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# Engines of Immigration: Stocks of Human and Social Capital in Mexico\*

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*Objective.* We seek to measure stocks of migration-specific human and social capital available to Mexican immigrants and to quantify their effect in promoting out-migration to the United States. *Methods.* We use data from the Mexican Migration Project to measure the share of people in western Mexico who have been to the U.S., who are socially connected to someone who has migrated to the U.S. in the past, and who are socially connected to someone living in the U.S. at the time of the survey. *Results.* We find that 40% of household heads from this region—and 20% of all persons of labor force age—have been to the United States at least once in their lives. In addition, 25% of household heads have an immediate family member currently living in the United States; 61% have a member of their extended family living north of the border; and 37% report knowing a friend in the U.S. at the time of the survey. All told, 73% of household heads in western Mexico are socially connected to someone living north of the border, and 81% at least know someone with U.S. experience. *Conclusions.* These extensive stocks of human and social capital lead to very high probabilities of out-migration over the course of a Mexican's life and suggest that migration to the United States may continue even as economic pressures to migrate diminish.

Mexican migration to the United States is the largest sustained international movement anywhere in the world. During the 1960s, legal Mexican immigration totaled 430,000 persons; but in the 1970s, it grew to more than 680,000, and by the 1980s, it reached the remarkable figure of 3 million (U.S. Immigration and Naturalization Service [INS], 1992). Woodrow and Passel (1990) estimate that another 800,000 Mexicans arrived without documents between 1980 and 1990, and official statistics reveal that some 12 million entered the United States as temporary visitors (INS, 1992). During the first half of the 1990s, 2.2 million legal Mexican immigrants

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arrived, exceeding the record pace set during the prior decade (INS, 1996). Since 1942, when labor recruitment from Mexico last began, at least 6.3 million Mexicans have immigrated to the United States.

In a recent article, Massey and Espinosa (1997) argued that three fundamental forces account for the high and rising rate of immigration from Mexico. The first is market consolidation, which involves the extension of capitalist markets into less-competitive sectors of the Mexican economy, a force given considerable impetus by the enactment of the North American Free Trade Agreement on January 1, 1994. Although of great importance in understanding Mexican immigration, this force is not of primary interest here. The other two forces—social capital formation and human capital accumulation—are directly related to the analysis we seek to undertake.

Social capital emanates from interpersonal ties that acquire instrumental value for Mexicans seeking to enter the United States and find a job. People who have already been to the U.S. are in a position to help friends and relatives travel northward, cross the border, and obtain work by providing information, contacts, and material assistance (Espinosa, 1997; Espinosa and Massey, 1997). Ties to current or former migrants thus yield social capital: people socially connected to U.S. migrants are more likely to emigrate themselves, and each act of migration creates additional social capital that encourages still more migration. According to Massey and Espinosa (1997:989), “After more than 50 years of continuous development, this process of social capital formation is well-advanced and largely self-sustaining . . . so that social capital . . . is very widely diffused throughout the Mexican population.”

Human capital refers to knowledge, skills, and experience that enhance an individual’s potential value as an economic actor. Among migrants to the United States, the most important kind of human capital comes from migratory experience itself, which is accumulated across successive U.S. trips. The more experience a migrant has crossing the border, living in the United States, and working in U.S. labor markets, the lower the potential costs and the higher the likely benefits of migrating again. As a result, the probability of making additional trips rises with each trip taken. The more one migrates, the more one is likely to continue migrating, yielding a self-reinforcing cycle of human capital formation. Once again Massey and Espinosa (1997:989) state that “after 50 years of constant movement back and forth, the human capital necessary to support mass migration is also widely diffused throughout Mexico.”

The importance of human and social capital to migration decisions has been well documented. Studies repeatedly have shown that Mexicans with prior U.S. experience, or with ties to persons with such experience, exhibit a markedly greater probability of emigrating than those who lack these resources (see Massey et al., 1987; Massey and García España, 1987; Kossoudji, 1992; Taylor, 1986, 1987; Jasso and Rosenzweig, 1988;

Zahniser, 1996). Despite Massey and Espinosa's (1997:987) bald assertion that human and social capital are "widely diffused throughout Mexico," however, no study has actually *documented* this fact. To date there has been no attempt either to count the relative number of Mexicans with U.S. experience, or to determine the share who have some tie to a current or former U.S. migrant. If these numbers are both small, then the potential for future emigration will be limited no matter what the effect of U.S. experience or social ties on the odds of out-migration; but if either of the numbers is large, the potential for future migration is considerable.

