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3 The Effect of Policy Restrictions on Capital and Labor Flows in Mexico

Juan Diez-Canedo R.

This study analyzes the magnitude and characteristics of migratory flows to Mexican border states and to and from the United States using the Mexican Encuesta Nacional de Emigración a la Frontera Norte del País y a los Estados Unidos, a special 1978 household survey designed to obtain data on such flows. The study focuses mainly on those aspects of the migratory flows that can be traced to the distinct free trade commercial regime in the border area.

The findings of the study are as follows. (1) At the time of the 1978 survey, 1.5 percent of the Mexican working population—about 520,000 people—were working in the United States, a number far below the millions often cited in the press, while an additional 1.3 percent were return migrants. (2) The border states enjoyed an economic boom when Mexico was in a prolonged recession, with capita inflows and a migrant stream exceeding that to the United States. (3) Other characteristics held fixed, residence in the border area has become nearly as important a determinant of migration to the United States as residence in the historical source regions of the country. (4) Migrants to the border differed in their personal characteristics and regional source from migrants to the United States, for reasons seemingly related to the commercial policies in the border area and suggestive of a family migration pattern. Wives work at the border area, while husbands migrate back and forth to the United States.

3.1 Migration Patterns

Because of the scarcity of migration data in general and the poor quality and inherent biases of the available information on illegal migration, in 1978

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the Mexican Labor Department (Secretaría del Trabajo) conducted a national household survey in order to measure migratory flows to and from the United States (people who worked in the United States from January 1974 to November 1978 but were living in Mexico at the time of the survey), migratory flows to the Mexican border adjoining the United States, and internal migration.[1] This national household survey was carried out from December 1978 to January 1979 and covered 115 locations and 62,500 homes selected on a probabilistic basis. A census was done for each household, and four different questionnaires were used depending on the different migratory characteristics. These questionnaires covered 300,000 individuals. The information was grouped according to region (see fig. 3.1) and according to variables such as age, sex, marital status, rural or urban origin, job characteristics, education, and whether respondents were employed, unemployed, or not in the labor force.[2] Only the most important results pertaining to migration to and return migration from the United States were analyzed in a study by Garcia y Griego and Zazueta (1982). The data on migration to the border and internal migration have not been analyzed.

An overall view and the relative importance of the different migratory patterns can be seen in table 3.1. First, at the time of the interview, 1.5 percent of the working-age population were in the United States, 1.3 percent were return migrants, and 1.6 percent had migrated to a border county. In terms of absolute numbers, the figure of 520,000 migrants to the United States shown in table 3.1 is broadly consistent with the figures of Borjas, Freeman, and Lang (in this volume) and inconsistent with the millions of illegal immigrants bandied about in the popular American press. Using information from the

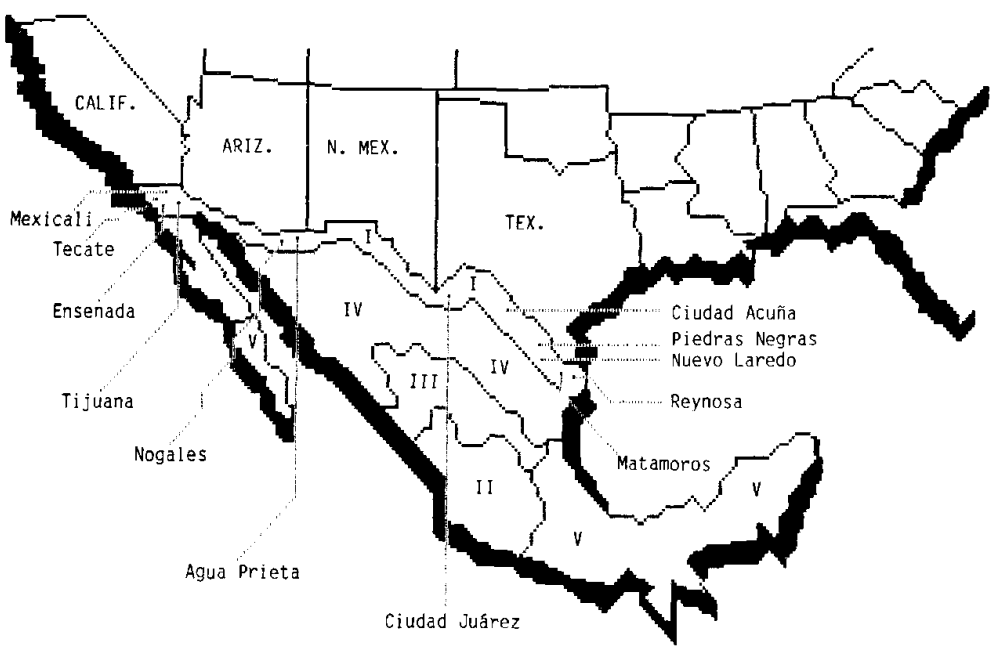

Fig. 3.1 The border area and other regions of Mexico

Table 3.1 **Migratory Characteristic and Region (population fifteen years and older)**

