AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
http://ageconsearch.umn.edu
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Department of Agricultural and Resource Economics
University of California, Davis

Impacts of Policy Reforms on the Supply of Mexican Labor to U.S. Farms: New Evidence from Mexico

by

Steve Boucher, Aaron Smith, J. Edward Taylor and Antonio Yúnez-Naude

Working Paper No. 05-006

September 2005

Copyright @ 2005 by Steve Boucher, Aaron Smith, J. Edward Taylor and Antonio Yúnez-Naude

All Rights Reserved. Readers May Make Verbatim Copies Of This Document For Non-Commercial Purposes by Any Means, Provided That This Copyright Notice Appears On All Such Copies.

Giannini Foundation for Agricultural Economics

Impacts of Policy Reforms on the Supply of Mexican Labor to U.S. Farms: New Evidence from Mexico

Steve Boucher*, Aaron Smith, and J. Edward Taylor

University of California, Davis

Antonio Yúnez-Naude

El Colegio de Mexico

September 4, 2005

*Corresponding author.
Agricultural and Applied Economics
University of California – Davis
One Shields Avenue
Davis, CA 95616

Phone: 530-752-1527
Fax: 530-752-1517
Email: boucher@primal.ucdavis.edu

Impacts of Policy Reforms on the Supply of Mexican Labor to U.S. Farms: New Evidence from Mexico

Abstract: The availability of immigrant farm-workers from Mexico is a critical factor affecting the fresh fruit and vegetable sector in the United States. This paper uses a retrospective panel data set from rural Mexico to examine the impact of the North American Free Trade Agreement and the Immigration Reform and Control Act on the supply of migrant labor to the United States. We find that, in contrast to policy expectations, both policies were associated with an increase in migration to U.S. farm jobs from rural Mexico.

Impacts of Policy Reforms on the Supply of Mexican Labor to U.S. Farms: New Evidence from Mexico

Introduction

The availability of immigrant farm-workers from Mexico may be the single most important factor shaping the future of fruit, vegetable, and horticultural (FVH) production in the United States. It affects cropping patterns, the choice of production technologies, and the ability of U.S. producers to compete with low-cost producers abroad. According to the National Agricultural Worker Survey (NAWS), Mexico-born persons represented an estimated 77 percent of the U.S. farm workforce in 1997-98 (up from 57 percent in 1990; U.S. Department of Labor, 2000 and 1991). Most of these workers (52 percent) were unauthorized. An overwhelming majority originate from households in rural Mexico (U.S. Commission on Immigration Reform, 1997).

Two major policy changes, the North American Free Trade Agreement (NAFTA) and the 1986 Immigration Reform and Control Act (IRCA) were aimed wholly or partially at curtailing the flow of unauthorized Mexico-to-U.S. migration, potentially reducing the supply of labor to U.S. farms. Impacts of policy changes on international migration have been the subject of little formal econometric research. This lack of research stems from the scarcity of data sets that accurately measure migration flows at regular time intervals. In this article we use a new and unique panel data set to assess whether the migration trend changed after each of these policy shocks.

Policy Background and Conceptual Framework

Given individual, household and community characteristics, policy changes alter the larger milieu within which migration decisions take place. However, isolating the effects of IRCA and NAFTA on international migration is complicated, for three reasons. First, the two policies were not discrete events. One would expect the reaction to IRCA and NAFTA to begin in the years in which these policies were first implemented (1986 and 1994, respectively). However, in neither case were all elements of the policy implemented simultaneously. Second, individual components of both policies were expected to have counteracting effects on migration behavior. Third, the migration response to policy reforms, like the migration process itself, is dynamic (Massey, et al., 1998). A one-time policy shock can have an impact on migration that extends over a long time period, shaped by networks, information filtering, and adjustment lags. An empirical approach, rooted in a dynamic framework in which migration depends upon the accumulated history of migration, itself, is required to estimate the impacts of complex policy changes on labor migration from rural Mexico to U.S. farms.

The 1986 Immigration Reform and Control Act

IRCA represented an exogenous policy effort to control migration. However, the final legislation represented a patchwork of compromises with theoretically conflicting influences on migration. It included employer sanctions to discourage unauthorized entry. However, it also included a general amnesty program for unauthorized aliens who had developed an equity stake in the United States and, under the Special Agricultural

Worker (SAW) Program, legalized unauthorized farm workers to give agriculture a legal work force. Finally, the legislation allowed for the admission of additional workers via the revised H-2A or Replenishment Agricultural Worker (RAW) program if legalized SAW workers left farm work quickly and farm labor shortages developed.

