

Mexico's "Lost Decade," 1980–90:
Evidence on Class Structure and
Professional Employment from the 1990 Census

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Observers of Mexico in recent years—from the novelist Carlos Fuentes to workers in the streets of Mexico City—have termed the 1980s Mexico's "Lost Decade," a time in which the hopes stirred by the oil boom of the late 1970s were dashed by a severe economic crisis after 1982. In this view, social progress ground to a halt as real wages slumped and the absolute numbers of Mexicans living in extreme poverty increased. Even the Mexican government admitted that during the 1980s Mexico experienced its worst social crisis since the 1930s. At the same time, other observers noted the emergence of a new Mexican rich—individuals and families that weathered economic uncertainty and stagflation under President Miguel de la Madrid (1983–88) and then profited from the opening and privatization of the Mexican economy under President Carlos Salinas de Gortari (1989–94).¹

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¹For the crisis view, see Sergio Zermeño, "Desidentidad y desorden: México en la economía global y en el libre comercio," *Revista Mexicana de Sociología* 53:3 (1992), 15–64; and Jesús Lechuga and Fernando Chávez, *Estancamiento económico y crisis social en México, 1983–1988* (México, D.F.: Universidad Autónoma Metropolitana, Azcapotzalco, 1989). On the new rich, see Lydia Chávez, "Los Yuppies," *Los Angeles Times Magazine*, October 4, 1992, pp. 26–28, 38–42.

In this short study, we attempt to utilize Mexican census data that have recently been made available to gauge the social impact of the economic debacle brought on after 1982 by plummeting oil prices, skyrocketing debt, and the collapse of the statist model that had characterized Mexican development from the 1930s. Cross-sectional data on occupation and income from 1980 and 1990 provide a unique perspective on historical changes in the crisis period from mid-1982 to at least 1987. We modify the census data in various ways in order to make them consistent over time and comparable with other data sets, and, in so doing, we update the SALA series on Mexican class structure in the twentieth century.² By reinterpreting the long-term trends, we hope to add a new element to debates over economic and social change in the 1980s. Our modifications of the data from 1980 and 1990 affect the data for those two years and the rates of change for the twenty-year period from 1970 to 1990. This twenty-year period saw both the greatest expansion of the government's intervention in the Mexican economy and the dismantling of the state-dominated edifice in response to the severe economic stresses of the 1980s.

In order to sharpen the focus of our analysis, we include a brief case study of mobility into the professional strata of Mexican society. It is useful to look at a specific level within the overall hierarchy of class levels to examine social change during the crisis years. The professional strata constitute perhaps the most valuable case because of the importance of the widely held dream of mobility into the middle and upper classes. The idea of upward mobility has held an important place in official rhetoric since early in the post-revolutionary period; additionally, it has come to

²See Stephanie Granato and Aida Mostkoff, "The Class Structure of Mexico, 1895–1980," in James W. Wilkie, ed., *Society and Economy in Mexico* (Los Angeles: UCLA Latin American Center Publications, 1990), pp. 103–116.

play an important part in popular hopes for betterment at both the individual and family levels.

The Data

Two aspects of social mobility and class structure are examined here: occupation and income distribution. The topics are considered alone and in combination. Changing patterns of income distribution should not be used alone to gauge social mobility, although this is commonly done. Data on income distribution are generally analyzed using the Gini coefficient to gauge the degree of equity of income distribution and the Theil decomposition index to assess the importance of various factors affecting distribution. The central problem with the use of these techniques and with the use of data on income distribution on their own is that social mobility is possible under conditions of both improving and deteriorating distributions of income.³ Here, data on occupation serve as a corrective for data on income. Data on both aspects, derived ultimately from the Mexican decennial census, were adapted from both the census and various secondary sources and modified for analysis.⁴

In considering data on occupation and income, we look at both absolute data and data on percentage distribution because, while absolute data give an indication of the overall increase of positions at each stratum of society, they do not necessarily indicate that social mobility is taking place. Growth in absolute data could reflect the natural growth of population at each level with no net relative gain and no mobility. In fact, both ab-

solute growth in the numbers of available positions and relative growth of higher class levels are preconditions for social mobility. Only if there is long-term decline in the poorest groups and long-term growth of the middle class in both absolute and percentage terms can we assume that social mobility is taking place, that persons of poorer socioeconomic strata are moving up.

