and irrespective of whether the worker has prior migration experience, those holding jobs that do not contribute to social security have

[7] The remaining independent variables were kept at their means, except for "in the US at the time of the survey", which was set to zero.

Figure 3
Predicted Retirement Probabilities at Given Levels of Cumulative Months of Social Security Contributions or Migrant Experience, Agricultural and Skilled Manual Workers



odds of migrating that are about twice as large, and even larger, than the odds of migrating among those who hold jobs covered by social security. Then, lack of social security seems to act as a powerful incentive for international migration. We acknowledge that social security coverage may hardly literally be what migrant workers have in mind at the time of migrating. Instead, lack of social security coverage acts as an indicator of job informality. Rather than migrants choosing to move because of lack of social security coverage, it is those covered by social security who choose to *stay* because they have attained jobs that provide benefits that are worth keeping.

Yet, if workers with poor retirement prospects are more likely to migrate, does this turn out to be, in the end, a successful strategy to secure retirement? The answer depends on whether migration experience has an effect on timing of exit from the labor force. Survival curves for staying in the labor force after age 55 showed that short- to medium-term migration experience, defined as less than ten years, is not enough for nonvested migrants to match the retirement prospects of nonmigrants who become vested in the social security system by means of at least ten years of contributions. Longer migration experience, of at least ten years, is necessary for this to occur. At that level, nonvested migrants match the retirement rates by age of vested nonmigrants.

With substantial migration experience, therefore, Mexico-US migration seems to act as a substitute for social security.

We then proceeded to estimate probabilities of exit from the labor force after age 55 with a regression model that allowed us to pinpoint the separate effects of migration experience and cumulative social security contributions, each in the absence of the other. We found that, controlling for a number of relevant predictors of retirement, the effect of cumulative months of social security contributions with no migration experience is remarkably similar to the effect of cumulative months of migration experience with no social security contributions.

We cannot determine, using the MMP data, whether these migrants' exits from the labor force are the result of actual pensions or simply enhanced savings. However, we can piece some relevant information together. To receive a retirement benefit from the U.S. Social Security Administration (SSA), a worker needs to have contributed to the system for 40 quarters, or ten cumulative, not necessarily consecutive, years. While SSA checks may be part of the story, they are unlikely to play a major role. Research using census and immigration records in the United States has shown that, of a given immigrant cohort, between 25 and 28 percent eventually leave the U.S., and only 13 to 20 percent of immigrants who emigrate do so after 10 years in the United States (Duleep 1994). Using SSA records on beneficiaries living abroad (94% of whom are foreign-born), Duleep (1994) calculates that emigration tends to peak at 10-14 years of US residence, and that emigration is more likely the older the emigrants were at time of immigration. From these patterns she extracts two corollaries: first, the younger an immigrant is at the time of migration, the less likely he/she will be to emigrate after reaching social security eligibility; second, the longer immigrants reside in the US, the less likely they are to emigrate. In other words, immigrants are only marginally likely to follow a work-in-the-US / retire-at-home model. A simple look at the numbers should confirm this: in 2002, 23,782 persons received SSA retirement benefits in Mexico.[8] We do not know how many of these were older Mexican citizens, but the numbers do not look impressive: applying the corresponding proportions, if the MMP database were a representative cut of the Mexican population, we should then expect to find only five SSA pensioners in it. If, among Mexican men, U.S. migration experience increases the likelihood of exiting the labor force in old age, this seems to be a result of savings or accumulated wealth rather than SSA checks.

Indirectly, we have contributed to the debate concerning the informal economy. While there are many ways to define job informality, lack of social security coverage is generally considered a valid approximation. Our results show that job informality encourages emigration, or, conversely, that job formality deters it. Critics of the traditional dualistic approach to the informal economy sustain that under certain circumstances informality substitutes for the benefits of formal jobs. We showed that international migration can be a substitute as well, specifically concerning retirement prospects. For many, migration is a more reliable path than informality. We showed that informal workers are far more likely to migrate than formal workers, which suggests that, as long as migration involves risk, workers do value formal jobs more highly than informal jobs.

Just like most informal jobs are generally limited substitutes for the benefits of formality, international migration is no magic solution either. To succeed, migrant workers need to stay the

[8] 2003 Annual Statistical Supplement, table 5.J11, available online at www.ssa.gov.

course and accumulate months of migration experience just as they would ideally have accumulated months of social security contributions instead. Other things being equal, however, this strategy appears fruitful, and international migration seems to be an effective substitute for social security.

References

Castells, Manuel, and Alejandro Portes. "World Underneath: The Origins, Dynamics, and Effects of the Informal Economy." In *The Informal Economy: Studies in Advanced and Less Developed Countries*, edited by Alejandro Portes, Manuel Castells, and Lauren A. Benton, pp. 11-37. Baltimore and London: The Johns Hopkins University Press, 1989.