	Total		Region									
			I		II		III		IV		V	
Total	35,622,489	(100.0)	1,688,098	(100.0)	6,945,926	(100.0)	3,153,942	(100.0)	5,152,855	(100.0)	18,681,668	
	(100.0)		(4.7)		(19.5)		(8.9)		(14.5)		(52.4)	
Migration to the United States	519,406	(1.5)	50,044	(3.0)	205,740	(3.0)	140,010	(4.4)	77,336	(1.5)	46,276	
	(100.0)		(9.6)		(39.6)		(27.0)		(14.9)		(8.9)	
Return migration	474,888	(1.3)	58,194	(3.4)	140,861	(2.0)	119,120	(3.8)	96,491	(1.9)	60,222	
	(100.0)		(12.3)		(29.7)		(25.1)		(20.3)		(12.7)	
Migration to the border	557,966	(1.6)	317,972	(18.8)	75,929	(1.1)	37,838	(1.2)	89,446	(1.7)	36,781	
	(100.0)		(57.0)		(13.6)		(6.8)		(16.0)		(6.6)	
Internal migration	12,312,267	(34.6)	637,723	(37.8)	2,660,613	(38.3)	784,485	(24.9)	1,868,745	(36.3)	6,360,701	
	(100.0)		(5.2)		(21.6)		(6.4)		(15.2)		(51.7)	
Nonmigrants	21,484,101	(60.3)	614,551	(36.4)	3,797,756	(54.7)	2,051,931	(65.1)	2,987,434	(58.0)	12,032,429	
	(100.0)		(2.9)		(17.7)		(9.6)		(13.9)		(56.0)	
Nonspecified	273,861	(.8)	9,614	(.6)	65,027	(.9)	20,558	(.7)	33,403	(.6)	145,259	
	(100.0)		(3.5)		(23.7)		(7.5)		(12.2)		(53.0)	

Source: Encuesta Nacional de Emigración a la Frontera Norte del Páis y a los Estados Unidos, 1978–79 (CENIET 1984).
Note: For definitions of regions, see fig. 3.1. Numbers in parentheses are percentages.

survey, Garcia y Griego and Zazueta (1982, 50) estimated that 750,000 Mexican workers were working in the United States at some point during 1978.

Second, most of those workers either migrating to or returning from the United States lived in regions II and III (66.6 and 54.8 percent of total migration from such regions, respectively), which together comprise the states of the center of Mexico (see the Appendix). Third, almost 60 percent of migrants living in the border area had come from another border county, while 16 percent came from an adjoining state (see fig. 3.1). Fourth, as could be expected, the bulk of the population does not migrate (60.3 percent), and the most important migratory flows are internal (34.6 percent).

While there are several studies on Mexican internal migration (see Diez-Canedo 1980; Isoard 1976; Greenwood and Ladman 1977; Greenwood 1978) and on Mexican migration to the United States, few analyze migration to the border areas, although the border cities were among the ones with the highest rates of growth in Mexico. From 1970 to 1980, these cities had annual average rates of growth as high as 7 percent for Tijuana or 6.5 percent for Matamoros (see table 3.2), placing them probably among the cities with the highest rates of growth by world standards. Such growth, however, may be explained in part by two important factors. First, the nearly two-thousand mile Mexico-U.S. border is probably a unique case—within a few yards, the going minimum wage leaps from around $.40 (Mexico) to $3.35 (the United States) an

Table 3.2 **Population Change in Major Mexican Cities Bordering the United States and in U.S. SMSA's Bordering Mexico**

	Population (thousands)		Percentage Change, 1970–80
	1970	1980	
Tijuana	227	542	96
Mexicali	267	495	85
Ciudad Juárez	407	680	67
Nuevo Laredo	149	272	83
Reynosa	137	240	75
Matamoros	138	258	87
United Mexican States	50,695	69,393	
San Diego	1,357	1,861	37
Tucson	352	531	51
Las Cruces	70	96	38
El Paso	359	480	34
Laredo	73	99	36
McAllen	182	283	56
Brownsville	140	210	49
South	63,000	75,000	19
West	35,000	43,000	23
United States	203,000	227,000	11

Source: Hansen (1985).

hour (see table 3.3). Second, also at the time of the study, the northern border of Mexico operated under a different trade regime (which basically allows free trade) from the one applied in the rest of the country.

The wage differential, along with the U.S. labor structure, which conditions a high demand for migrant workers, has created a tremendous magnetic force that attracts millions of Mexican workers. Also, an interesting phenomenon of capital and labor attraction has been happening at the border. Through special trade and foreign-ownership laws and rapidly increasing employment creation, large migratory flows have been seeking permanent residence in the border counties.