There were no farm labor shortages in the early 1990s, and the RAW program was allowed to expire without ever being used. Instead, average hourly earnings of farm workers fell relative to average manufacturing wages in the early 1990s, despite a recession and rising health care costs that held non-farm wages in check. This prompted the U.S. Commission on Agricultural Workers in 1992 to conclude that there was "a general oversupply of farm labor nationwide" and, "with fraudulent documents easily available," employer sanctions were not deterring the entry or employment of unauthorized workers.

The North American Free Trade Agreement of 1994

NAFTA deepened and ensured the continuity of agricultural liberalization in Mexico (Casco and Rosenzweig). The agricultural reforms included a phase-out of output-price supports for eleven agricultural field crops (grains and oilseeds termed basic crops, which include corn) as well as the activities of the state-run National Company of Popular Subsistence (CONASUPO) in processing, storing, and distributing crops and regulating trade through direct imports. By 1995-96, most of CONASUPO's subsidiaries and financial activities were dismantled, privatized or transferred to farmers. Concurrent with the dismantling of CONASUPO, the Mexican government reduced credit subsidies with

the expectation that private credit institutions would satisfy the credit requirements of Mexican farmers.

An agricultural marketing agency, ASERCA (Support Services for Agricultural Marketing), was created to substitute for some of CONASUPO's functions. The operations of ASERCA are directed towards marketing of basic crops, but the agency does not buy or store commodities, as CONASUPO did. ASERCA's marketing supports focus on medium and large commercial farmers, not on small farms from which most agricultural workers originate. ASERCA's functions also include implementing the PROCAMPO program of "de-coupled" income support for farmers of basic crops, with the purpose of facilitating the transition from price supports to freer and more open international markets. In contrast with marketing supports, PROCAMPO payments reach farm households in most rural communities.

In 1995 Mexico launched the "Alliance for the Countryside," whose main objective is to increase agricultural productivity and provide funds for farmers to make investments to better integrate their operations in the food chain and improve sanitary conditions. A major purpose of Alliance is to promote farming efficiency by exploiting potential comparative advantage via a shift from basic crops to fruits and vegetables. The coverage of Alliance is low in rural communities: fewer than 40% of rural communities receive program support (see www.precesam.colmex.mx, *Folletin 4*, and www.sagarpa.gob).

NAFTA was only partially motivated by migration concerns but was expected to have far-reaching impacts on migration flows.[1] In theory, however, NAFTA-related

policy reforms have potentially conflicting effects on migration from rural Mexico. Studies by Levy and van Wijnbergen and Robinson, et al., using computable general equilibrium models, predicted that employment created by increasing production of exportables would be insufficient to absorb workers displaced from the importables sector, leading to a rise in rural out-migration. The major catalyst for migration in these models is an anticipated decrease in maize production, which did not materialize (Taylor, et al). Agricultural exports from Mexico to the United States increased sharply after 1994, when Mexico joined NAFTA, but worker productivity in Mexican agriculture also increased, depressing farm labor demand. NAFTA provided a rationale for U.S. government interventions to stabilize the peso in 1995. There is evidence that currency devaluations, by increasing the economic returns to migration (i.e., dollars remitted by migrants) relative to local activities for which income is in pesos, stimulate migration (Massey, et al. 1998).

In sum, both IRCA's and NAFTA's possible impacts on migration are complex and theoretically ambiguous. Thus, the net effects of these policy shocks on the migration of labor from rural Mexico to U.S. farms can only be determined empirically. Isolating effects of policy changes on migration is further complicated by the diversity of sending-area characteristics and macroeconomic variables that potentially affect migration decisions. Migration propensities vary widely across localities in rural Mexico (Massey, Goldring and Durand). We control for this community level heterogeneity using village fixed effects. We also control for macroeconomic variables, including increased U.S. border enforcement; Mexican currency devaluations; shifts in per-capita

GDP, reflecting income opportunities in both countries; and migration networks, or contacts in both farm and non-farm labor markets in the United States, represented by lagged stocks of village migrants in these jobs.