De la Briere, Bénédicte, Elisabeth Sadoulet, Alain de Janvry, and Sylvie Lambert. "The Roles of Destination, Gender, and Household Composition in Explaining Remittances: An Analysis for the Dominican Sierra." *Journal of Development Studies* 68, no. 2 (2002): 309-28.

Duleep, Harriet O. "Social Security and the Emigration of Immigrants." *Social Security Bulletin* 57, no. 1 (1994): 37-52.

Durand, Jorge, Douglas S. Massey, and René M. Zenteno. "Mexican Immigration to the United States: Continuities and Changes." *Latin American Research Review* 36, no. 1 (2001): 107-27.

Grandolini, Gloria, and Luis Cerda. "The 1997 Pension Reform in Mexico." Washington, D.C.: World Bank, 1998.

Hoddinott, John. "Modeling Remittance Flows in Kenya." *Journal of African Economies* 1, no. 2 (1992): 206-32.

Lucas, Robert E. B., and Oded Stark. "Motivations to Remit: Evidence from Botswana." *Journal of Political Economy* 93, no. 5 (1985): 901-18.

Maloney, William F. "Informality Revisited." *World Development* 32, no. 7 (2004): 1159-78.

Marcelli, Enrico A., and Wayne A. Cornelius. "The Changing Profile of Mexican Migrants to the United States: New Evidence from California and Mexico." *Latin American Research Review* 36, no. 3 (2001): 105-31.

Massey, Douglas S., Joaquín Arango, Graeme Hugo, Ali Kouaouci, Adela Pellegrino, and J. E. Taylor. *Worlds in Motion: Understanding International Migration at the End of the Millennium*. Oxford: Clarendon Press, 1998.

Massey, Douglas S., Jorge Durand, and Nolan J. Malone. *Beyond Smoke and Mirrors: Mexican Immigration in an Era of Economic Integration*. New York: Russell Sage Foundation, 2002.

Massey, Douglas S., and Kristin E. Espinosa. "What's Driving Mexico-U.S. Migration? A Theoretical, Empirical, and Policy Analysis." *American Journal of Sociology* 102, no. 4 (1997): 939-99.

Massey, Douglas S., and René Zenteno. "A Validation of the Ethnosurvey: The Case of Mexico-U.S. Migration." *International Migration Review* 34, no. 3 (1999): 766-93.

Portes, Alejandro, Manuel Castells, and Lauren A. Benton, editors. *The Informal Economy: Studies in Advanced and Less Developed Countries*. Baltimore and London: The Johns Hopkins University Press, 1989.

Portes, Alejandro, and Kelly Hoffman. "Latin American Class Structures: Their Composition and Change During the Neoliberal Era." *Latin American Research Review* 38, no. 1 (2003): 41-82.

Sana, Mariano, and Douglas S. Massey. "Household Composition, Family Migration, and Community Context: Migrant Remittances in Four Countries." *Social Science Quarterly* 86, no. 2 (2005): 509-28.

Sana, Mariano, and Douglas S. Massey. "Seeking Social Security: An Alternative Motivation for Mexico-US Migration." *International Migration* 38, no. 5 (2000): 3-24.

Scott, John. "Social Security and Inequality in Mexico: From Polarization to Universality." *Well-Being and Social Policy* 1, no. 1 (2005): 55-76.

Stark, Oded. *The Migration of Labor*. Cambridge, Massachusetts: Basil Blackwell, 1991.

Stark, Oded, and David E. Bloom. "The New Economics of Labor Migration." *American Economic Review* 75, no. 2 (1985): 173-78.

Stark, Oded, and Robert E. B. Lucas. "Migration, Remittances, and the Family." *Economic Development and Cultural Change* 36, no. 3 (1988.): 465-81.

Stark, Oded, and J. E. Taylor. "Relative Deprivation and International Migration." *Demography* 26 (1989): 1-14.

Tardanico, Richard, and Rafael Menjívar Larín, editors. *Global Restructuring, Employment, and Social Inequality in Urban Latin America*. Boulder, Colorado: Lynn Riener Publishers, 1997.

Taylor, J. E. "Undocumented Mexico-US Migration and the Returns to Households in Rural Mexico." *American Journal of Agricultural Economics* 69, no. 3 (1987): 626-38.

Taylor, J. E., and T. J. Wyatt. "The Shadow Value of Migrant Remittances, Income, and Inequality in a Household-Farm Economy." *Journal of Development Studies* 32, no. 6 (1996): 899-912.

U.S. Commission on Immigration Reform and Secretaría de Relaciones Exteriores (Mexico). *Estudio Binacional: Migración entre México y los Estados Unidos*. 1997.

World Bank. *Averting the Old Age Crisis*. Oxford University Press, 1994.

Zenteno, René, and Douglas S. Massey. "Especificidad Versus Representatividad: Enfoques Metodológicos en el Estudio de la Migración Mexicana hacia Estados Unidos." *Estudios Demográficos y Urbanos* 13, no. 3 (1998): 75-116.