We do not claim that the series developed here provide objective or comprehensive data on changes in class structure or poverty in Mexico in the 1980s. The topics related to the distribution of the benefits of economic development in Mexico are exceedingly complex and cannot be summarized in a single data set. A complete picture can only emerge with the consideration of many other factors (only some of them quantifiable, given the state of available data): household income and expenditure; employment and unemployment (data for Mexico are very misleading); evolution of real salaries; the number of days worked by workers and how the number has changed over time; the number of jobs worked (both simultaneously and over a given period); work patterns by age group (to gauge the generational impact of economic changes); male-female ratios in the workplace; and others.⁵ Any level of aggregation, of course, removes analysis from the day-to-day experience of most people; to approach the upper or working classes as units is to overlook individual experiences. For example, while a "new rich" may have emerged in Mexico during the 1980s and the upper class as a whole may have improved its position slightly (see below), many persons in the upper class fell on comparatively hard times. Likewise, improvement for the working class as a whole (see below) obscures the continued poverty and daily struggle of many for whom life was precarious even before the crisis.

Table E1 presents revised data on occupation from the 1980 census and data on occupation for 1990. A great deal of criticism was leveled at the

³For the most sophisticated recent studies of income distribution in Mexico, see Ifigenia Martínez Hernández, *Algunos efectos de la crisis en la distribución del ingreso en México* (México, D.F.: UNAM, 1989), and Wouter van Ginneken, *Socioeconomic Groups and Income Distribution* (New York: St. Martin's Press, 1980). Also see the early analyses of Leopoldo Solís, *La realidad económica mexicana: Retrovisión y perspectivas*, 16th ed. (México, D.F.: Siglo XXI, 1987), Chapter Seven; Pablo González Casanova, *Democracy in Mexico* (London and New York: Oxford University Press, 1970), Chapter Six; and Arturo González Cosío, "Clases y estratos sociales," in *México: Cincuenta años de revolución, Tomo II* (México, D.F.: Fondo de Cultura Económica, 1961). For regional analyses, see José Luis Reyna, Manuel Vill, and Kirsten Albrechtsen, "Dinámica de la estratificación social en algunas ciudades pequeñas y medianas de México," *Revista de Demografía y Economía* 13 (1967); and Enrique Contreras Suárez, *Estratificación y movilidad social en la ciudad de México* (México, D.F.: UNAM, 1978).

⁴Data for 1950 to 1970 are from Granato and Mostkoff, "Class Structure."

⁵Many of these elements, extremely important in times of economic hardship and for which little data are available, involve aspects of family economic survival and reproduction. For example, family members may take one or more secondary jobs in order to maintain the same family income: in census data, the family appears at the same income level, yet it would be hard to deny that its circumstances are more difficult or its position more precarious. In general, we need more information about family economies in Mexico and their response to changing economic environments.

Table E1
OCCUPATIONAL BREAKDOWN, 1980 AND 1990

PART I. CENSUS DATA ON OCCUPATION AND REVISED DATA, 1980

Category	1980 Total 1 ^a			1980 Census Total 2 ^b		
	Census Data	Revised Data		Census Data	Revised Data	
	N	N	%	N	N	%
Professionals	393,016	418,950	2.0	395,987	422,952	1.9
Technicians	508,456	542,008	2.5	515,045	550,117	2.5
Teachers	551,537	587,932	2.7	555,866	593,718	2.7
Artists	129,228	137,755	0.6	132,108	141,104	0.6
Public Officials	20,770	22,141	0.1	20,927	22,352	0.1
Managers	219,324	233,797	1.1	220,597	235,619	1.1
Agricultural Managers	20,587	21,945	0.1	20,929	22,354	0.1
Agricultural Foremen	13,513	14,405	0.1	13,652	14,582	0.1
Agriculturists	5,249,771	5,596,191	26.2	5,417,648	5,786,565	26.2
Agricultural Machine Operators	79,211	84,438	0.4	81,017	86,534	0.4
Industrial Foremen	127,155	135,546	0.6	128,201	136,931	0.6
Artisans	4,176,929	4,452,554	20.8	4,265,785	4,556,265	20.6
Workers' Assistants	460,851	491,261	2.3	475,721	508,115	2.3
Office Workers	1,993,830	2,125,398	9.9	2,017,480	2,154,861	9.8
Dependent Merchants	1,489,957	1,588,276	7.4	1,516,022	1,619,256	7.3
Ambulatory Merchants	94,416	100,646	0.5	96,300	102,858	0.5
Service Workers	640,361	682,617	3.2	655,134	699,746	3.2
Domestic Workers	888,857	947,511	4.4	918,517	981,064	4.4
Transport Workers	755,026	804,848	3.8	768,785	821,136	3.7
Police	249,259	265,707	1.2	253,243	270,488	1.2
Without Income	~	~	~	124,391	132,861	0.6
Not Specified	3,331,196	2,139,325	10.0	3,472,729	2,206,608	10.0
Totals	21,393,250	21,393,250	100.0	22,066,084	22,066,084	100.0

a. Total given in table 30 of source.

b. Total given in tables 22 and 24 of source.