Data

The data we use are from a nationwide rural household survey carried out jointly by the University of California, Davis, and El Colegio de Mexico in Mexico City. Past studies of Mexican labor supply to U.S. farms have had to rely on proxies including border apprehensions (e.g., Torok and Huffman) or data from surveys of small numbers of villages. The Mexico National Rural Household Survey (Encuesta Nacional a Hogares Rurales de Mexico, or ENHRUM) provides retrospective data on migration by individuals from a sample of rural households that is both nationally and regionally representative. The survey was carried out in January and February 2003. INEGI (*Instituto Nacional de Estadística, Geografía e Información*), Mexico's national census office, designed the sampling frame to provide a statistically reliable characterization of Mexico's population living in rural communities, defined by the Mexican government as communities with fewer than 2,500 inhabitants. For reasons of cost, individuals in hamlets or disperse populations with fewer than 500 inhabitants were not included in the survey. The result is a sample that is representative of more than 80 percent of the population that the Mexican census office considers to be rural. The sample for the present analysis includes 336 households from the West Central region, which

traditionally has been the largest source region for Mexico-to-U.S. migration and the focus of past migration surveys.[2]

The ENHRUM survey assembled complete migration histories from 1980 through 2002 for (a) the household head, (b) the spouse of the head, (c) all individuals who lived in the household 3 months or more in 2002, and (d) a random sample of sons and daughters of either the head or his/her spouse who lived outside the household longer than 3 months in 2002. The survey thus provides a unique, longitudinal data set on migration to U.S. farm jobs from a representative cross section of rural Mexican communities.

Census data show a sharp increase in Mexico-to-U.S. migration in the last two decades of the 20th Century. The Mexico-born population in the United States increased from 2.2 million in 1980 to 9 million in 2000 (Passel). During this period, the share of Mexico-born people living in the United States rose from 0.032 to 0.082.[3] Data from the ENHRUM reveal that, in 2002, nearly 17 percent of the adult population from West Central Mexico was working in the United States. Most migrants (13 percent) were employed in non-farm rather than farm jobs. Nevertheless, there was a gradual increasing trend in migration from Mexican villages to U.S. farms (see Figure 1). This trend in migration to U.S. farm jobs is the focus of the econometric analysis presented in this paper.

We use the percentage rather than the sum of villagers who migrated because the size of village populations in the synthetic cohorts created using retrospective data is biased downward as one goes back in time, as individuals are removed from the

population due to death (and thus are not available to be counted in 2003). However, when we re-estimated the model using sums rather than percentages of migrants, the results were qualitatively identical to the ones presented below. The data set for this region provides information on migration from 16 villages over 23 years (from 1980 to 2002); however, one year (16 observations) was lost as a result of lagged right-hand-side variables. Thus, the total sample size is 352. Variable definitions and means for all regressions are given in Table 1.

Estimation and Results

In this section, we analyze the dynamics of migration from Mexico to US farm jobs in the 1980s and 1990s. After demonstrating an upward trend over this period, we show how the trend shifted after the introduction of IRCA and NAFTA. Finally, we assess whether macroeconomic and other migration variables can explain the observed trend shifts.

As shown in Figure 1, the average migration rate across villages was increasing through the 1980s and 1990s. Individual villages may have deviated from this trend for some or all of this period. Furthermore, if these villages were above trend in one year they were probably above trend the following year, which induces serial correlation in village level migration.

To describe migration trends, we estimate a regression of the village migration rate, M_{jt}, on its lag and a time trend (t), controlling for an unobserved village component α_j , i.e.,

(1a) $$M_{jt} = \alpha_j + \gamma t + \delta M_{jt-1} + \varepsilon_{jt}$$

The lagged migration variable is correlated with α_j because migration from village *j* is correlated with the village fixed effect in all periods. Thus, we treat α_j as a fixed effect and estimate the model using the GMM estimator of Arellano and Bond. This estimator avoids the bias that results from estimation of dynamic panel models using the Least Squares Dummy Variable estimator.

We present estimates of γ and δ in the first column of Table 2. The estimated coefficient on lagged farm migration is 0.70, indicating substantial inertia in migration. The half-life of return to the trend from an unexpected change in migration is approximately 2 years. To assess whether one lag is sufficient to capture the migration dynamics, we report in the last row of Table 2 the p-value associated with Arellano and Bond's m_2 test. The value of .18 implies that a second lag is not required.

The positive estimated value of γ indicates an upward trend in migration to US farm jobs. This positive trend could result from a steady increase in migration over time, or it could, instead, be an artifact of sporadic policy changes. Specifically, the introduction of IRCA and NAFTA may have caused discrete shifts in migration rates. We measure such shifts by allowing the migration trend to change in the IRCA year and again in the NAFTA year. Thus we add intercept dummy variables for 1986 and 1994, yielding the following model:

(1b) $$M_{jt} = \alpha_j + \gamma t + \delta M_{jt-1} + \beta_1 IRCA_t + \beta_2 NAFTA_t + \varepsilon_{jt}$$

We present the estimated coefficients in column 2 of Table 2. Adding the IRCA and NAFTA variables to the regression turns the time trend coefficient negative, whereas the estimated coefficients on both the IRCA and NAFTA variables are positive and

significant. In effect, the positive trend in Model I is replaced by a step function in Model II. The estimated coefficient on the IRCA dummy indicates that the percentage of villagers in U.S. farm jobs shifted upward by 0.83 percentage points following the implementation of IRCA in 1986. This percentage shifts upward again, by 0.71 percentage points, following NAFTA in 1994. The coefficient on the lagged dependent variable in Model II is virtually unchanged from Model I, implying further increases in migration in the years immediately following the shifts, even though the long run trend is negative.