In this paper we draw upon a unique data set to describe the stock of migration-relevant human and social capital available to residents of western Mexico. After presenting the average level and distribution of U.S. experience among Mexican residents, we document the kind, number, and range of social ties they have to current and former U.S. migrants. We then estimate a model to predict, from prior experience and social connections, the odds of U.S. migration and use the model to estimate the annual probability of emigration typical for men in western Mexico today. We conclude by considering the implications of our analysis for the future of Mexico-U.S. migration and discuss how results might be generalized to Mexico as a whole.

## Data

Our data come from the Mexican Migration Project (MMP), which in 1982 and successive years from 1987 to 1994, surveyed two to five Mexican communities annually using simple random-sampling methods. The surveys were generally conducted in December and January, when seasonal migrants return to Mexico and are available for interviewing. The sample size was typically two hundred households, unless the community had fewer than five hundred residents, in which case a smaller number of households was selected.

The thirty-eight communities analyzed for this study are all located in western Mexico and were not chosen using probability mechanisms, but were purposely selected to incorporate a variety of population sizes, geographic situations, ethnic compositions, economic bases, and migratory experiences (see Massey, Goldring, and Durand, 1994; Massey and Espinosa, 1997). Information about the communities and samples is summarized in Table 1. The communities vary in size from under 300 persons to almost 3 million, yielding an average size of around 92,000 inhabitants. Although our sample is not strictly representative of the states of western Mexico, it contains a broad cross section of households and communities in the region and yields a remarkably representative profile of its international migrants (Zenteno and Massey, 1999).

TABLE 1

**Mexican Communities Sampled for Study of Savings and Remittances of  
Migrants to the United States**

State and Urban Rank	Rounded 1990 Population	Mexican Sample			U.S. Sample	
		Refusal Rate	Sample Size	Sampling Fraction	Sample Size	Sampling Fraction
Colima						
City	24,500	.087	200	.102	20	.028
Guanajuato						
Metro area*	868,000	.119	200	.232	0	.000
Metro area*	363,000	.057	200	.100	20	.999
City*	52,000	.034	200	.256	20	.121
City	33,000	.072	200	.072	15	.023
City	24,000	.127	200	.113	15	.217
City	21,000	.047	200	.053	20	.047
Town	17,000	.057	200	.073	20	.816
Rancho	1,500	.085	150	.605	20	.999
Rancho	1,000	.029	100	.699	10	.999
Jalisco						
Metro Area*	2,870,000	.048	200	.241	16	.227
City*	74,000	.074	201	.119	20	.052
City	31,000	.044	200	.113	20	.038
Town	12,000	.038	200	.105	20	.228
Town	5,000	.115	200	.250	20	.642
Town	3,500	.038	200	.392	20	.127
Rancho	3,000	.010	200	.375	15	.260
Rancho	3,000	.038	106	.183	14	.159
Rancho	2,000	.037	94	.215	6	.144
Rancho	1,000	.029	100	.467	7	.425
Michoacán						
Metro area*	493,000	.083	200	.056	20	.098
Metro area*	217,000	.083	200	.184	13	.065
City	32,000	.037	200	.029	20	.009
Town	7,000	.057	200	.139	20	.248
Town	7,000	.015	200	.104	20	.020
Rancho	6,500	.050	200	.143	20	.035
Rancho	2,000	.152	150	.335	20	.999
Nayarit						
City	20,000	.045	200	.045	20	.012
Town	11,000	.010	200	.074	20	.014
San Luis Potosí						
Metro Area*	526,000	.048	200	.232	0	.000
City*	42,000	.052	200	.278	0	.000
City	23,000	.024	200	.580	20	.090
Rancho	1,000	.000	200	.302	0	.000
Rancho	1,000	.000	102	.999	0	.000
Zacatecas						
Metro area*	100,000	.142	239	.127	10	.147
Town	7,500	.127	365	.213	20	.017
Rancho	2,000	.063	149	.512	10	.164
Rancho	1,000	.025	187	.803	0	.000

\*Sample of urban neighborhood rather than entire community.