On the other side of the border, the U.S. Standard Metropolitan Statistical Areas (SMSAs) bordering Mexico have also experienced very rapid rates of growth (see table 3.2). El Paso, which had the lowest 1970–80 border SMSA population growth rate (34 percent), grew at over three times the corresponding U.S. national rate of 11 percent and well above the rates of the South (19 percent) and the West (23 percent). Also, the increase in personal income in those SMSAs was, except for the Las Cruces and El Paso, higher than the

Table 3.3 **Minimum Hourly Wages (annual average in dollars)**

	Mexico (1)	United States (2)	Mexican Minimum Wage as a Percentage of U.S. Minimum Wage (2)/(1)
1966	.24	1.00	24.0
1967	.24	1.00	24.0
1968	.28	1.14	24.5
1969	.28	1.29	21.7
1970	.33	1.44	22.9
1971	.33	1.59	20.7
1972	.39	1.60	24.3
1973	.41	1.60	25.6
1974	.55	1.80	30.5
1975	.65	2.00	32.5
1976	.67	2.20	30.4
1977	.59	2.30	25.6
1978	.66	2.65	24.9
1979	.77	2.90	26.5
1980	.89	3.10	28.7
1981	1.09	3.35	32.5
1982	.78	3.35	23.2
1983	.52	3.35	15.5
1984	.58	3.35	17.3
1985	.59	3.35	17.6
1986	.42	3.35	12.6

Source: For Mexico, Salarios Minimos 1987, Comision Nacional de los Salarios Mínimos (Salario Mínimo General Promedio Nacional, in dollars using the average controlled rate). For the United States, *Statistical Abstract of the United States* (federal minimum hourly wage rate for nonfarm workers).

increases in the United States as a whole and in the South and the West (Hansen 1985).

3.2 The Border Commercial Zone

Mexico's Border Industrialization Program was created in the mid-1960s and aimed in part to absorb what was perceived as growing unemployment in the border areas due to the termination of the Bracero Program in 1964. Its most important element was the creation of a different trade regime for the border areas through the *Maquila* Program. Since 1965, duty-free imports of machinery, equipment, and components for processing and assembly within a twenty-kilometer strip along the border were allowed, provided that all imported products were reexported. The assembly plants are called *maquiladoras;* they allow for 100 percent foreign ownership as well as exemption of export taxes.[3] Also, in some cases, firms may sell up to 20 percent of their production in Mexico. Correspondingly, U.S. tariff regulations 806.30 and 807.00 permit the return of the U.S. component portion duty free, taxing only the value added in Mexico.

The development of the maquiladoras has been surprising. At the start of this program, 806.30/807.00 data show that Mexico was less than five times as important as Hong Kong and about as important as Taiwan in the process of industry exports to the United States (see Grunwald and Flamm 1985). In 1983, total 806.30/807.00 imports from Hong Kong and Taiwan were only 12 and 15 percent, respectively, of the Mexican 806.30/807.00 imports. In that year, the main imports under 806.30/807.00 came from Japan (30.0 percent), Mexico (18 percent), and West Germany (13 percent).

In the last few years, employment in the Mexican manufacturing sector has actually declined, and the gross capital formation in the economy has dropped by 28.5 percent in real terms from 1982 to 1986. While in that period total employment in the Mexican manufacturing industry diminished 6.7 percent, employment in the border assembly plants grew by 96.5 percent, and average work hours increased 88 percent. Thus, *maquiladora* employment as a percentage of total manufacturing employment increased from 3.4 percent in 1975 to almost 10.8 percent in 1986 (see table 3.4).

Although offshore investment has been considered to be "footloose" (Piore 1979, 35–43), especially in the semiconductor assembly operations, and has been found to be highly dependent on the U.S. economic cycle (Bolin 1964), it has also been shown that the U.S. economic cycle has had greater effects on multinational corporations inside the United States than in their offshore operations, for they tend to cut the most costly operations first (Grunwald and Flamm).

The importance of labor to assembly costs, proximity, and the relatively unskilled but highly productive nature of the segment working in assembly plants which, as may be seen in table 3.4, is composed mostly (although in-

Table 3.4 **Total Employment and Participation of Women in the *Maquila* Industry, 1975–86 (in thousands)**

	Total Employment		*Maquiladoras*			
			Blue Collar		Female Participation	
	Manufacturing Industry (1)	*Maquiladoras*[a] (2)	Total (3)	Women (4)	Blue Collar (5) = (4)/(3)	Total (6) = (4)/(2)
1975	2002	67.2	57.9	45.3	78.3	67.4
1976	2046	74.5	64.7	51.0	78.8	68.4
1977	2051	78.4	68.2	53.2	78.0	67.8
1978	2133	90.7	78.6	60.4	76.8	66.6
1979	2291	111.4	95.8	73.8	77.1	66.3
1980	2417	119.6	102.0	78.9	77.3	66.0
1981	2543	131.0	110.7	85.7	77.4	65.4
1982	2485	127.1	105.4	81.4	77.2	64.1
1983	2340	150.9	125.3	93.3	74.5	61.8
1984	2361	199.7	165.5	117.3	70.9	58.7
1985	2415[b]	212.0	173.9	120.0	69.0	56.6
1986	2318[b]	249.8	203.9	139.1	68.2	55.7

Sources: *Estadística de la Industria Maquiladora de Exportación*, Subdirección de Estadísticas Económicas, Secretaría de Programación y Presupuesto, Mexico D.F. (1987). *Sistema de Cuentas Nacionales de México*, Secretaría de Programación y Presupuesto, Mexico D.F. (1987). *Indicadores Económicos*, Banco de México, Mexico D.F. (1987).