To elucidate this dynamic structure, we plot in Figure 2 the estimated average migration patterns over the sample period. We generate the estimated pattern by computing $E(M_{jt} \mid M_{j0})$, where we set the initial migration level, M_{j0}, and the fixed effect equal to the average across villages. We generate $E(M_{jt} \mid M_{j0})$ recursively using equation (1b), implying an intercept shift of 0.83 in 1986 and 0.71 in 1994. The solid line shows $E(M_{jt} \mid M_{j0})$, and the dashed lines indicate the long-run trends implied by α, β_1, β_2, δ and γ, i.e., $(\alpha + \gamma t + \beta_1 IRCA_t + \beta_2 NAFTA_t)/(1-\delta)$.

Figure 2 shows that IRCA and NAFTA were each associated with an increase in migration of about 1 percentage point over a four-year period following their introduction. After this four year period, migration levels began to decline. This pattern arises because of two countervailing forces; the negative trend coefficient γ pushes migration down, but the positive coefficients on the IRCA and NAFTA dummies and the feedback of lagged migration through δ push migration up towards the dashed long-run

trend lines. When the policies are first introduced, the positive effects dominate, but eventually the negative trend dominates. Given that migration levels averaged 2.6 percent prior to IRCA, these effects are large.

The small negative estimated coefficient on the time trend implies that the long-run trend in migration to U.S. farm jobs is slightly downward. This estimate reflects the fact that the migration level decreased in the two or three years immediately preceding the introduction of IRCA and NAFTA, and it also decreased in the last two years of the sample. Because the data only exhibit short periods of declining migration, one should exercise caution in extrapolating the negative trend too far out of sample. Nonetheless, the presence of three periods of declining migration, two of which were punctuated by policy shocks, indicates an underlying secular decline in the supply of migrant labor from rural Mexico to U.S. farms, which appears to have been temporarily reversed by IRCA and NAFTA.

We have shown that migration levels changed significantly after both IRCA and NAFTA. The empirical literature on long-run migration suggests that migration levels depend on relative wages and employment rates in the two countries (Treyz et. al. and Karemera, Oguledo, and Davis). We do not observe these variables for California agriculture or for Mexico over the entire period of this sample. However, we do observe several variables that can serve as proxies. To assess whether a standard migration model can explain shifts in Mexico-to-U.S. farm labor migration in 1986 and 1994, we add annual percentage changes in the peso-dollar exchange rate, per-capita GDPs of Mexico and the United States, U.S. border enforcement expenditures, and lagged non-farm

migration to our regression model.[4] Mexican currency devaluations increase the economic incentive to migrate by raising the value of dollars sent home by migrants in the United States. However, they also increase dollar-denominated migration costs. Per-capita GDPs are used as proxies for income and employment in the two countries. U.S. border enforcement expenditures influence the costs and risks of unauthorized border crossings. The non-farm sector may compete with agriculture for migrant labor from rural Mexico.

The addition of these variables increases the estimated effects of both IRCA and NAFTA on migration to U.S. farm jobs to 1.25 and 0.78 percentage points, respectively (see column 3 of Table 2). None of the macroeconomic variables significantly influence migration. In columns 4 and 5 of Table 2, we present estimates using two alternative estimators, namely the least squares dummy variable (LSDVC) and Panel GLS estimators. These methods produce similar estimates to the Arrellano-Bond estimator. Thus, we conclude that the increasing migration to U.S. farm jobs after 1986 and 1994 is attributable to NAFTA and IRCA.

Conclusions

Villages in Mexico are the primary source of labor to U.S. farms. The findings reported in this paper suggest that the U.S. farm labor supply from Mexico is a dynamic process, in which past migration is a driver of future migration. Our findings support the conclusion of past studies, such as those of Munshi and Taylor, that networks of existing contacts at migrant destinations are a key determinant of the magnitude of migration and sector of

employment for future migrants. Controlling for migration dynamics, the trend in Mexican migration to U.S. farm jobs is negative.

