

IMPACTS OF MIGRATION

Transferability of Skills and the Economic Rewards to U.S. Employment for Return Migrants in Mexico

*Steven S. Zahniser & Michael J. Greenwood**

Introduction

Migration from Mexico to the United States is substantial. Mexico is the single most important source of legal immigration to the United States and the primary source of unauthorized migrants. Between 1989 and 1995, the United States admitted more than 2.5 million persons of Mexican birth as legal resident aliens. Over two million of these immigrants utilized provisions of the Immigration Reform and Control Act of 1986 (IRCA), which gave certain unauthorized entrants to the United States the opportunity to become legal residents. In 1995, the United States admitted as legal resident aliens 89,932 persons born in Mexico, of whom 2,972 were IRCA legalizations.¹ Moreover, between 1989 and 1994, the U.S. Border Patrol located 6.4 million persons from Mexico who were deemed deportable.²

Employment and earnings opportunities in the United States relative to Mexico are clearly a primary factor driving the flow of migrants. Massey et al., (1987) document how the costs of later Mexico-U.S. migration are reduced by earlier flows. These cost reductions perpetuate and even increase the flows over time (Massey, 1988). Although large numbers of additional migrants remain more or less permanently in the United States each year, the flow long has been characterized by return migration to Mexico (Massey et al., 1987; Mines, 1984; Ranney and Kossoudji, 1983; and Bustamante, 1977).³

Migration is an investment in human capital. As such, migrants themselves may anticipate a differentially higher return to their labor services in the United States than in Mexico. During their residence in the United States, migrants presumably learn new skills and may obtain additional education. For example, an agricultural laborer in Mexico may become an agricultural laborer in the United States, where new and different agricultural skills are acquired. In time, the individual may move to an urban area and work in endeavors that have little direct connection to agriculture, such as in restaurants or factories. If such persons subsequently return to Mexico, they bring with them knowledge and skills not acquired in Mexico. If this newly acquired human capital earns a reward in Mexico, then returning migrants will enjoy higher earnings than otherwise comparable individuals who never have migrated to the United States. Moreover, the anticipation of higher future returns in Mexico resulting from a period of U.S. employment may enter into the decisions of Mexicans regarding whether to migrate to the United States.

For various Mexican communities of origin, a number of case studies have attempted to assess the economic consequences of remittances sent home by migrants in the United States or U.S. savings brought back by returning migrants.⁴ For the most part, these studies do not acknowledge that new and different skills are accumulated when the migrant works in the United States, that these skills are more or less transferable back to Mexico, and that U.S.-acquired skills may have a payoff in Mexico. The probable reason for this prior lack of attention to this potentially important channel of influence on source communities is that until fairly recently comprehensive data relating to the income or earnings of Mexican migrants and nonmigrants have been unavailable.

In this paper, we utilize a unique data set collected by the Mexican Migration Project to explore the relationship between U.S. migration experience and the Mexican earnings of return migrants. We present evidence that return migrants reap substantial returns to their U.S. work experience in the Mexican labor market. Moreover, we advance a theoretical argument to explain why this finding is not altogether unexpected. Specifically, if a migrant's reservation wage in the United States is an increasing function of his or her U.S. experience, then the expected

wage in Mexico necessary to induce returning to Mexico is also an increasing function of that experience.

The paper is organized as follows. The following section, "Data," describes the data used in the paper and identifies their source. The section titled "Theoretical Model and Econometrics" lays out the theoretical model that guides our thinking regarding the reservation wage argument and describes the econometric techniques that we employ. The section titled "Empirical Results" discusses our empirical results, and the final section provides a summary and conclusions.

Data

The data for this paper are drawn from the Mexican Migration Project, an ongoing study of the migration experiences of households throughout western and central Mexico. The project, which is headed by Jorge Durand and Douglas Massey, has its roots in a 1982 study of four communities in the states of Jalisco and Michoacán (Massey et al., 1987) which have been the origin of much migration to the United States. Since 1987, the project has visited one or more new communities on an almost annual basis. Although the communities are not chosen at random, an effort is made to examine communities of varied sizes and economic bases in each state of the region. At this time, data are available for 43 communities in eight Mexican states. Table 1 provides an overview of these communities and their prominent features.

Typically the project interviews 200 household heads selected at random in each community. However, some household heads were in the United States at the time that interviews were conducted in their hometowns in Mexico. For this reason, the project traces and interviews about 20 such individuals from each Mexican community in the United States. Thus the overall sample contains persons who have never migrated to the United States, migrants who have returned to Mexico, and migrants who had not returned to Mexico by the time that the Mexican Migration Project visited their respective communities of origin.