The Mexican community samples were supplemented with nonrandom surveys of out-migrants from each community who were located and interviewed in destination areas of the United States. Questionnaires were generally administered during the summer following each winter's survey. The U.S. samples were gathered using snowball-sampling methods and focused on migrants who had settled north of the border permanently and no longer returned to Mexico regularly. The total binational sample contains information on 7,143 households surveyed in Mexico and 456 households interviewed in the United States.

The questionnaire gathered data on the social, economic, and demographic traits of all household members, including basic information on first and last trips to the United States (year of departure, duration of trip, U.S. destination, U.S. occupation, wages earned, documentation, and total number of trips made). For each household head, the questionnaire also obtained detailed information on the range of social connections to current and former U.S. migrants. From these data we developed several measures of human and social capital to use in our analysis.

Migration-specific human capital "consists of skills, knowledge, and abilities acquired as a direct result of participation in the U.S. economy" (Massey and Espinosa, 1997:948). We proxy it with three basic indicators: the number of U.S. trips, cumulative U.S. experience, and total time elapsed since the last U.S. trip. As trips accumulate and experience grows, we expect the odds of taking a successful U.S. trip to rise (yielding an easier border crossing, a better job, higher earnings, and fewer problems generally). The more time elapsed since the last U.S. trip, however, the less useful we expect experience obtained on prior trips to be. Like other forms of capital, human capital depreciates over time.

Social capital stems from connections to current or former U.S. migrants. In this analysis, a current migrant is defined as someone living in the United States at the time of the survey, and a former migrant is someone who has been to the U.S. at some time in the past. In order to capture qualitative differences in social capital stemming from differences in the closeness of social ties, we considered three kinds of social relationships: ties to immediate family members (parents, siblings, and grandparents), ties to extended family members (aunts, uncles, cousins, and in-laws), and ties to friends (nonfamily social relations).

We focus our study on those most at risk of taking a trip to the United States—persons of labor-force age—and pay particular attention to household heads, about whom we have the most detailed information on social capital. In describing the quantity of U.S. experience and the range of social ties to U.S. migrants, we use data from the Mexican community samples alone; but when we estimate statistical models to predict the probability of out-migration, we include data from the U.S. surveys to avoid

TABLE 2

Indicators of Migration-Specific Human Capital among Respondents Surveyed in Thirty-Eight Communities of Western Mexico

Human Capital Indicator	Persons 15–64		Household Heads	
	MMP	Adjusted	MMP	Adjusted
Made at least one U.S. trip	19.6%	15.7%	40.5%	32.4%
Of those with at least one U.S. trip:				
Percentage with legal papers	24.9%	—	22.3%	—
Mean number of trips	3.6	—	4.8	—
Mean months of U.S. experience	50.0	—	57.1	—
Mean years since last U.S. trip	7.8	—	13.0	—
Number of cases	21,457		7,043	

selection bias (although nearly the same results are obtained when U.S. respondents are excluded). All analyses are based on unweighted data (but again results are the same when weights are used).

### The Stock of Migration-Specific Human Capital

Table 2 shows the quantity of migration-specific human capital accessible to respondents aged 15–64 at the time of the survey, as well as to household heads. Among those of labor-force age, nearly 20% had been to the United States at some point in their lives, and among household heads the percentage was over 40%. Considering only those persons with U.S. experience, roughly a quarter of both household heads (24.8%) and persons of labor-force age (22.3%) had acquired legal papers by the time of the survey, and the average duration of U.S. experience was more than fifty months for both groups (i.e., four years or more). Household heads had taken an average of nearly five (4.8) trips to the U.S., compared to around four (3.6) for persons of labor-force age. In general, U.S. experience was fresher for persons of labor-force age than for household heads: whereas the former had made their last trip an average of 7.8 years prior to the survey, the latter had made theirs 13 years ago.