Several policies have been implemented in recent decades in an effort to reduce Mexico-to-U.S. migration. However, we find no evidence that these policies have curtailed the supply of rural Mexican labor to U.S. farms. In fact, econometric results suggest that IRCA and NAFTA increased the U.S. farm labor supply. Although IRCA imposed sanctions on employers who knowingly hired unauthorized immigrants, few penalties have been imposed. The legalization of 1.3 million farm workers under the Special Agricultural Worker (SAW) program, subsequent family reunification, and the emergence of farm labor contractors as a risk buffer for farmers may have created the stimulus to migration that is reflected in our econometric results (Thilmany). The findings presented here reinforce the conclusion of past research that IRCA did not reduce the supply of immigrant labor to U.S. farms (e.g., see Martin, et al. 1995).

The association between trade integration and migration is complex. The U.S. Commission for the Study of International Migration and Cooperative Economic Development concluded that "expanded trade between the sending countries and the United States is the single most important remedy" for unwanted migration. However, it also warned that "the economic development process itself tends in the short to medium term to stimulate migration." The same policies that accelerate economic growth -- including privatization, land reform, and freer trade -- temporarily increase migration pressures, because of the displacement and disruptions that accompany market liberalization (Martin, 1993). Low skilled workers in rural areas may be at a disadvantage in making the transition

to dynamic sectors during this adjustment process. U.S. farm jobs offer an employment alternative for rural Mexican workers.

Increased expenditures on border enforcement appear to have had no discernable effect on the U.S. farm labor supply from Mexico. The U.S. annual border enforcement budget increased sevenfold between 1980 and 1995, tripled between 1995 and 2001 and now exceeds $2.5 billion. Stricter border enforcement increases the risk of apprehension on any crossing attempt and raises the cost of U.S. entry for unauthorized migrants, but most migrants eventually succeed in crossing the border, and once they do, they now appear to stay longer in the United States (Public Policy Institute of California 2002; Singer and Massey 1998). This could explain the insignificant effect of border enforcement expenditures on the share of villagers in U.S. farm jobs.

In the long run, the migration of population out of rural areas surely will continue in Mexico, as it did previously in the United States and in all other high-income countries. The econometric findings reported in this paper highlight the difficulty of designing and implementing policies to break this migration dynamic, and they suggest that in the short run, policy reforms may have accelerated the movement of population out of rural Mexico.

Footnotes

[1] Presidents Salinas and Bush argued that opening up markets would help Mexico export more goods and fewer people, thereby reducing migration pressures. However, the Commission for the Study of International Migration and Cooperative Economic Development warned that freer trade could temporarily increase migration pressures as labor markets adjust to new market realities.

[2] The West-Central region – including the states of Jalisco, Guanajuato, Zacatecas, and Michoacan -- is the focus of Mexico Migration Project (MMP) surveys (Population Studies Center, University of Pennsylvania, Philadelphia (producer and distributor), www.pop.upenn.edu/mexmig/welcome.html). The MMP surveyed a random sample of households within communities, but the sample of MMP communities is not random.

[3] The share of Mexicans in the United States was calculated by dividing the U.S. Mexico-born population by the total Mexico-born population (Mexicans in the United States plus those living in Mexico) in each of the two census years. (Only a negligible share of Mexican emigrants are found in countries other than the United States.)

[4] Unlike agricultural wages and employment, these proxy variables can be considered exogenous to the level of migration to California agricultural jobs.