Respondents are asked a variety of questions concerning their current demographic characteristics, the monthly income of the household head, and their families' migration experiences. The head of household is also asked to reconstruct his or her employment and migration history, which is used to calculate total U.S. migration experience. The interviews utilized in this paper occurred between 1982 and 1996, and all monthly income figures are converted to 1994 new pesos.

For the purposes of our analysis, we have excluded observations on household heads over 65 years of age. The resulting data set contains 5,273 observations, 4,884 drawn from the 43 communities in Mexico and 389 conducted in the United

Table 1
Sample Information

State/ Community Type	Survey Year	1990 Population	Political Category	Sample Size		Observations in Basic Earnings Model
				Mexico	U.S.	
Colima						
Town	1994	7,000	Municipal seat	200	20	149
Guanajuato						
Smaller urban area	1987	52,000	Municipal seat	201	20	56
Metropolitan area	1987	868,000	Municipal seat	200	0	149
Smaller urban area	1988	17,000	Municipal seat	200	22	139
Village	1988	2,000	<i>Tenencia</i>	150	10	119
Smaller urban area	1990	21,000	Municipal seat	200	20	137
Metropolitan area	1991	363,000	Municipal seat	200	20	133
Village	1991	1,000	<i>Tenencia</i>	100	10	56
Smaller urban area	1992	34,000	Municipal seat	200	15	127
Smaller urban area	1992	24,000	Municipal seat	200	15	152
Guerrero						
Metropolitan area	1993	101,000	Municipal seat	100	0	86
Town	1995	7,000	Municipal seat	153	0	99
Town (1)	1995	35,000	<i>Tenencia</i>	100	0	25
Jalisco						
Village	1982	3,000	Municipal seat	106	14	57
Village	1982	2,000	<i>Tenencia</i>	94	6	34
Town	1982	12,000	Municipal seat	200	20	100
Metropolitan area	1982	2,870,000	State capital	200	16	84
Town	1988	4,000	Municipal seat	200	22	62
Town	1988	5,000	Municipal seat	200	20	99
Village	1988	3,000	<i>Tenencia</i>	200	15	117
Smaller urban area	1,991	31,000	Municipal seat	200	20	115
Village	1992	1,000	<i>Tenencia</i>	100	7	60
Metropolitan area	1992	74,000	Municipal seat	201	20	116
Michoacán						
Town	1982	7,000	Municipal seat	200	20	98
Town	1989	6,000	<i>Tenencia</i>	200	20	125
Smaller urban area	1989	32,000	Municipal seat	200	20	126
Village	1989	2,000	<i>Tenencia</i>	150	20	57
Town	1990	7,000	Municipal seat	200	20	123
Metropolitan area	1991	493,000	State capital	200	20	165
Metropolitan area	1992	217,000	Municipal seat	200	13	134
Nayarit						
Smaller urban area	1990	20,000	Municipal seat	200	20	106
Town	1990	12,000	<i>Tenencia</i>	200	20	119
San Luis Potosí						
Metropolitan area	1993	526,000	State capital	200	0	92

Table 1 (Continued)

State/ Community Type	Survey Year	1990 Population	Political Category	Sample Size		Observations in Basic Earnings Model
				Mexico	U.S.	
Smaller urban area	1994	42,000	Municipal seat	200	0	112
Town	1995	13,000	Municipal seat	201	0	117
Village	1995	1,000	<i>Tenencia</i>	102	0	55
Village	1995	1,000	<i>Tenencia</i>	100	0	41
Zacatecas						
Town	1991	8,000	Municipal seat	365	20	176
Village	1991	1,000	<i>Tenencia</i>	187	0	39
Metropolitan area	1994	109,000	State capital	239	10	197
Village	1995	2,000	<i>Tenencia</i>	149	0	54
Smaller urban area	1995	34,000	Municipal seat	201	0	134
Village	1995	1,000	<i>Tenencia</i>	111	0	26

(1) Population figure for this community reflects the population of the entire municipality (similar to a county in the United States) and not just the population of the town. Population figures are rounded to nearest non-zero thousand.

A *tenencia* is a community that is not the seat of government of the municipality to which it belongs.

Sources: Mexican Migration Project, Table 1: Sample Information, web page (<http://lexis.pop.upenn.edu/mexmig/sampletable.html>), 1997; and INEGI (1993).

States. Of the 4,884 heads of household who were interviewed in Mexico, 4,367 were employed at the time of the interview. These 4,367 individuals are the focus of our investigation, but the information provided by those interviewed in the United States and those not working in Mexico is also used in the analysis.