A recent study by Zenteno and Massey (1999) systematically compared estimates derived from the Mexican Migration Project (MMP) with estimates derived from Mexico's National Survey of Population Dynamics (known by its Spanish acronym ENADID), a large nationally representative survey fielded by Mexico's National Statistical Institute (INEGI). This exercise revealed that the MMP overstated the incidence of U.S. migration in western Mexico by about 20%. Although Zenteno and Massey argue that the MMP's estimation is actually *more accurate* than the ENADID's (since its enumeration more effectively captures absent family members), in

order to err on the conservative side, we compute an alternative set of figures that deflate the MMP estimates by 20%.

The adjusted figures are presented in separate columns of Table 2 and succeeding tables. Even allowing for an overstatement of experience in the MMP data, the incidence of migratory experience in western Mexico is substantial. Under this conservative adjustment, about one-third of all household heads are estimated to have made at least one trip to the United States, and 16% of those aged 15–64 are gauged to have done so. Since Zenteno and Massey found no significant difference between the *characteristics* of migrants enumerated in the ENADID and the MMP, we do not adjust the remaining figures in Table 2.

Table 3 shows the complete distribution of U.S. migrants by number of trips, total months of migratory experience, and years since last trip (again

TABLE 3

Distribution of Migration-Specific Human Capital among Respondents Surveyed in Thirty-Eight Communities of Western Mexico

Human Capital Indicator	Persons Aged 15–64 (%)	Household Heads (%)
<b>Number of Trips</b>		
1 trip	45.0	32.3
2 trips	19.2	19.3
3 trips	9.3	11.0
4 trips	6.0	7.4
5 trips	3.8	5.2
6–10 trips	9.3	13.0
11–20 trips	5.8	8.7
> 20 Trips	1.6	3.1
<i>N</i>	4,202	2,850
<b>Months of U.S. Experience</b>		
0–6 months	20.3	20.0
7–12 months	15.9	15.5
1–2 years	17.3	16.7
2–5 years	21.1	19.6
5–10 years	13.8	13.4
11–20 years	9.0	10.7
> 20 years	2.6	4.2
<i>N</i>	4,110	2,820
<b>Time since Last U.S. Trip</b>		
< 1 year	24.1	19.0
1 year	10.7	6.5
2–5 years	22.9	17.0
6–10 years	14.3	13.9
11–20 years	17.2	18.6
> 20 years	10.8	25.1
<i>N</i>	4,101	2,805

these figures are unadjusted since they refer to the characteristics of migrants rather than the incidence of migratory behavior). In all cases, the distributions are skewed, with concentrations in lower intervals and long tails extending outward to the right. Most persons of labor-force age (64.2%) report only one or two prior U.S. trips (45% have only one trip and 19% have two); but a significant plurality report making successive trips, indicating a pattern of recurrent seasonal migration. About 21% of working-age migrants reported making five or more trips to the United States, with 9% reporting 6–10 trips, 6% reporting 11–20 trips, and 2% reporting 20 or more! Reflecting the skewed nature of this distribution, the mean number of trips is 3.6, whereas the median is only 1.4.

The fact that the distribution of U.S. experience is flatter than the distribution of U.S. trips suggests that some trips extend for rather long durations. Only 36% of persons aged 15–64 reported a cumulative U.S. experience of one year or less (20% reported 0–6 months and 16% reported 7–12 months). In contrast, 17% of all respondents reported between one and two years of U.S. experience, 21% had 2–5 years, 14% had 5–10 years, 9% had 11–20 years, and 3% had built up more than 20 years total in the U.S. As a result, the mean experience (a little over four years) is again considerably greater than the median (just under two years).

For a substantial share of working-age Mexicans, U.S. experience is relatively recent: roughly a quarter (24%) made their last trip within the prior year, and over a third (35%) left within the past two years. Another 23% had been to the United States within 2–5 years, meaning that a majority of those with migrant experience (58%) had refreshed their U.S. experience at least once in the five years preceding the survey.

Distributions of migration-specific human capital are somewhat flatter among household heads than among those of working age, with lower concentrations in early intervals and fatter tails to the right. Since household heads are older than workers in general, they display a higher average number of trips (4.6), but they also migrated earlier: whereas 58% of working-age persons had gone to the U.S. within the past five years, only 43% of household heads had done so. With respect to U.S. experience itself, the distributions observed for household heads and working-age persons are very similar.