SOURCE: INEGI (Instituto Nacional de Estadística, Geografía e Informática), *Censo general de población y vivienda: Resumen general, 1980* (México, D. F.: INEGI, 1984), tables 22, 24, and 30. Hereafter, Census.

PART II. OCCUPATIONAL DATA, BY CLASS, 1980 (REVISED) AND 1990

Class	1980 (Revised)			1990			PC 1980-90
	N	% Subtotal	% Total	N	% Subtotal	% Total	
UPPER ¹	839,536		3.9	1,393,236		6.0	66.0
Managerial	277,883	1.3		569,561	2.4		105.0
Professional (1/5) ²	561,653	2.6		823,675	3.5		46.7
MIDDLE	6,334,654		29.6	8,145,556		34.8	
Stable Middle	2,750,102	12.9		3,644,524	15.6		32.5
Professional (2%)	1,124,992	5.3		1,649,823	7.0		46.7
Office Workers (1/2)	1,062,699	5.0		1,093,291	4.7		2.9
Tradesmen (1/5)	562,411	2.6		901,409	3.9		60.3
Marginal Middle	3,584,552	16.8		4,501,032	19.2		25.6
Office Workers (1/2)	1,062,699	5.0		1,093,291	4.7		2.9
Tradesmen (1/5)	562,411	2.6		901,409	3.9		60.3
Artisans (1/5)	1,959,442	9.2		2,506,331	10.7		27.9
LOWER	14,219,061		66.5	13,864,622		59.2	
Transitional Lower	5,121,399	23.9		7,002,106	29.9		36.7
Tradesmen (1/5)	564,100	2.6		904,116	3.9		60.3
Artisans (2%)	3,924,767	18.3		5,020,189	21.5		27.9
Services (2%)	632,532	3.0		1,077,801	4.6		70.4
Popular	9,097,662	42.5		6,862,516	29.3		-24.6
Services (1/5)	315,792	1.5		538,092	2.3		70.4
Agriculturists	5,695,034	26.6		5,173,725	22.1		-9.2
Domestic Workers	947,511	4.4		646,199	2.8		-31.8
Unspecified	2,139,325	10.0		504,500	2.2		
Total ³	21,393,251	200	100	23,403,413	200	100	

1. For occupational groupings, see Granato and Mostkoff, "Class Structure," figure 1, p. 110.

2. Fractions in parentheses refer to shares of occupational groupings in substrata.

3. Total in Part II does not equal that in Part I because of rounding.

SOURCE: Census.

1980 census because it showed large numbers of persons who could not be classified by occupation (a total of 16.9 percent). Because the census questionnaire asked the principal occupation performed in the week previous to the administration of the census, many persons who either were not working during that week or who could claim more than one occupation were not classified by occupation. It is important to note that census data from 1980 do not indicate that large percentages of the working population were left out of the 1980 census, but rather that census workers tabulating from census manuscripts could not assign persons to occupations. In response to this difficulty, we estimate the unspecified at 10.0 percent (in 1970 it was 5.2 percent) and redistribute the remaining 6.7 percent among the other categories (according to their share in the original total minus the unspecified category).⁶

Table E1, Part I, shows the original census data and revised data on occupation for the two different totals given in the Mexican census. In the following tables and discussion, we use the 21,393,250 total because it does not include the category of economically active population without income (124,391 persons). Table E1, Part II, presents the revised data for 1980 and the comparable data for 1990.⁷ It was not necessary to modify the data from the 1990 census, where the problem of classification was apparently solved—only 2.2 percent of the economically active population could not be classified according to principal occupation.