Sample statistics are reported in Table 2. Of the 4,367 Mexican household heads in the sample who were employed at the time of the interview, 1,341 (30.7 percent) reported U.S. migration experience. This experience ranges from one month to over 45 years, but 72.4 percent of those with migration experience resided in the United States for five years or less. Migration experience also varies considerably by community, since certain communities have had considerable involvement for many years in what is widely seen as a cumulative phenomenon, whereas others have had little or no experience (Massey, 1994). The models described below therefore contain 42 community dummy variables that control for community differences as well as unobserved community characteristics that could influence income or earnings.

Table 2
Means and Standard Deviations for Observations
Used in Earnings Regression

Variable	Mean	Standard Deviation
Monthly income (in 1994 new pesos)	1,309.85	2,632.13
Return migrants	1,652.94	4,131.42
Non-migrants	1,229.91	1,156.99
Age (in years)	41.5661	11.6666
Mexican experience (in years)	28.2442	14.1155
U.S. experience (in years)	1.5119	4.0673
Female	0.0753	0.2640
Education (in years)	5.8099	4.7279
College educated	0.1049	0.3064
Married	0.9020	0.2974
U.S. migration experience of father precedes that of individual	0.1800	0.3842
U.S. migration experience of sibling precedes that of individual	0.3151	0.4646
Has relatives in the United States	0.6648	0.4721
Legal U.S. resident	0.0985	0.2980
Agricultural land owned (in hectares)	1.6375	18.1035
Owned agricultural land	0.1044	0.3058
Number of workers in household	1.8425	1.2406
Number of nonworkers in household	3.6011	2.1080
Spouse works	0.1523	0.3593
Business owner	0.2574	0.4372
Street vendor of food	0.0307	0.1725
Street vendor of goods	0.0181	0.1333
Grocery store	0.0369	0.1885
Cattle trader	0.0048	0.0692
Agricultural goods trader	0.0064	0.0798
Manufactured goods trader	0.0121	0.1095
Tortilla mill	0.0050	0.0708
Butcher shop	0.0046	0.0675
Restaurant	0.0073	0.0853
Workshop	0.0348	0.1833
Repair shop or garage	0.0080	0.0892
Small assembly shop	0.0039	0.0623
Other type of business	0.0584	0.2345
Occupational match	0.2214	0.4153

Table 2 (Continued)

Variable	Mean	Standard Deviation
Irregularly employed	0.0426	0.2020
Professional	0.0939	0.2917
Technician or manual laborer	0.0121	0.1095
Office worker	0.0360	0.1712
Salesperson	0.1216	0.3269
Industrial owner or supervisor	0.0048	0.0692
Skilled manual worker	0.2114	0.4083
Unskilled manual worker	0.1161	0.3204
Agricultural worker	0.2386	0.4263
Service worker	0.1287	0.3349

Theoretical Model and Econometrics

Individual i 's decision to return to Mexico from the United States involves a comparison of expected utility in the two countries. Let i 's expected utility in the United States be

$$(1) \quad u_i = u_i[w_{ius}(usexp_i), oy_{ius}, e_i],$$

and that in Mexico be

$$(2) \quad u_i^* = u_i^*[w_{imx}, oy_{imx} - c_i, e_i],$$

where $w_{ius}(usexp_i)$ is the wage rate in the United States, which is an increasing function of U.S. experience; w_{imx} is the expected wage rate in Mexico; oy_{ius} (oy_{imx}) is income from sources other than labor in the United States (Mexico); c_i is the fixed cost of moving from the United States to Mexico; and e_i measures unobservable taste factors. The individual returns to Mexico if and only if

$$(3) \quad u_i^* > u_i.$$

The probability of returning to Mexico is given by

$$(4) \quad P[i \text{ returns}] = P[u_i^*(w_{imx}, oy_{imx} - c_i, e_i) > u_i(w_{ius}\{usexp_i\}, oy_{ius}, e_i)].$$

If explicit functions are specified for u_i and u_i^* and if these are solved for e_i , the probability of returning to Mexico is given by

$$(5) \quad P[i \text{ returns}] = P[e_i > z(w_{imx}, w_{ius}(usexp_i), oy_{ius}, oy_{imx}, c_i)].$$

Now

$$(6a) \quad M_i = 1 \quad \text{iff} \quad e_i > z(\cdot), \text{ and}$$

$$(6b) \quad M_i = 0 \quad \text{otherwise,}$$

where $M_i = 1$ indicates that individual i returned to Mexico and $M_i = 0$ indicates that the individual did not return.