In sum, Tables 2 and 3 indicate that a substantial stock of relatively undepreciated migration-specific human capital exists among people in western Mexico. Nearly 41% of all household heads and 20% of all working-age persons have been to the United States (32% and 16%, respectively, under our conservative adjustment), accumulating an average of more than four years of U.S. experience. For a substantial number of migrants, this experience remains quite fresh: roughly a third of all working-age migrants, and a quarter of migratory household heads, have been to the U.S. sometime within the past two years. No matter what immigra-

tion policy the United States chooses to pursue, therefore, Mexicans can count on a substantial reserve of migration-specific human capital to enable their continued movement back and forth across the border.

### The Stock of Social Capital

Table 4 shows the percentage of household heads who reported having immediate family members, extended family members, and friends living in the United States, as well as the percentage in each group with U.S. experience, along with an alternative set of estimates deflated by 20%. For each category, we also report the average *number* of such ties (without any corresponding adjustment). Looking at these figures, we see that the stock of social capital potentially available to western Mexicans is even greater than the stock of human capital. Whereas only 41% of household heads have actually been to the United States, nearly 60% report an immediate family member with U.S. migratory experience (48% under the conservative adjustment), and a quarter report an immediate relative *living in* the U.S. at the time of the survey (20% more conservatively).

When we cast our net more broadly by considering extended family members, we find that 67% of heads report having a more distant relative

**TABLE 4**  
Indicators of Social Capital Accessible to Household Heads Surveyed in Thirty-Eight Communities of Western Mexico

Indicator of Social Capital	Percentage with Tie		Mean Number of Ties
	MMP (%)	Adjusted (%)	
Connection to Someone with Prior U.S. Experience			
Immediate family	59.6	47.7	3.4
Extended family	66.9	53.5	13.8
Friend	47.4	37.9	11.6
Any social connection	81.1	64.9	28.8
Connection to Someone Living in the U.S.			
Immediate family	24.7	19.8	2.0
Extended family	60.7	48.0	10.9
Friend	37.3	30.2	8.3
Any social connection	72.7	58.2	19.2
Number of cases	7,043		

NOTE: Immediate family includes parents, siblings, and grandparents. Extended family includes aunts, uncles, cousins, and in-laws.

with U.S. experience and 61% report extended kin living north of the border (54% and 48%, more conservatively). Nearly half of all respondents also said they knew friends who had been to the United States (38% conservatively), and well over a third had a friend presently living there (30% conservatively). All told, 81% of household heads in western Mexico report that *someone* in their immediate family, extended family, or circle of friends has been to the United States (65% conservatively), and almost three-quarters (58% conservatively) say that someone known to them is presently living north of the border.

Among those with a social tie to a current or former migrant, the *number* of ties was also impressive. On average, migrant household heads reported having 3.4 immediate family members, 13.8 extended family members, and 11.6 friends with U.S. experience, yielding a total of about 29 potential contacts for advice on crossing the border, getting a job, or making one's way in the United States. Respondents likewise reported an average of 2 immediate family members, 10.9 extended family members, and 8.3 friends living in the United States at the time of the survey, for a total of 19.2 different persons potentially available to provide material assistance during and after arrival.

Such stocks of social capital persist over time no matter what immigration policy the United States chooses to pursue. Passing a tougher law or implementing more restrictive border policies cannot erase the large reserves of social capital that have now accumulated in Mexico as a result of five decades of continuous transnational movement. According to Massey and Singer (1995), there have been more than 36 million entries from Mexico to the United States since 1965. As a result, 80% of the households in our sample are connected to someone with U.S. experience, and they know an average of 19 persons living north of the Mexico-U.S. border. Even if we deflate our estimate to adjust for a possible overstatement of migratory experience in the MMP, two-thirds of all Mexican households still have a social tie to a current or former U.S. migrant.

Under the current legal framework, U.S. policy practically *guarantees* that this social capital will promote additional movement to the United States, since Congress has allocated the vast majority of immigrant visas to relatives of those already legally present in the country. Of the 720,000 immigrants admitted to the United States for permanent legal residence in 1995, for example, 44% were relatives of U.S. citizens, and 20% were relatives of permanent resident aliens (INS, 1996). Thus, two-thirds of all legal immigrants presently enter the United States through a kinship tie to someone who is already here.