Table E2 presents data on income distribution derived from the 1990 census. Income groups from the census were distributed among the subclasses using the breakdown established for the SALA series. Persons with monthly incomes of 200 pesos or less were placed in the popular stratum; those receiving incomes of from 200 to 300 pesos were placed in the transitional lower class. The marginal middle class was defined as persons receiving between 300 and 600 pesos of 1950 per

⁶Our estimate of 10.0 percent may itself be too high, given the unspecified share of 5.2 percent in 1970 and 2.2 percent in 1990. Reducing the unspecified share further, however, may give a false picture of what was a census with many irregularities.

⁷For notes on the distribution of occupational data among class strata, see Granato and Mostkoff, "Class Structure," Table 3 and Figure 1.

Table E2
INCOME DISTRIBUTION, 1990

Class and Subclass	N
UPPER	1,704,244
Managerial	739,305
Professional	963,337
MIDDLE	9,329,736
Stable	2,140,223
Marginal	7,189,513
LOWER	11,369,196
Transitional	4,517,407
Popular	6,851,789

SOURCE: Census.

month. Persons in the professional upper class received between 1,000 and 3,000 pesos while persons in the managerial stratum of the upper class had incomes greater than 3,000 pesos.⁸

Historical Trends in Class Structure, 1950–90

Mexico's class structure changed dramatically between 1950 and 1990 (Table E3 and Figure E:1). The shares held by both the upper and the middle classes grew greatly over the course of the forty-year period; thus, over the long term, there appears to have been sustained social mobility from working classes into higher strata.⁹ While the lower

⁸For deflating the data to 1950 pesos, we used the Banco de México's Wholesale Price Index plus 12.4 percent (as in Granato and Mostkoff, "Class Structure"). This estimate yields an index between the wholesale and consumer price indexes. It is perhaps more appropriate to use the consumer price index throughout. For the sake of consistency, however, we have used the methodology employed by Granato and Mostkoff and Wilkie and Wilkins in establishing the baseline data (see James W. Wilkie and Paul D. Wilkins, "Quantifying the Class Structure of Mexico, 1895–1970," in SALA, 21:577–590). The shares of the upper class subgroups were estimated based on trends in the 1950–80 period. See Granato and Mostkoff, pp. 105–107 and Table 1, note b.

⁹The terms for class categories are adopted from Granato and Mostkoff, "Class Structure," with one important exception. Throughout the present article we use "managerial" for the uppermost stratum of the upper class instead of the term "leisure" use in earlier SALA research; likewise, we use "professional" in place of "semi-leisure." An alternate terminology for measuring class structure in Latin America is presented by Alejandro Portes, "Latin American Class Structures: Their Composition and Change during the Last Decades," *Latin American Research Review* 20:3 (1985), 7–39. The analysis is highly aggregate and most of the data employed go back only to 1970. For his class categories, Portes uses the terms "Dominant," "Bureaucratic-Technical," "Formal Proletariat," "Informal Petty Bourgeoisie," and "Informal Proletariat." Although the time period considered is very brief, some social mobility is apparent for Latin America as a whole, although

Table E3
CLASS STRUCTURE, PERCENTAGE DATA, 1950-90

	1950			1960			1970		
	Income	Occupation	Combined ^a	Income	Occupation	Combined ^a	Income	Occupation	Combined ^a
UPPER	1.8	1.6	1.7	5.6	2.0	3.8	7.0	4.4	5.7
Managerial	2	.8	.5	1.0	.8	.9	1.5	2.5	2.0
Professional	1.6	.8	1.2	4.6	1.2	2.9	5.9	1.9	3.9
MIDDLE	19.4	16.6	18.0	21.8	20.2	21.0	32.5	23.4	28.0
Stable	3.2	6.6	4.9	4.8	8.5	6.6	7.9	10.0	9.0
Marginal	16.2	10.0	13.1	17.0	11.7	14.4	24.6	13.4	19.0
LOWER	78.8	81.8	80.3	72.6	77.8	75.2	60.5	72.2	66.4
Transitional	25.4	20.0	22.7	15.8	20.9	18.4	12.4	24.8	18.6
Popular	53.4	61.8	57.6	56.8	56.9	56.8	48.1	47.4	47.8
Total							200	200	200

	1980			1990		
	Income	Occupation	Combined ^a	Income	Occupation	Combined ^a
UPPER	6.7	3.9	5.3	7.6	6.0	6.8
Managerial	2.4	1.3	1.9	3.3	2.4	2.9
Professional	4.3	2.6	3.5	4.3	3.5	3.9
MIDDLE	36.3	29.6	33.0	41.6	34.8	38.2
Stable	11.1	12.9	12.0	9.6	15.6	12.6
Marginal	25.2	16.8	21.0	32.1	19.2	25.7
LOWER	57.0	66.5	61.8	50.7	59.2	55.0
Transitional	12.0	23.9	18.0	20.2	29.9	25.1
Popular	45.0	42.5	43.8	30.6	29.3	30.0
Total	200	200	200	200	199.9	200

a. Arithmetic average of the data for income and occupation.