The reservation wage $w_{imx=imx0}$ is the value of w_{imx} for which

$$(7) \quad u_i^*[w_{imx}, oy_{imx} - c_i, e_i] = u_i[w_{ius}(usexp_i), oy_{ius}, e_i].$$

Thus the reservation wage is an increasing function of U.S. experience:

$$(8) \quad w_{imx=imx0} = f[w_{ius}(usexp_i), oy_{ius}, oy_{imx}, c_i].$$

Consequently, the more U.S. experience an individual has, the higher the expected wage in the United States, and thus the greater the expected wage in Mexico that is required to induce his or her return. More nonlabor income in the United States, such as from transfer payments, and higher costs of migrating back to Mexico also increase the reservation wage.

The econometric model estimated here is a standard human-capital, log-earnings function that includes variables for education, Mexican experience and its square, and U.S. experience and its square. Education is measured as the number of years of schooling completed. A dummy variable also is included for those who have education beyond the *preparatoria* (12 years of education), which corresponds to a high school education in the United States. In the types of communities included in the sample, individuals with any higher education are fairly rare and may thus earn a differential return due to their possible status as community leaders or, in general, community resources.

The variable for Mexican labor market experience is defined as age less six less years of schooling (less U.S. experience when relevant). U.S. experience is the number of years spent in the United States, which is defined as total months of U.S. experience divided by 12. Unfortunately, the survey instrument does not indicate the number of months that the individual actually worked in the United States,

so we assume that all months spent in the United States entailed work, which clearly overstates actual U.S. labor market experience. Moreover, the number of U.S. migration spells and their pattern of duration could influence the nature of human capital accumulation, but we employ a measure of cumulative months. Finally, if the primary occupation in the United States matches the primary occupation of subsequent employment in Mexico, a higher probability exists that occupation-specific human capital was transferred back to Mexico. The regressions contain a dummy variable that equals one if such a match exists and otherwise equals zero.

U.S. experience may have differential returns to various occupations in Mexico, depending in part on the relevance of the experience to Mexican employment opportunities, which in turn is likely to reflect the general versus specific form of human capital accumulated in the United States. The model therefore contains a vector of dummy variables that indicate the head of household's occupation. To identify specific Mexican occupations that reflect returns to U.S. experience, we interact these dummy variables with predicted U.S. experience.⁵ The model also contains demographic characteristics of the household head, including gender (equals one if female and zero if male) and marital status (equals one if married and zero otherwise). Moreover, it contains several household characteristics: a dummy variable that equals one if the household head's spouse works outside the home and otherwise equals zero; the total number of workers in the household; and the total number of nonworkers in the household.

A period of work in the United States may allow an individual to send remittances back to Mexico, or the migrant may return to Mexico with "pocket" savings. Such funds may be used in Mexico to invest in a business or agricultural land, in which instances reported income may include a return to the individual's business endeavors or land holdings. Thus for some observations the measure of reported income may include more than a return to human capital *per se*, since the Mexican Migration Project collects information only on income and not specifically on earnings. As a partial correction, the model includes a set of dummy variables for business ownership, which indicate the specific type of business owned by the household head.⁶ It also contains a measure of the amount of agricultural land owned. A cleaner way to examine the relationship between U.S. experience and the return to human capital in Mexico is to estimate the earnings regression only for those household heads with no business or land holdings. These results are reported below. Finally, as noted above, the model contains a set of occupational control variables.

The third control vector is a set of 42 community dummies that identify the various communities in which the Mexican interviews took place. The population size of the survey communities varies greatly, from less than a thousand to almost 2.9 million (based on 1990 census data). Observations from larger communities

may have greater variance and consequently cause heteroskedastic errors. A chi-squared test [$\chi^2(42) = 864.09, p < 0.0001$, in the most basic earnings model] easily rejects the null hypothesis of a homoskedastic error structure. Thus each earnings model contains a set of community dummy variables (whose results are not listed), as well as a correction for community-wise heteroskedasticity.

Mexican income is not observed for those household heads who were in the United States at the time of the interview, nor for those who were in Mexico at the time of the interview but were not working. Table 3 reports the results from two probit models, one for the probability of being interviewed in Mexico and one for the probability of working. Inverse Mills ratios are derived from these probits. The various equations of the model are identified. Unlike the income regressions reported below, neither probit contains the detailed business or occupation controls, but all regressions include community controls. Moreover, the probits contain two dummy variables that closely relate to the propensity of migrating to the United States. The first indicates the presence of any family member in the United States, and the second equals one if the individual is a legal U.S. resident and otherwise equals zero. Moreover, age and its square are included in the probit for the probability of being interviewed in the United States in place of Mexican experience, U.S. experience, and their squares.