[a]Includes blue collar and white collar.

[b]Estimation based on annual variations reported in the *Encuesta Industrial Mensual*, Secretaría de Programación y Presupuesto.

creasingly less so) of women, helps to explain the relatively steady growth of the *maquiladoras*.

In the last ten years the number of assembly plans has practically doubled and, with the exception of 1982 (the year of the Mexican debt crisis), its growth has been steady. Except for 1982, during which the peso was clearly overvalued and there were signs of political instability and no economic growth, investment in the assembly plants has been not only stable but growing significantly, while as of the 1982 crisis and up to 1989 the opposite happened to investment in the manufacturing sector.

Figure 3.2 helps to explain in part why such a phenomenon happened. After 1970 and up to 1986 the real exchange rate, estimated using the consumer price indexes, was considerably favorable for exports, with the exception of only three years. If the real exchange rate is calculated using, instead of consumer prices, wage indexes which are more relevant from the point of view of exporters, the Mexican real exchange rate has a considerable increase of 113.3 percent as of December 1985, from the base year of 1970. So the global competitiveness of manufacturing in the period under study was considerable, and even more so at the border where, on top of that, there have been no import restrictions whatsoever.

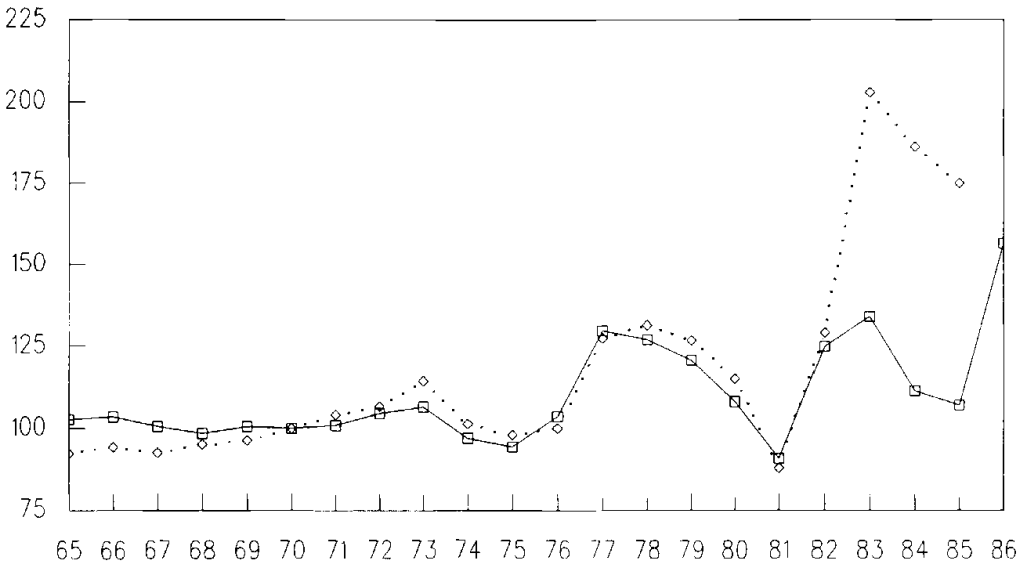

Fig. 3.2 Real exchange rate index (1970 = 100)
Source: Gerencia del Sector Real, Banco de Mexico.
□ *Mean—Consumer Prices*: Estimated in base to a divisia index of consumer price index of 133 countries, and a divisia index of the exchange rate of each country, weighted both by the share of each country's GDP on total GDP. ◇ *Mean—Wages*: Estimated in base to a divisia index of the wage indices of 19 countries, and a divisia index of the exchange rate of each country, weighted both by the share of each country's GDP on total GDP.

The migratory flows both to the border and to the United States must be following better economic opportunities. However, it is interesting to see which factors separate migrants to the border from migrants to the United States or whether in fact migration to the border is just a step in a process of migration to the United States. After all, it would appear that factor complementarity should be relatively similar at the border, given its special trade regime, to that in the United States.

Piore's (1979, 35–43) dual labor market hypothesis for explaining the functioning of the labor market and the logical role of the migrants in the secondary sector serves to explain the role of migrants in the U.S. labor market and may also serve to explain the specific case of the Mexican assembly plants. These plants grew out of an external shock, which in this case was the end of the Bracero Program. This event may have been perceived by some U.S. plants as a new need for exporting at least part of the secondary labor requirements to Mexico and by Mexico as a need of capturing those same jobs.

For these reasons, foreign technicians and managerial personnel (primary labor market types) are allowed to reside in Mexico. Also, foreign entrepreneurs, originally only from the United States, established twin plants, (Bolin 1964) with capital-intensive processes in the United States and labor-intensive ones in Mexico, thus minimizing costs and maximizing managerial functions (a sort of intraindustry Heckscher-Ohlin production scheme). Although there are a number of twin plants, in many cases the U.S. home office is actually a

long distance away from the border (in 1978, forty-eight of the *Fortune* 500 companies had *maquiladoras* in Mexico; see Grunwald and Flamm 1985), but there is an actual trend, which includes growing numbers of Japanese companies in the United States (like Sony), toward the twin plant concept of production.