SOURCE: 1950-70: Granato and Mostkoff, "Class Structure," table 6, p. 111.

1980: Table E1.

1990: Tables E1 and E2.

class declined from 80.3 percent of the total in 1950 to 55.0 percent in 1990 (figures for combined income and occupation data), the middle class grew steadily from 18.0 percent to 38.2 percent of the total in the same period. The upper class grew from 1.7 percent in 1950 to 6.8 percent in 1990. The periodization of growth for the upper and middle class categories in the period between 1940 and 1990 is noteworthy. The data suggest that the upper class increased its share very rapidly between 1950 and 1960 and between 1960 and 1970, but declined between 1970 and 1980 before growing again between 1980 and 1990. The middle class increased its share rapidly between 1960 and 1970 (as it had between 1940 and 1950),¹⁰ more slowly from 1970 to 1980, and rapidly again between 1980 and 1990. The share of Mexicans belonging to the lower strata diminished particularly quickly in the 1960s and, surprisingly, in the 1980s (for trends within this general shift, see below).

not for Mexico, for which Portes does not present time-series data.

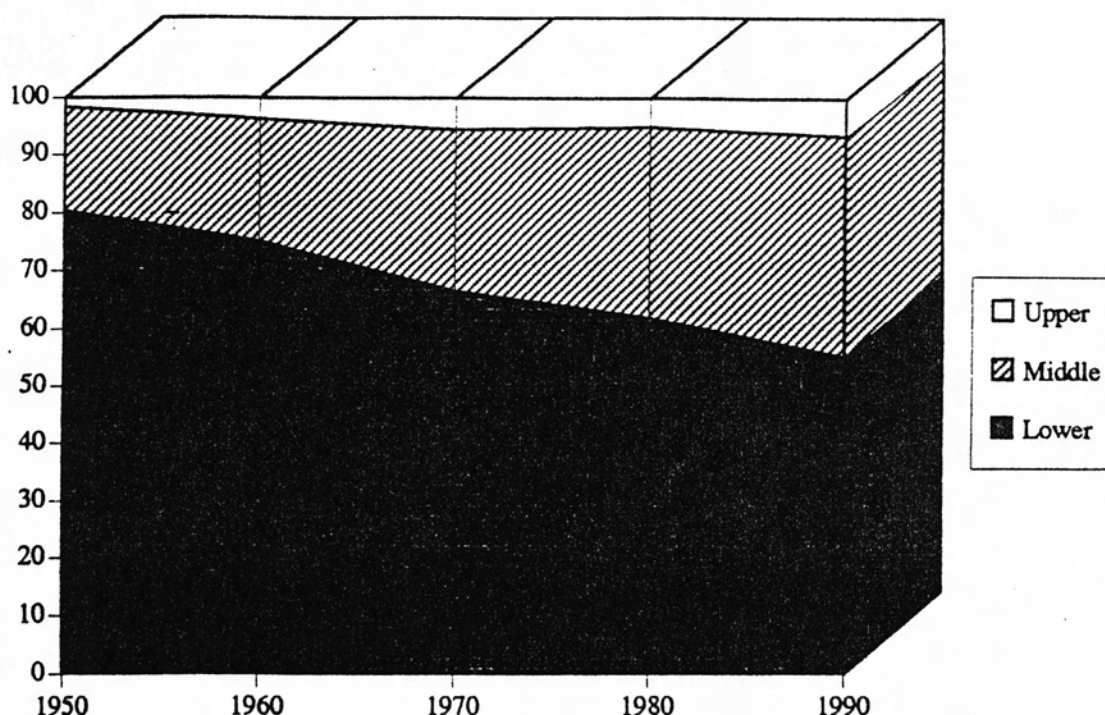
¹⁰See Granato and Mostkoff, "Class Structure," for data from 1895 to 1940.