Higher expected wages in the United States are clearly a major force in the flow of migration from Mexico. Moreover, expected wages in Mexico not only enter into decisions to migrate from Mexico to the United States, but they also influence return migration. Indeed, a major hypothesis of this paper is that experience gained in the United States influences the earnings of return migrants to Mexico. In this way, time spent working in the United States may influence the expected wage differential and thus affect the decision to return. Consequently, expected Mexican wages influence time spent working in the United States. For this reason, we treat the U.S. experience variable (and its square) as endogenous. Table 4 displays the results of a first-stage tobit regression from which the predicted values of U.S. experience are derived. All predicted values of U.S. experience less than zero are set to zero in the second-stage earnings regression.

Empirical Results

U.S. experience has a significant payoff in the Mexican labor market. An additional year of U.S. experience yields about an 8.9-percent return in Mexico in terms of monthly income (Table 5). Estimated at the mean income of those who never migrated, this amounts to 109 new pesos per month at 1994 prices, or about 28 U.S. dollars.⁷ Given the argument presented above that the reservation wage is an increasing function of U.S. experience, we are not entirely surprised at this

Table 3
Results of Probit Models of Location of
Interview and Employment Status

Variable	Location of Interview (Y1)	Employment Status (Y2)
Intercept	1.0563*	1.4580***
Age (in years)	0.0304	
Age squared	-0.0002	
Mexican experience		0.0180*
Mexican experience squared		-0.0006***
U.S. experience		-0.0456**
U.S. experience squared		0.0012*
Female	0.6608***	-1.2141***
Education (in years)	-0.0377***	0.0144
College educated	0.7898***	0.3254
Married	0.6505***	0.2657
Has relatives in the United States	-1.4398***	-0.0573
Legal U.S. Resident	-1.7006***	-0.1416
Agricultural land owned (in hectares)	-0.0016	-0.0009
Number of workers in household	0.0332	0.2245***
Number of nonworkers in household	0.0805***	-0.0655***
Spouse works	-0.6410***	-0.2494*
Business owner	0.3285***	0.0589
N	5,273	5,273
Interviewed in United States (Y1 = 0)	389	389
Interviewed in Mexico (Y1 = 1)	4,884	4,884
Not employed (Y2 = 0)	523	523
Employed (Y2 = 1)	4,750	4,750
Log Likelihood	-727.47	-934.50

Results for dummy variables denoting communities of origin are not reported.

Results of chi-squared test:*** passes at 99-percent level;** passes at 95-percent level;* passes at 90-percent level.

Table 4
Results from First-Stage Tobit Model Used to Generate
Fitted Values for U.S. Migration Experience

Vector/Variable	Parameter Estimate
Intercept	-2.1430
Individual characteristics	
Mexican experience (in years)	-0.1633***
Mexican experience squared	-0.0008
Female	-6.0484***
Education (in years)	-0.4951***
College educated	0.5413
Married	1.5676**
Migration networks	
U.S. migration experience of father precedes that of individual	1.8814***
U.S. migration experience of mother precedes that of individual	-1.0431***
Household characteristics	
Agricultural land owned (in hectares)	0.0047
Number of workers in household	0.9829***
Number of nonworkers in household	-0.0494
Spouse works	-3.0323***
Business ownership	
Street vendor of food	2.1945***
Street vendor of goods	1.5294*
Grocery store	3.8777***
Cattle trader	0.8394
Agricultural goods trader	-0.6807
Manufactured goods trader	2.6642***
Tortilla mill	0.5505
Butcher shop	2.5389*
Restaurant	0.5692
Workshop	2.1226***
Repair shop or garage	-2.6355
Small assembly shop	4.1532**
Other type of business	2.1819***
Occupation	
Irregularly employed	4.7324***
Technician or nonmanual laborer	-3.4277**
Office worker	-0.7933

Table 4 (Continued)

Vector/Variable	Parameter Estimate
Salesperson	0.6303
Industrial owner or supervisor	1.1224
Skilled manual worker	0.2427
Unskilled manual worker	0.6816
Agricultural worker	1.7832***
Service worker	0.4894
Mills ratios	
Interview location	10.6165***
Employment status	10.3724***
Scale factor	6.0631
N	4,367
Has U.S. migration experience	1,600
Lacks U.S. migration experience	2,767
Log likelihood	-6218.76
Results for dummy variables denoting community of origin are not reported.	
Results of chi-squared test: ***passes at 99-percent level;** passes at 95-percent level; *passes at 90-percent level.	

large return. In contrast, an additional year of Mexican experience yields a return of about 1.1 percent, and the square term for Mexican experience has the typical negative sign and is also significant. Thus an additional year of U.S. experience yields a monthly return that is at least eight times higher than that of an additional year of Mexican experience.