Table 3.5 gives an idea of how labor markets could be complementary, both through Mexican migration to the United States and at the border, and tends to confirm a dual labor market hypothesis type of relation. Some differences, however, are apparent. While farm workers are the most important segment of migrants to the United States and white-collar workers represent only 4.5 percent of these workers, the most important segment of border migrants was blue collar, followed by service workers, and the percentage of white-collar workers was more than twice that of return migrants.

Additional differences between flows to the United States and border areas are shown in table 3.6, which compares the sex and education composition of migrants to the United States, migrants returning from the United States, and migrants to Northern Mexico. While migrants going to and returning from the United States were men in 83 and 80 percent of the cases, respectively, migrants to the border were mainly women (51.7 percent). The fact that migrants to the border are primarily females may reflect the particular demands of the *maquiladora* industry, which employs mostly women.

The different patterns of migration also reveal different levels of education. Although the level of education is in general very poor in all cases—at least 50 percent of male and female migrants are *virtually illiterate*—a higher proportion of migrants to the border have junior high and high school educations. This fact could be conditioned by the relatively higher employment requirements that exist in the commercial and assembly plant sectors as well as by the presence of a higher proportion of white-collar workers (see table 3.5).

Table 3.5 **Occupational Distribution of Border and Return Migrants Compared to U.S. Workers**

Occupation	United States	Southwest	Population of Mexican Origin	Return Migrants from the United States	Border Migrants
Total	100.0	100.0	100.1	100.0	100.0
White-collar workers	50.0	53.8	28.4	4.5	9.4
Blue-collar workers	33.4	30.6	50.6	35.8	39.7
Service workers	13.6	13.2	16.3	23.5	28.4
Farm workers	3.0	2.4	4.8	36.1	22.5

Sources: First four columns taken from Garcia y Griego and Zazueta (1982, 81). Column 1: U.S. Bureau of the Census, *Statistical Abstract of the United States*, 1979. Column 2: U.S. Bureau of Labor Statistics, *Geographic Profile of Employment and Unemployment: States 1978, Metropolitan Areas 1977–78*, September 1979. Column 3: U.S. Bureau of the Census, *Current Population Reports*, Series p. 20, no. 339, June 1979. Columns 4 and 5: Encuesta Nacional de Emigración a la Frontera Norte del País y a los Estados Unidos, 1978–79 (CENIET 1984).

Table 3.6 **Migrants in the United States and Return Migrants from the United States, by Sex and Education**

	Total	Without Formal Education	Elementary	Junior High	High School	College
Migrants in the United States	503,803	302,936	148,862	41,770	9,434	801
Percentage by sex	100.0	100.0	100.0	100.0	100.0	100.0
Percentage male	83.0	85.5	79.2	77.2	87.4	95.5
Percentage female	17.0	14.5	20.8	22.8	12.6	4.5
Percentage by sex and education	100.0	60.1	29.5	8.3	1.9	.2
Percentage male	100.0	61.9	28.2	7.7	2.0	.2
Percentage female	100.0	51.4	36.1	11.1	1.4	.0
Return migrants	465,766	308,672	107,415	33,598	13,907	2,174
Percentage by sex	100.0	100.0	100.0	100.0	100.0	100.0
Percentage male	80.0	83.3	75.8	67.1	76.4	32.8
Percentage female	20.0	16.7	24.2	32.9	23.6	67.2
Percentage by sex and education	100.0	66.3	23.1	7.2	3.0	.5
Percentage male	100.0	69.0	21.9	6.1	2.9	.2
Percentage female	100.0	55.3	27.8	11.8	3.5	1.6
Migrants to the northern border	532,802	266,623	138,749	91,203	30,833	5,394
Percentage by sex	100.0	100.0	100.0	100.0	100.0	100.0
Percentage male	48.3	48.7	46.4	47.5	52.0	67.2
Percentage female	51.7	51.3	53.6	52.5	48.0	32.8
Percentage by sex and education	100.0	50.0	26.0	17.1	5.8	1.0
Percentage male	100.0	50.5	25.0	16.8	6.2	1.4
Percentage female	100.0	49.6	27.0	17.4	5.4	.6

Note: Some migrants did not answer the schooling question.

All the figures given above seem to confirm the secondary labor market characteristics of the three patterns of migration.

3.3 The Determinants of Migration to the United States and the Northern Mexican Border

In the Survey of Migration to the United States and to the Northern Border (Garcia y Griego and Zazueta 1982), data for the population aged fifteen years old and over and for the employed labor force are recorded according to different migratory patterns: migration to the United States (USM); return migration from the United States (RMUS); migration to the north border area (MNB); internal migration (IM); and nonmigration (NM). For each migratory pattern, the information was available aggregated in relation to socioeconomic

and demographic factors such as region, age, sex, marital status, education, origin of the population, employment status, occupational status, and the economic sector in which the individual was occupied (see the Appendix).