Figures and Tables

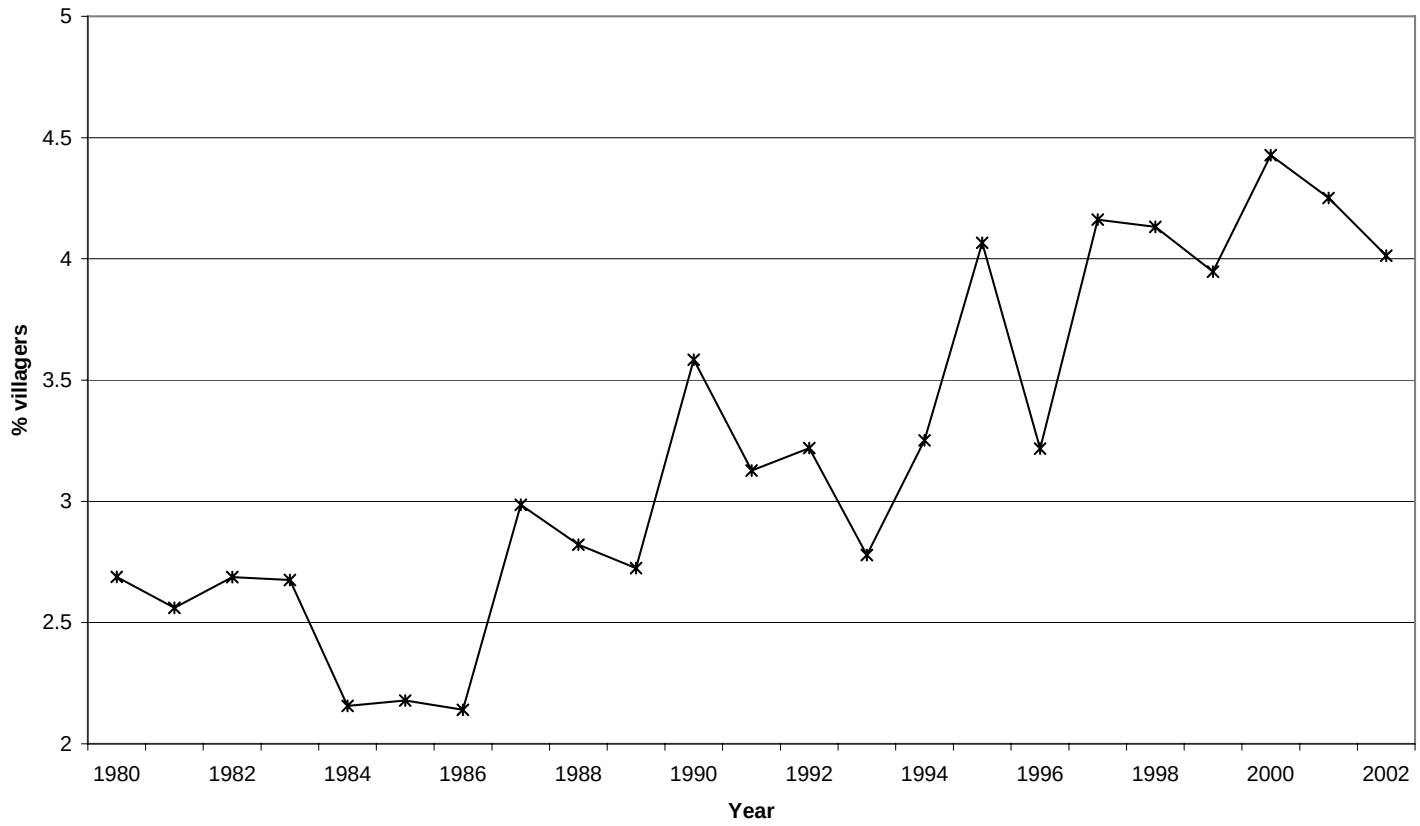

Figure 1. Percentage of villagers in U.S. farm jobs (West-Central Mexico: 1980 -2002)