An additional year of Mexican education below the *preparatoria* level yields a monthly return in Mexico of 3.6 percent, or less than half the return to an additional year of U.S. experience. However, an additional year of education beyond the *preparatoria* yields a return of about twice that of U.S. experience. For those who do not plan to continue their education beyond the *preparatoria*, the former results suggest a strong incentive to migrate to the United States at the earliest possible age, return to Mexico with U.S. experience, and enjoy the higher returns in Mexico that are discounted less. This observation also may indicate one reason for the young ages at which many Mexican migrants make their first trip to the United States.⁸

Table 5
Results from Earnings Regressions

Vector/Variable	All Individuals	All Individuals	Business Owners	"Workers"
Intercept	7.0180***	7.0326***	6.9250***	7.2432***
Individual characteristics				
Mexican experience (in years)	0.0106***	0.0100***	0.0092	0.0115***
Mexican experience squared	-0.0001***	-0.0001***	-0.0001	-0.0001**
U.S. experience (fitted, in years)	0.0887***	0.0898**	0.0542*	0.1001***
U.S. experience squared	-0.0002	0.0001	0.0002	0.0010
Female	-0.1944***	-0.2038***	-0.3527***	-0.2553***
Education (in years)	0.0364***	0.0360***	0.0380***	0.0398***
College educated	0.1654***	0.1665***	0.1799*	0.0744
Married	0.1413**	0.1342**	0.1664	0.0134
Household characteristics				
Agricultural land owned (in hectares)	0.0017***	0.0016***	0.0014**	n.a.
Number of workers in household	0.0004	0.0001	(b)	-0.0101
Number of nonworkers in household	0.0082	0.0082	(b)	0.0116*
Spouse works	0.0224	0.0278	(b)	0.0378
Business ownership				
Street vendor of food	-0.0784	-0.0743	-0.0806	n.a.
Street vendor of goods	0.0456	0.0301	0.0740	n.a.
Grocery store	-0.0608	-0.0412	-0.0379	n.a.
Cattle trader	0.6025***	0.6074***	0.4581***	n.a.
Agricultural goods trader	0.1762	0.1637	0.2389*	n.a.
Manufactured goods trader	0.2046**	0.2211***	0.1747*	n.a.
Tortilla mill	0.3246***	0.3212**	0.3642***	n.a.
Butcher shop	0.1658	0.1983	0.0602	n.a.
Restaurant	0.1941	0.1891	0.1559	n.a.
Workshop	0.0633	0.0708	0.1011	n.a.
Repair shop or garage	0.4058***	0.4031***	0.3792***	n.a.
Small assembly shop	-0.3988***	-0.3953***	-0.1953	n.a.
Other type of business	0.1290***	0.1285***	n.a.	n.a.
Occupational match	0.1769***	0.1677***	0.1311*	0.2170***
Occupation interaction terms (a)				
Irregularly employed	n.a.	0.0098	n.a.	n.a.
Technician or nonmanual laborer	n.a.	6.2852	n.a.	n.a.
Office worker	n.a.	-0.0157	n.a.	n.a.
Salesperson	n.a.	-0.0614*	n.a.	n.a.
Skilled manual worker	n.a.	-0.0387	n.a.	n.a.
Unskilled manual worker	n.a.	0.0481	n.a.	n.a.
Agricultural worker	n.a.	0.0057	n.a.	n.a.
Service worker	n.a.	0.0333	n.a.	n.a.
Occupation				
Irregularly employed	-0.4515***	-0.4622***	-0.5662***	-0.5101***
Technician or nonmanual laborer	-0.2079**	-0.2129**	-0.4344**	-0.1462
Office worker	-0.2944***	-0.2887***	-0.7649***	-0.2899***

Table 5 (Continued)

Vector/Variable	All Individuals	All Individuals	Business Owners	“Workers”
Salesperson	-0.2758***	-0.2394***	-0.3721***	-0.4256***
Industrial owner or supervisor	0.5225***	0.5259***	0.1197	0.0182
Skilled manual worker	-0.2822***	-0.2673***	-0.4217***	-0.2957***
Unskilled manual worker	-0.3116***	-0.3416***	-0.5498***	-0.3438***
Agricultural worker	-0.5419***	-0.5444***	-0.5681***	-0.5770***
Service worker	-0.4162***	-0.4197***	-0.5240***	-0.4702***
Mills ratios				
Interview Location	-0.0919	-0.1011	0.1040	-0.2630***
Employment Status	-0.4202***	-0.4224***	-0.2873	-0.4997***
N	4,367	4,367	1,124	2,919
Log likelihood	-4,650.84	-4,632.90	-1,154.42	-2,883.59

n.a. = not applicable.