The available information did not make it possible to analyze all the population characteristics through one econometric model. Because information was available only through specific tabulations, the data had to be analyzed through six different models for each migratory pattern. Information was grouped in tables that contained three nonvarying characteristics and a fourth one that varied. For instance, one group included region, age, and sex as the nonvarying characteristics and marital status, schooling, or whether the origin was urban or rural, for example, as the fourth, variable, characteristic. Furthermore, the way in which the information was classified made it virtually impossible to include additional explanatory variables such as income differentials, differences in financial resources, investment, distance, etc. because the regions defined in the survey included groupings of states and, in some cases, one region included only one part of one state.

Ideally, information at an individual level should have been used for the analysis. Unfortunately, however, such data disaggregation could not be obtained. As was mentioned before, available data were grouped and cross-classified in tables. In such cases, a generalized linear model can be defined for categorical data in which the observations consist of counts of frequencies in the cells of a contingency table formed by the cross-classification of dependent (or response) and explanatory (or independent) variables. In this contingency table method, a log-linear model was specified and fitted to the different migratory patterns (USM, RMUS, MNB).

For the purpose of estimation, a Poisson distribution was assumed. Since this involves unrestricted independent random variables with distributions from the exponential family, the Newton-Raphson estimation procedures implemented in GLIM (Numerical Algorithms Group, Oxford) were used to estimate the parameters (see Nelder 1974; and Dobson 1983, 99). (The GLIM estimates are maximum likelihood estimates.)

The responsive variables of the log-linear models were standardized in the following form: each number in a contingency table cell was divided by the total number of related cells. The following examples illustrate this point. The number of 15- to 29-year-old single males who migrated to the United States from region I was divided by the total number of 15- to 29-year-old single males of region I, and the number of 30- to 44-year-old married women who migrated to the northern border from region II was also divided by the total number of 30- to 44-year-old married women in region II.

For each migratory characteristic, the following log-linear models were specified:

$$(1) \qquad m_{ijasc} = K_i + R_j + A_a + S_s + \mathrm{CS}_c,$$

$$(2) \qquad m_{ijasn} = K_i + R_j + A_a + S_s + U_n,$$

$$m_{ijaso} = K_i + R_j + A_a + S_s + \mathrm{Op}_o, \tag{3}$$

$$m_{ijasp} = K_i + R_j + A_a + S_s + \mathrm{Sch}_p, \tag{4}$$

$$m_{ijasq} = K_i + R_j + A_a + S_s + \mathrm{ES}_q, \tag{5}$$

$$m_{ijasr} = K_i + R_j + A_a + S_s + \mathrm{OC}_r, \tag{6}$$

where, for example,

$$m_{ijasc} = \ln\left(\frac{1jasc}{\sum_{h=1} M_{hjasc}}\right),$$

where

M = understandardized information;
i = the different migratory patterns: USM, RMUS, MNB, and internal and nonmigration (which have been pooled);
K = mean or constant;
R = region;
A = age;
S = sex;
CS = marital status;
U = type or origin;
OP = occupational status;
Sch = schooling;
ES = economic sector;
OC = type of job;
j = region I, II, III, IV, or V;
a = age groups: 15–29, 30–44, 45–49, 60 and over;
s = male, female;
c = single, married;
n = rural, urban;
o = employed, unemployed, not in the labor force;
p = schooling: less than elementary, elementary, high school, college;
q = economic sector: primary, secondary, tertiary;
r = self employed, blue collar, day laborer, unpaid family member, *ejidatario*, landholder.[4]

3.4 Results

For simplicity, tables 3.7 and 3.8 summarize the results of these estimates in terms of the estimated coefficients for analyses that treat age, region, sex, and either rural origin or occupational status, with appropriate interactions. The total population fifteen and over is the base for the calculations when rural origin is included, while the economically active population is the base when

Table 3.7 **Estimates of Log-Linear Main and Interaction Effect Parameters for Migration to the United States (M1)**

	Coefficient	SE	*T*
	By Region, Age, Sex, and Origin		
Mean (*K*)	−1.145	.5918	−7.0*
Region (*R*):			
I	2.804	.5563	5.0*
II	2.888	.5550	5.2*
III	3.161	.5514	5.7*
IV	2.064	.5739	3.6*
V	. . .		
Age (*A*):			
15–29	1.684	.2351	7.2*
30–44	1.612	.2364	6.8*
45–59	1.372	.2417	5.7*
Sex (*S*):			
Male	1.619	.1487	10.9*
Female	. . .		
Origin (*U*):			
Urban	.593	.675	.9
Rural	. . .		
Interaction, Region-Origin:			
Region I Urban	−.6263	.7018	−.9
Region II Urban	−1.633	.7208	−2.3*
Region III Urban	−3.24	.8041	−4.0*
Region IV Urban	−.9778	.7413	−1.3
	By Region, Age, Sex, and Occupation		
Mean (*K*)	−1.754	.6228	−2.8*
Region (*R*):			
I	2.797	.526	5.3*
II	1.859	.549	3.4*
III	2.531	.5306	4.8*
IV	1.438	.568	2.5*
V	. . .		
Age (*A*):			
15–29	1.695	.3342	5.1*
30–44	1.755	.3327	5.3*
45–59	.8985	.3644	2.5*
Sex (*S*):			
Male	−1.774	.5605	−3.2*
Female	. . .		
Occupation status (OP):			
Self-employed	−.7971	.3829	−2.1*
Blue-collar	−.583	.3566	−1.6*
Day laborer	.302	.2815	1.1
Unpaid family member	−6.087	4.166	−1.5*
Ejidatario	−1.334	.4668	−2.9*
Landholder	. . .		