Table 5 illustrates the degree to which this legal framework builds momentum into the process of Mexico-U.S. migration. In this table, we list different categories under which a Mexican might qualify for an immigrant visa under U.S. immigration law. We then show the percentage of respon-

TABLE 5

Potential Access to U.S. Immigrant Visas by Members of Households Surveyed in Thirty-Eight Communities of Western Mexico

Visa Category under U.S. Law	Percentage with Kinship Tie		Number in Base Category
	MMP (%)	Adjusted (%)	
Unrestricted Visas			
Wives with U.S.-citizen husbands	0.5	0.4	11,614
Husbands with U.S.-citizen wives	0.4	0.3	12,178
Minor children with U.S.-citizen parent	0.4	0.3	18,500
Parents with U.S.-citizen child	0.2	0.1	13,462
Numerically Restricted Visas			
First preference			
Unmarried adult children with U.S.-citizen parent	0.5	0.4	4,699
Second preference			
Wives with legal husbands	12.6	10.1	11,614
Husband with legal wives	4.9	3.9	12,178
Unmarried minor children with legal parent	10.0	8.0	18,500
Fourth preference			
Married child of U.S.-citizen parent	0.8	0.6	11,243
Fifth preference			
Adult with U.S.-citizen sibling	2.7	2.2	15,969
Any Visa Category	10.0	8.0	

dents in each category who have the requisite family connections. Of all wives in our sample, for example, 0.5% are married to a husband who is a U.S. citizen and are thus entitled to receive a residence visa without numerical restriction (i.e., they can enter the country right away). Among husbands in our sample, 0.4% have a citizen wife, and 0.4% of the minor children we enumerated likewise have a citizen parent. Among all parents in our sample, 0.2% have a citizen child.

The potential number of entrants in numerically unrestricted categories is not great because most of those who are eligible for a visa in these categories have already received one and emigrated. In contrast, the potential for future immigration among persons falling into numerically restricted categories is considerably larger, as many have long backlogs. Some of the people shown in this panel have probably already applied for a visa and are simply waiting to receive it. Although the percentage of unmarried adult children with a citizen parent (the first preference category) is small at 0.5%, the corresponding percentages in the second and third preference categories are considerably greater: the share of wives with legal resident

alien husbands is 13%; the percentage of husbands with legal resident wives is 5%; and the percentage of minor children with legal parents is 10%.

The final two preference categories (married children of citizen parents and adults with citizen siblings) are also small at 0.8% and 2.7%, respectively; but when cumulated across all kinship categories, a rather large percentage of the Mexican population qualifies for a residence visa under *some* provision of U.S. law. According to our calculations, roughly 10% of the population of western Mexico presently qualifies for legal immigration to the United States by virtue of a kinship connection to a U.S. citizen or resident alien. Deflating this estimate to adjust for possible overstatement of migratory experience yields a figure of 8%, which when applied to a base population of 18 million people in western Mexico in 1990, yields some 1.45 million potential *legal* immigrants.

### Migratory Momentum

Our descriptive analysis plainly shows that a large stock of migration-specific human and social capital has accumulated in Mexico as a result of more than five decades of continuous movement back and forth across the border. There is nothing the U.S. government can do to erase this reserve of U.S. experience or to sever the myriad social ties between Mexican residents and U.S. migrants. These key resources will dwindle only through the pressure of mortality and the passage of time. Under virtually any scenario, large stocks of migration-specific human and social capital will exist for years to come and can be expected to continue promoting high levels of out-migration to the United States for the foreseeable future.

To quantify the potential for continued emigration latent in the Mexican population because of the accumulation of human and social capital, we estimated the model shown in Table 6. Specifically, we pooled our U.S. and Mexican surveys and selected all household heads who were present in Mexico one year prior to the survey date. That is, in order to be included in the estimation, U.S.-based household heads had to be living in Mexico one year before the survey date. As nearly all of those interviewed in the United States were long-term settlers with years of U.S. experience, this requirement excluded all but 115 U.S. respondents from the analysis. While these U.S. cases are included to eliminate the effects of selection bias, estimates change very little when they are excluded (sent upon request).