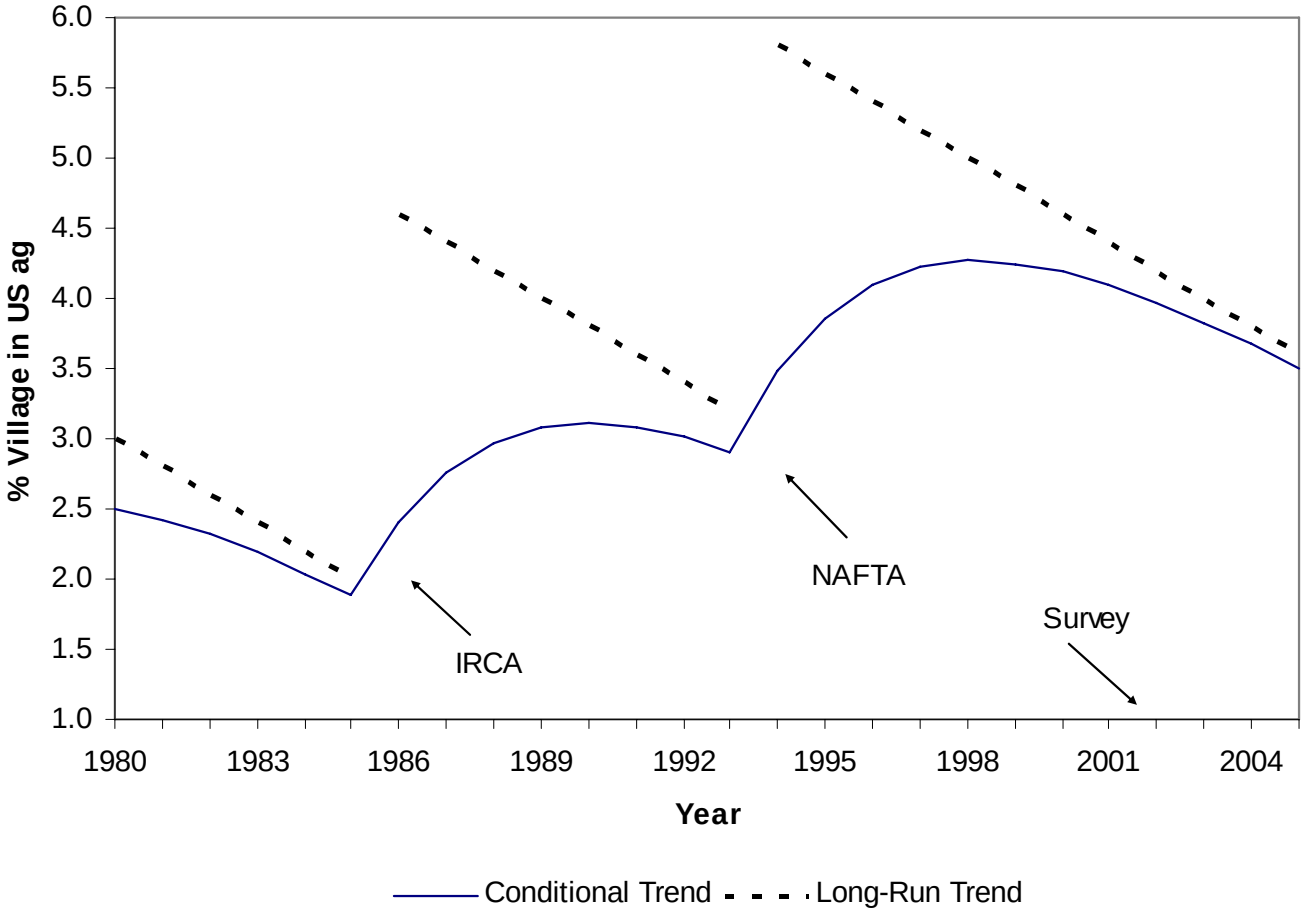

Figure 2. Conditional migration trends from rural Mexico to US agricultural jobs

Table 1. Variable definitions and means

Variable	Description	Mean
Linear trend	Time Trend (Year)	1991
% in US farm jobs (lag)	Lagged Percentage of U.S. Farm Migrants from village	2.1
IRCA	Dummy variable = 1 beginning in 1994	.8
NAFTA	Dummy variable = 1 beginning in 1986	11.4
Border expenditure	INS border enforcement expenditures in millions of 2000 US$	1,346.5
% in US non-farm jobs (lag)	Lagged Percentage of U.S. Farm Migrants	0.39
Exchange Rate	% change in Peso-Dollar exchange rate from previous year	0.70
Mexican GDP	Mexico per capita GDP in thousands of 1990 Pesos	14.0
US GDP	US per capita GDP in thousands of 2000 US$	26.6

Table 2. Estimated coefficients using Arellano-Bond (AB) procedure (LSDVC and Panel GLS estimates presented for comparison)

Variable	AB Model I	AB Model II	AB Model III	LSDVC	Panel GLS
Linear trend (γ)	0.03 (1.66)	–0.06 (–2.10)	–0.25 (–2.88)	-0.23 (-2.17)	-0.17 (-3.86)
Lagged % in US farm jobs (δ)	0.70 (14.03)	0.71 (15.43)	0.70 (13.33)	0.79 (21.68)	0.74 (26.37)
IRCA (β_1)		0.83 (2.73)	1.25 (3.60)	1.08 (2.61)	0.88 (5.44)
NAFTA (β_2)		0.71 (2.76)	0.78 (3.05)	0.67 (2.05)	0.41 (3.26)
Border expenditure			-0.07 (–0.39)	-0.07 (-0.40)	-0.01 (-1.53)
% in US nonfarm jobs (lag)			0.02 (1.02)	0.03 (1.22)	0.03 (10.39)
Exchange Rate			0.03 (1.08)	0.05 (1.30)	0.03 (2.28)
Mexican GDP			0.23 (1.19)	0.22 (1.15)	0.31 (3.98)
US GDP			0.05 (1.13)	0.04 (0.82)	0.01 (0.62)
Arellano-Bond $m_{2\ test}$ test (p-value)	0.18	0.17	0.15		

N=352
Dependent variable is ***% villagers*** in US Farm Jobs
All models were estimated with village fixed effects
z-statistics presented in parentheses. Bootstrapped z-statistics reported for LSDVC.

References

Casco, A., and A. Rosenzweig. *La política sectorial agropecuaria en México: Balance de una década*. Mexico City: Instituto Interamericano de Cooperación para la Agricultura, 2000.

Judson, R.A., and A.L. Owen. "Estimating Dynamic Panel Data Models: A Guide for Macroeconomists." *Economics Letters*, 65(1999): 9-15.