(continued)

Table 3.7 (continued)

	Coefficient	SE	*T*
Interaction, occupational status–sex:			
Self-employed, male	2.572	.6788	3.8*
Blue-collar, male	2.4	.6629	3.6*
Day laborer, male	1.542	.6247	2.5*
Unpaid family member, male	5.313	4.267	1.2
Ejidatario, male	.7819	.9761	.8

Note: Goodness-of-fit deviance = 29.1, χ^2 = 90.53. The model explains 87.3 percent of the mean deviance of the null model.
*Significant at the 5 percent level.

occupation is included. Computations for other classifications gave similar results.

Table 3.7 records estimates of the effect of the various factors on migration to the United States. It shows that region is an important determinant of migration to the United States, with residence in the border region having nearly as significant an effect in increasing the probability of migration to the United States as residence in region III, which comprises the states that are commonly reported as the source of migration to the United States since the turn of the century. The implication is that the border has become an important stepping-stone for migration to the United States, controlling for other differences. Note further that, in the calculations with urban (as opposed to rural) origin included, that factor does not enter significantly for the border area but does enter for regions II and III. With respect to occupation, the surprising result is the relative weakness of the occupational variables, which produced a poorer fit than did other classifications of the data. While male day laborers and blue-collar workers are especially likely to migrate to the United States, the stereotypes of the Mexican immigrant as an unskilled farm worker seems exaggerated on the basis of this calculation. The fact that male agricultural migrants work in areas close to the Mexican border, where about 90 percent of the Border Patrol is located, and that workers from regions II and III are more likely to be of rural origin makes it especially likely that they are captured by the Border Patrol, leading to the view that the vast bulk of migrants are agricultural laborers. In fact, while migrants to the United States are less educated than other Mexicans (see table 3.6), they are not overwhelmingly farm laborers (our results are consistent with Borjas, Freeman, and Lang's [in this volume] findings from the U.S. Census). Finally, age coefficients show that the population group 30 to 44 years old was about as significant for explaining migration to the United States as the 15–29 age group.

Table 3.8 presents my estimates of the effect of the factors on being a return migrant from the United States and on being a migrant to the Mexican border.

Table 3.8 **Estimates of Log-Linear Main and Interaction Effect Parameters for Migration Models**

	Coefficient	SE	T
	Return Migration from the United States		
Mean (K)	−2.736	.4286	−6.4*
Region (R):			
I	2.301	.3760	6.1*
II	1.867	.3850	4.8*
III	2.251	.3770	6.0*
IV	1.502	.3960	3.8*
V	. . .		
Age (A):			
15–29	1.155	.2290	5.0*
30–44	1.115	.23	4.8*
45–59	.871	.238	3.7*
Sex (S):			
Male	1.424	.1630	8.7*
Female	. . .		
Marital status (CS):			
Single	−.419	.132	−3.2*
Married	. . .		
	Migration to the Border Area[b]		
Mean (K)	−1.162	.3633	−3.2*
Region (R):			
I	4.492	.359	12.5*
II	1.727	.387	4.5*
III	1.613	.391	4.1*
IV	1.987	.38	5.2*
V	. . .		
Age (A):			
15–29	−.471	.103	−4.6*
30–44	−.186	.095	−2.0*
45–59	−.01	.09	−.1
Sex (S):			
Male	−.087	.069	−1.3
Female	. . .		
Marital status (CS):			
Single	−.223	.069	−3.2*
Married	. . .		

*Significant at the 5 percent level.

[a] Goodness-of-fit deviance = 48.6, χ^2 = 90.5. The model explains 76.3 percent of the mean deviance of the null model.

[b] Goodness-of-fit deviance = 33.3, χ^2 = 90.5. The model explains 95.8 percent of the mean deviance of the null model.

The return migrant calculations show that the probability of being a return migrant is highest for the border region, again indicating that residence in the border has become an important factor in explaining migration to the United States. In general, the coefficients for the determinants of return migrants are similar to those for migrants still in the United States, implying that I am identifying roughly comparable populations. The highest proportion of return migrants were aged 15 to 29 years, followed by the groups aged 30 to 44 and 45 to 49. Note also that being male raises the probability of having migrated to and returned from the United States. Models that included rural or urban origin, schooling level, occupational status, and economic sector of activity were not useful for explaining this migratory pattern.