Given that few heads were female, we restricted attention to males to facilitate interpretation. We created a dichotomous variable that equaled 1 if the subject went to the United States at any time during the prior year and 0 otherwise. Using a logit model, we regressed this outcome on the number of U.S. trips, total years of U.S. experience, and a series of dichotomous social-capital indicators: whether or not the respondent had immediate

TABLE 6

Logit Model Predicting Odds of Migrating to the United States during the Year Prior to the Survey among Male Household Heads from Thirty-Eight Mexican Communities

Variable	Outcome: Left for U.S.		
	B	SE	p
Demographic Control			
Age	0.017	0.025	0.503
Age squared	-0.0007*	0.0003	0.013
Migration-Specific Human Capital			
Number of prior trips	0.319*	0.019	0.000
Number trips x years since last trip	-0.049*	0.004	0.000
Years of U.S. experience	0.084*	0.012	0.000
Social Capital			
Immediate family with U.S. experience	0.171	0.140	0.221
Extended family with U.S. experience	0.780*	0.226	0.001
Friends with U.S. experience	0.487*	0.178	0.006
Immediate family living in U.S.	0.719*	0.116	0.000
Extended family living in U.S.	-0.223	0.197	0.257
Friends living in U.S.	-0.152	0.160	0.345
Intercept	-2.879*	0.524	0.001
Pseudo R <sup>2</sup>	0.344		
Number of cases	6,236		

\* $p < .05$

family with U.S. experience, whether or not he had extended kin with U.S. experience, whether or not he had friends with U.S. experience; whether or not he had immediate relatives living in the United States; whether or not he had extended kin living in the U.S.; and whether or not he reported any friends living north of the border. In order to account for the fact that human capital depreciates over time, we interacted the total number of prior trips with the number of years elapsed since the last trip. We also added basic demographic controls for age.

As the table indicates, the odds that a household head left for the United States during the year prior to the survey rose strongly as both human and social capital increased. As years of U.S. experience and total trips grew, so did the likelihood of out-migration, although consistent with our expectations about the depreciation of human capital, the effect of prior trips tended to decrease with the passing of time since the last trip. Among indicators of social capital, the odds of out-migration are most strongly increased by having immediate family members living in the United States and by having extended family members and friends with U.S. experience.

To get a sense of the migratory momentum implied by the stocks of human and social capital that now exist in western Mexico, we considered the average male household head in our sample. According to our statistics, at the time of the survey the typical male head had accumulated 2.2 years of U.S. experience over the course of 2.1 prior U.S. trips, the last of which occurred about six years ago. His probability of having a social connection to someone with U.S. experience was 0.61 for immediate family members, 0.70 for extended family members, and 0.59 for friends. With respect to social contacts living in the United States, the probability was 0.26 for immediate family members, 0.63 for extended family members, and 0.50 for friends.

Inserting these averages into the equation of Table 6 and letting age vary from 18 to 40 (the migration-prone ages) yields a schedule of estimated annual migration probabilities that begins at .16 and falls gradually to .10. Deflating the schedule of annual migration probabilities by 20% at each age yields an adjusted schedule that begins at .13 at age 18 and falls to .08 by age 40. That is, given the average stocks of migration-specific human and social capital now observed among male household heads in western Mexico, the chances of leaving for the United States in any given year are quite high—at least 8%—and at most ages, even higher.

Of course, the odds of out-migration will move up or down as individual characteristics depart from the average values we have assumed; but over the course of a lifetime, men in western Mexico can be expected to experience a substantial cumulative probability of migrating to the United States. It is thus not surprising to find that among men aged 30–34 enumerated in the MMP data, nearly half (46%) have been to the United States. In sum, the chances are very high that Mexican men will migrate to the United States at some point over the course of their working lives, even accounting for the MMP's possible overstatement of migratory experience in the population.