(a) No industrial owner or supervisor was estimated to possess U.S. migration experience, thus the interaction term for this occupational class was omitted from the model containing occupational interaction terms.

(b) To ensure convergence of the model for business owners only, these three variables were omitted.

Results for dummy variables denoting community of origin are not reported.

*** indicates $|t| \geq 1.96$; ** indicates $1.67 \leq |t| < 1.96$; * indicates $1.29 \leq |t| < 1.67$.

The regressions for “all individuals” contains business and land owners as well as “workers.” The control variables for certain types of businesses (cattle trader, manufactured goods trader, tortilla mill, repair shop or garage, and small assembly shop) are statistically significant, as is the control for the amount of agricultural land owned. Because the dependent variable entails a measure of income and not just earnings, it may reflect returns to factors of production other than labor. Remittances sent from the United States to Mexico and savings accumulated in the United States and brought back to Mexico could be invested in a business or a farm and thereby yield a return to capital and land. Thus the regression for “workers” may yield a more accurate assessment of the returns to human capital investments. This regression suggests an annual return to an additional year of U.S. experience of 10.0 percent, about nine times the return to the first year of Mexican experience.⁹

Business owners with U.S. migration experience earn more than their counterparts who lack such experience, as is evidenced by the model for business owners only. This model indicates that each year of U.S. experience increases the

income of business owners by 5.4 percent, but the coefficient is only marginally significant. Interestingly, additional experience in Mexico does not appear to raise the income of business owners, as the coefficients for this variable and its square are not statistically significant.¹⁰

The occupational match variable identifies return migrants who have the same occupation in Mexico as they had in the United States. These individuals enjoy a particularly high return of 17.7 percent. The life histories of these persons reveal that practically all of them also had experience in their present occupation *prior* to their first U.S. migration experience. These individuals therefore possess the distinct advantage of accumulating skills and knowledge in the same occupation over an extended period of time, uninterrupted by their spells as migrants. This characteristic may explain the strikingly high returns to the occupational-match variable.

When the U.S. experience variable is interacted in the regressions for all individuals with the various occupational dummies, the resulting coefficients are not statistically significant, except for the salesperson interaction term. A similar regression for “workers” only, whose results are not reported, does not generate any significant parameter estimates for these terms.

We also implement two alternative econometric specifications, although we do not report their results for want of substantially different results from our basic model. The first of these replaces the Mills ratio pertaining to interview location with a “spliced” Mills ratio vector. Specifically, we estimate two separate probit models to generate an alternative Mills ratio for the interview location in order to distinguish return migrants from non-migrants. One probit model contains the return migrants and the U.S. respondents, and the other contains the non-migrants and the U.S. respondents. We then “splice” together the two vectors of Mills ratios generated by these models to form a single vector and substitute this new vector into the first-stage tobit and second-stage earnings regressions. The motive for this innovation is our concern that the nested, two-tiered selection process experienced by return migrants may influence the results of the income regression, as return migrants first decide to migrate to the United States and then later elect to return to Mexico. However, the substitution of the “spliced” vector causes no noteworthy changes in the results of the earnings regression.

The second alternative incorporates several additional variables related to U.S. immigration status. Mexicans who are legal U.S. residents may possess certain advantages and disadvantages relative to Mexicans without documents. For example, U.S. employers may be more certain of the continuing presence of workers with documents and therefore may be more likely to give them jobs that entail added responsibility. In general, the U.S. employers of workers who are legally entitled to work in the United States have more incentive to train and otherwise invest in these workers than in workers whose continued employment is uncertain.

Similarly, Mexican employers may be less likely to employ and less likely to train workers with legal U.S. residency out of concern that these persons may soon depart for the United States. For these reasons, we estimate an earnings equation that includes a dummy variable equal to one if the individual is predicted to possess legal residency in the United States and zero otherwise. Interaction terms between this variable and U.S. experience and its square are also included. Because the probability of obtaining legal residence in the United States increases with U.S. experience, we treat the documents variable as endogenous and estimate a first-stage probit for this variable. Predicted values of the variable less than or equal to 0.5 are set equal to zero in the corresponding earnings regression, and values greater than 0.5 are set equal to one. However, none of these variables generate statistically significant parameters in the earnings regression.