By contrast, the patterns of migration to the northern border differ considerably from those observed for migration to the United States. First, sex is not relevant for explaining this type of flow, therefore indicating that this migration is mostly of a permanent nature, as opposed to the temporary one shown in the results for migrants to the United States and return migrants. Second, the most important regions for this migratory flow are I (the border itself) and IV (the region adjoining the border). The increasing flow of migration from the adjoining counties happens first as a daily trip to the border (the transportation business is booming), which apparently becomes permanent after a while. The older age group (60 and over) was the most important in relation to this migratory flow. Another interesting fact is that, although not significant, the proportion of women is more important than men in this migratory process, a fact that is explained by the existence of a higher proportion of women in the assembly plants.

Examined together, tables 3.7 and 3.8 suggest an interesting pattern of interrelated migration to the border and to the United States. The different effect of sex on migration in the calculations can explain where males go when their wives work at the border. Since an important part of the work force, at least in *maquiladoras,* is female, the ideal overall migration strategy may be accomplished by a joint family decision where males migrate to the United States and females migrant to the border. This hypothesis is backed by the fact that married males who had migrated to the United States had the highest probability of being return migrants.

In conclusion, it can be said that the 1964 termination of the Bracero Program conditioned a policy response that gave birth to a very successful border industrial venture. This venture has created an important number of jobs of a secondary market type, has attracted foreign and local capital, and has conditioned, through forward and backward linkages, growth in the border area while the rest of the country was, in the period under study, in the middle of a protracted recession. However, another important fact that should be noted is that migrants, whether to or from the United States or to the border, compose only a negligible portion of the total Mexican work force. Evidence found in this research also suggests that migration to the northern Mexican border may

indeed be a step toward migration to the United States. Given that migration to the border seems to entail complete family units, that assembly plants employ mostly women, and that married males are an important element for explaining migration to the United States from the northern border, this pattern of migration may indeed be an optimal labor market decision for family units. From this perspective, one cannot understand Mexican migration to the United States separately from migration to the border.

Appendix [5]

The population aged 15 years old and over was recorded for each migration pattern, in various contingency tables formed by the cross-classification of four different independent variables each with two or more categories:

Contingency Table II.1. Region, age, sex, and education.
Contingency Table II.2. Region, age, sex, and origin.
Contingency Table II.3. Region, age, sex, and marital status.
Contingency Table II.4. Region, age, sex, and employment status.

Similarly, the employed labor force for each migratory pattern was cross-classified in accordance with four independent variables, each with two or more scales:

Contingency Table II.5. Region, age, sex, and occupation status.
Contingency Table II.6. Region, age, sex, and economic sector.

The survey divided the territory into five different zones according to the density flow of migrants (see fig. 3.1):

Region I. The northern border area.
Region II. The states of Jalisco, Colima, Guanajuato, Michoacán, part of Guerrero and the state of Mexico, and Ensenada in Baja California Norte.
Region III. The states of Aguascalientes, Durango, Nayarit, Zacatecas, Querétaro, San Luis Potosí, and part of the state of Hidalgo.
Region IV. The states of Tamaulipas, Nuevo León, Coahuila, and Sonora (exempting the border area), plus the state of Sinaloa.
Region V. The states of Baja California Sur, Campeche, Chiapas, the Federal District, Oaxaca, Quintana Roo, Tabasco, Veracruz, Yucatán, Morelos, Puebla, Tlaxcala, and part of the states of Hidalgo, Mexico, and Guerrero.

The dichotomous variables available are

a) Male or female.
b) Urban or rural population.

c) Marital status—single (includes single, widowed, divorced and separated) or married (including those who live in free union).

The age variable is divided into four ranks:

a) fifteen to twenty-nine years old.
b) thirty to forty-four years old.
c) forty-five to fifty-nine years old.
d) sixty years old and over.

The education variable is divided into four parts:

Less than elementary. Those who are illiterate or did not finish elementary school.

Elementary. Those who finished elementary school but not junior high school or the equivalent.

Junior high school. Those who finished junior high school but not senior high school or the equivalent.

Senior high school. Those who finished senior high school but not college.

College.

The employment status variable included three categories:

a) Employed labor force.
b) Unemployed labor force.
c) Not in the labor force.

The occupational status is divided into six categories:

a) Self-employed.
b) Blue collar.
c) Day labor.
d) Unpaid family member.
e) *Ejidatario.*
f) Landholder.

The economic sector of occupation is divided into the following categories:

a) Primary sector.
b) Secondary sector.
c) Tertiary sector.

Notes

1. For a detailed explanation of available data on migration and biases in that data, see Diez-Canedo (1980). The Secretaría del Trabajo conducted the household survey through the Centro Nacional de Información y Estudios del Trabajo (CENIET).

2. See the Appendix. For a detailed explanation of the methodological aspects of this survey, see Garcia y Griego and Zazueta (1982).

3. At the time of the survey, except for the border areas, 100 percent ownership was allowed only a very few cases; normally, a 51 percent Mexican share was required. Recently, however, this restriction on foreign investment has been relaxed drastically.

4. An *ejidatario* is an *ejido*'s "landowner," although the *ejidos* cannot be sold or mortgaged. The *ejido* is a plot of land owned by the nation through a community of "*ejidatarios.*"

5. Variables in contingency table analyses are described that are not reported in tables.

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