Karemera, D, V.I. Oguledo, and B. Davis. "A Gravity Model Analysis of International Migration to North America." *Applied Economics*, 32 (2000): 1745-1755.

Kossoudji, S. A. "Playing Cat and Mouse at the U.S.–Mexican Border." *Demography*, 29 (1992):159–80.

Levy, S., and S. van Wijnbergen. 1994. "Labor Markets, Migration and Welfare: Agriculture in the North American Free Trade Agreement." *Journal of Development Economics*, 43(1994): 263-178.

Lucas, R.E.B., and O. Stark. "Motivations to Remit: Evidence from Botswana." *Journal of Political Economy* 93(1985): 901-918.

Martin, P.L. *Trade and Migration: NAFTA and Agriculture*. Washington, D.C.: Institute for International Economics, 1993.

Martin, P.L., W. Huffman, R. Emerson, R.I. Rochin, and J.E. Taylor. *Immigration Reform and U.S. Agriculture*. Oakland: Division of Agriculture and Natural Resources, 1995.

Massey, D. S., J. Arango, G. Hugo, A. Kouaouci, A. Pellegrino and J.E. Taylor. *Worlds in Motion: Understanding International Migration at the End of the Millennium*. New York: Oxford University Press, 1998.

Massey, Douglas S., L. Goldring, and J. Durand. "Continuities in Transnational Migration: An Analysis of Nineteen Mexican Communities." *American Journal of Sociology*, 99(1994): 1492-1533.

Munshi, Kaivan. "Networks in the Modern Economy: Mexican Migrants in the U.S. Labor Market." *Quarterly Journal of Economics*, 18(2003):549-599.

Passel, J. *New Estimates of the Undocumented Population in the United States*. Washington, DC: Migration Policy Institute (http://www.migrationinformation.org/feature/display.cfm?ID=19), 2002.

Public Policy Institute of California. "Has Increased Border Enforcement Reduced Unauthorized Immigration?" Research Brief, Issue #61, 2002.

Robinson, S., M. Burfisher, R. Hinojosa-Ojeda, and K. Thierfelder (1993). "Agricultural Policies and Migration in a U.S. – Mexico Free Trade Area." *Journal of Policy Modeling*, 15(1993): 673--701.

Singer, A., and D.S. Massey. "The Social Process of Undocumented Border Crossing Among Mexican Migrants." *International Migration Review*, 32(1998): 561–92.

Taylor, J. E. Undocumented Mexico-U.S. Migration and the Returns to Households in Rural Mexico. *American Journal of Agricultural Economics*, 69(1987):626-38.

Taylor, J. E., A. Yúnez-Naude, F. Barceinas-Paredes, and G. Dyer. "Transition Policy and the Structure of the Agriculture of Mexico." Paper presented at the First Annual

North American Agrifood Market Integration Workshop, "North American Agrifood Integration: Situation and Perspectives," May 5-7, 2004, Cancun, Mexico.

Thilmany, D. "FLC usage among California growers under IRCA: an empirical analysis of farm labor market risk management." *American Journal of Agricultural Economics* 78(1996): 946-60.

Torok, S. J., and W. Huffman. 1986. "U.S. - Mexican Trade in Winter Vegetables and Illegal Immigration." *American Journal of Agricultural Economics* , 68(1986): 246-260.

Treyz, G.I., D.S. Rickman, G.L. Hunt, and M. J. Greenwood. "The Dynamics of U.S. Internal Migration." *Review of Economics and Statistics*, 75(1993): 209-214.

US Commission on Agricultural Workers. Final Report. Washington DC. Government Printing Office, 1992.

United States Commission on Immigration Reform. *Migration Between Mexico and the United States: Binational Study*. Editorial y Litografia Regina de los Angeles, S.A., Mexico City, 1997.

U.S. Commission for the Study of International Migration and Cooperative Economic Development. *Unauthorized Migration: An Economic Development Response*. Washington, D.C.: U.S. Government Printing Office, 1990: pp. xiii and 35.

United States Department of Labor. *Findings from the National Agricultural Workers Survey (NAWS) 1997-1998: A Demographic and Employment Profile of*

United States Farm-workers. Washington, DC: U.S. Department of Labor, Office of the Assistant Secretary for Policy, Office of Program Economics, Research Report No. 8, 2000.

_____. *Findings from the National Agricultural Workers Survey (NAWS) 1990: A Demographic and Employment Profile of Perishable Crop Farm Workers*. Washington, DC: U.S. Department of Labor, Office of the Assistant Secretary for Policy, Office of Program Economics, Research Report No. 8, 1991.