Our analysis thus suggests that stocks of migration-related human and social capital that have already accumulated in Mexico will continue to serve as powerful engines of emigration for years to come. Unless there are dramatic changes in the binational political economy or shifts in the rules of the game along the border, the United States can expect the continuation of large-scale Mexican immigration well into the next century. Of course, a process of self-reinforcing human capital and social capital accumulation cannot propel an increase in migration probabilities *ad infinitum*. As Massey, Goldring, and Durand (1994:1502) point out, “If the process of migration continues long enough, networks reach a point of numerical saturation. . . . [as] virtually all who remain in the home community are connected either to someone living abroad or to someone with substantial foreign experience . . . [at which point] the process of migration loses its dynamic momentum for growth.”

The key empirical question, then, is how far Mexico is from this point of network saturation. The community-level data presented by Massey, Goldring, and Durand (1994) suggest that the out-migration probabilities reach an upper asymptote when about 50% of the total population has been drawn into international migration. Given that Zenteno and Massey's (1999) analysis of national survey data found that in 1992, only 4% of all Mexicans over the age of 12 had been to the United States, there is obviously much unrealized potential for a continued expansion of migration between the two most populous countries in North America.

## REFERENCES

- Espinosa, Kristin E. 1997. *Helping Hands: Social Capital and the Undocumented Migration of Mexican Men to the United States*. Ph.D. diss., University of Chicago.
- Espinosa, Kristin E., and Douglas S. Massey. 1997. "Undocumented Migration and the Quantity and Quality of Social Capital." *Social Welt* 12:141–62.
- Jasso, Guillermina, and Mark R. Rosenzweig. 1988. "Family Reunification and the Immigration Multiplier: U.S. Immigration Law, Origin-Country Conditions, and the Reproduction of Immigrants." *Demography* 23:291–311.
- Kossoudji, Sherrie A. 1992. "Playing Cat and Mouse at the U.S.-Mexican Border." *Demography* 29:159–80.
- Massey, Douglas S., Rafael Alarcón, Jorge Durand, and Humberto González. 1987. *Return to Aztlan: The Social Process of International Migration from Western Mexico*. Berkeley: University of California Press.
- Massey, Douglas S., and Kristin E. Espinosa. 1997. "What's Driving Mexico-U.S. Migration? A Theoretical, Empirical, and Policy Analysis." *American Journal of Sociology* 102:939–99.
- Massey, Douglas S., and Felipe García España. 1987. "The Social Process of International Migration." *Science* 237:733–38.
- Massey, Douglas S., Luin P. Goldring, and Jorge Durand. 1994. "Continuities in Transnational Migration: An Analysis of 19 Mexican Communities." *American Journal of Sociology* 99:1492–1533.
- Massey, Douglas S., and Audrey Singer. 1995. "New Estimates of Undocumented Migration and the Probability of Apprehension." *Demography* 32:203–13.
- Taylor, J. Edward. 1986. "Differential Migration, Networks, Information, and Risk." Pp. 147–72 in Oded Stark, ed., *Migration Theory, Human Capital and Development*. Greenwich, Conn.: JAI Press.
- . 1987. "Undocumented Mexico-U.S. Migration and the Returns to Households in Rural Mexico." *American Journal of Agricultural Economics* 69:626–38.
- U.S. Immigration and Naturalization Service. 1992. *1990 Statistical Yearbook of the Immigration and Naturalization Service*. Washington, D.C.: U.S. Government Printing Office.
- . 1996. *1995 Statistical Yearbook of the Immigration and Naturalization Service*. Washington, D.C.: U.S. Government Printing Office.
- Woodrow, Karen A., and Jeffrey S. Passel. 1990. "Post-IRCA Undocumented Immigration to the United States: Assessment Based on the June 1988 CPS." Pp. 33–76 in Frank D. Bean,

Barry Edmonston, and Jeffrey S. Passel, eds., *Undocumented Migration to the United States: IRCA and the Experience of the 1980s*. Washington, D.C.: Urban Institute.

Zahniser, Steven. 1996. *The Effects of Family Networks on Mexico-U.S. Migration*. Ph.D. diss., University of Colorado at Boulder.

Zenteno, René, and Douglas S. Massey. 1999. "Especificidad versus representatividad: Enfoques metodológicos para el estudio de la migración internacional." *Estudios Demográficos y Urbanos* 40:75–116.