Summary and Conclusions

Migration from Mexico to the United States may affect the Mexican economy in numerous ways through several potential channels of influence. As a substitute for trade in goods, the flow of labor may reduce exports from Mexico to the United States. Migrant remittances that flow from the United States back to Mexico may affect both consumption patterns and capital accumulation in Mexico. By reducing excess labor supply in Mexico, migration may lessen not only employment and underemployment, but also social tension.

Due to the volume of migration from Mexico to the United States and the circularity of the flow, human capital acquired during a period of employment in the United States and returned to Mexico may be one of the strongest channels through which migration affects the Mexican economy. However, data limitations on the Mexican side of the border have prevented a detailed analysis of this channel of influence. In this study we employ a unique set of survey data to study the impact of migration on the wages of returning migrants relative to a control group of individuals who have never participated in migration to the United States.

Presumably, those Mexicans who migrate to the United States expect to earn a higher return on their labor services in the United States than in Mexico, given their costs of migrating. If they had not participated in U.S. migration, these same individuals also may have earned higher returns in Mexico than their non-migrating counterparts. To control for the possibility that the resulting parameter estimates are tainted by selectivity bias, we perform a Heckman selectivity correction by estimating a probit model for the probability of participating in U.S. migration. This regression is distinguished from the earnings equation by the inclusion of a set of variables relating to possible migration networks that facilitate movement to the United States. The equation yields an inverse Mills ratio that is employed in the

earnings equation. The model also contains a second selectivity correction for participation in the Mexican labor market.

The higher an individual's expected earnings in Mexico, the less time he or she will wish to devote to work in the United States, *ceteris paribus*. Thus potential Mexican earnings and time spent working in the United States are endogenous. To account for this endogeneity, we estimate a first-stage tobit model for total U.S. migration experience. Finally, because observations are drawn at different times from communities of varying size and economic circumstances, we include a set of community dummy variables and provide a correction of community-wise heteroskedasticity.

Empirical results indicate a high return to U.S. experience that is at least eight times as great as the return to Mexican experience. Moreover, for those persons who transfer accumulated occupational skills from the United States to Mexico in the sense of having the same broad occupation in each country, monthly income increases an additional 17 percent. These results suggest that Mexican migration to the United States, in addition to being encouraged by the expectation of higher wages in the United States, may be spurred by the expectation of higher wages in Mexico for those who return. The returns to U.S. experience are about twice as high as the returns to less than 12 years of Mexican education, which gives persons who do not plan to continue their education beyond the *preparatoria* a powerful incentive to migrate at the youngest possible age.

Notes

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1. U.S. Department of Justice, various issues. Immigration statistics are for fiscal years, not calendar years.

2. U.S. Department of Justice (1996), Table 74.

3. Census data place the Mexican-born population in the United States at 759,711 in 1970, 2,199,221 in 1980, and 4,298,014 in 1990 (U.S. Bureau of the Census, 1973, 1984, 1994).

4. Durand and Massey (1992) survey many of these case studies.

5. The occupational dummy variables are listed in Table 5. The excluded comparison group is professionals and administrators.

6. The business dummy variables are listed in Table 5. The excluded comparison group is household heads who do not own a business.

7. The figure in U.S. dollars was calculated using the period-average exchange rate for 1994 in International Monetary Fund (1997).

8. When one considers all members of the households surveyed by the Mexican Migration Project (including the grown offspring of the household heads) who were born between 1961 and 1970, half of those with U.S. experience made their first trip to the United States by the age of 19.

9. As Table 1 indicates, five communities in the sample were surveyed in 1982, and the other 38 between 1987 and 1996. When these first five communities are removed from the sample and the series of models is re-estimated, the results change very little, although the estimated return to U.S. experience is somewhat larger. The coefficient for predicted U.S. experience (0.0963) remains highly significant, as do the coefficients for Mexican experience and its square (0.0121 and -0.0002). In contrast, when two outlying observations with monthly income in excess of 35,000 new pesos are dropped from the sample, the estimated return to U.S. experience is slightly smaller. The coefficients from this re-estimation of the model are also statistically significant: 0.0875 for the fitted value of U.S. experience and 0.0115 and -0.0002 for Mexican experience and its square.

10. A separate model for landowners only failed to converge, presumably due to the small number of observations. An ordinary least-squares regression for this group produced statistically insignificant parameter estimates for U.S. experience and its square.

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