The key changes in this period, particularly at the lower and middle levels, reflect the long-term trends of migration of millions of Mexicans from subsistence agriculture to the nation's cities and a general shift in the composition of employment toward higher paying, urban occupations, particularly in commerce and the services. These trends were spurred by Mexico's Green Revolution in the countryside on the one hand and rapid industrialization on the other.

To look within these basic trends, it is necessary to disaggregate and reexamine the data in three ways. First, the implications of changes in the absolute data as well as in the percentage data must be considered. Second, it is desirable to isolate certain intermediate class levels within the broad upper, middle, and lower class categories. Third, we must consider trends in income and trends in occupation separately from trends in combined data on income and occupation.¹¹ We focus on the professional substratum of the upper class and the stable substratum of the middle class

¹¹"Combined" income and occupation is an average of data in the two categories.

Figure E:1
EVOLUTION OF CLASS STRUCTURE, 1950-90
(%)



SOURCE: Table E3.

because those strata are the focus of our case study below.

Absolute data on the number of persons at different social levels, generally neglected by scholars, are at least as revealing as the percentage share of each stratum (Table E4). Absolute data allow us, among other things, to compare rates of change with change in other social and economic phenomena (see sections on professional employment and education below). The number of persons in the Mexican upper classes grew at a rate of 127.8 percent from 1950 to 1960, 124.5 percent from 1960 to 1970, 43.3 percent between 1970 and 1980, and 49.6 percent between 1980 and 1990. Compared to this upper class growth, the absolute number of positions in the middle classes grew more slowly: 30.7 percent between 1950 and 1960, 82.2 percent between 1960 and 1970, 84.0 percent between 1970 and 1980, and 34.2 percent between 1980 and 1990. The number of persons in lower class strata increased 6.3 percent between 1950 and 1960, 19.7 percent between 1960 and 1970, 46.2 percent between 1970 and 1980, and 2.2 percent between 1980 and 1990. We must set these figures in the context of the overall growth of the economically active population (EAP): 37.0 percent

between 1950 and 1960, 14.3 percent between 1960 and 1970, 65.1 percent between 1970 and 1980, and 9.4 percent between 1980 and 1990. The number of persons in the lower class groups grew at the lowest rate of the three major class divisions, growing faster than overall EAP in only one decade. (One sign of crisis in the 1980s is the low overall growth of EAP: the lowest rate in the period after 1950 and less than half the rate of population growth in the decade—21 percent.)

Historical social mobility as reflected in the changing relative distribution of class substrata shows many subtleties in the period after 1950 (refer to Table E3). The share held by the stable middle class increased from 4.9 percent in 1950, to 6.6 in 1960, to 8.9 percent in 1970, to 12.0 in 1980. Then, between 1980 and 1990, its share grew only a slight amount, to 12.6 in 1990 (data for combined income and occupation). The marginal middle class, in contrast, increased its share steadily, if not dramatically, between 1950 and 1980: from 13.1 percent in 1950, to 14.4 percent in 1960, to 19.0 percent in 1970, and then to 21.0 percent in 1980. In the 1980s, the share held by the marginal middle class expanded rapidly to 25.7 percent of the total. Within the lower class the most dramatic

Table E4
CLASS STRUCTURE, ABSOLUTE DATA AND PERCENTAGE CHANGE, 1950-90

1950	Income	Occupation	Combined						
UPPER	148,461	134,087	141,274						
Professional	128,393	68,979	98,686						
MIDDLE	1,602,546	1,369,264	1,485,905						
Stable	267,567	546,088	406,828						
LOWER	6,521,081	6,768,742	6,644,912						
1960			PC 1950-60						
	Income	Occupation	Combined	Income	Occupation	Combined			
UPPER	411,874	231,834	321,854	177.4	72.9	127.8			
Professional	339,308	136,702	238,005	164.3	98.2	141.2			
MIDDLE	1,597,803	2,286,332	1,942,068	-0.3	67.0	30.7			
Stable	352,334	961,421	656,878	31.7	76.1	61.5			
LOWER	5,306,692	8,813,850	7,060,271	-18.6	30.2	6.3			
1970			PC 1970-80						
	Income	Occupation	Combined	Income	Occupation	Combined			
UPPER	881,010	564,231	722,621	113.9	143.4	124.5			
Professional	686,921	244,403	465,662	102.4	78.8	95.7			
MIDDLE	4,046,548	3,028,755	3,537,652	153.3	32.5	82.2			
Stable	980,870	1,299,817	1,140,344	178.4	35.2	73.6			
LOWER	7,539,078	9,357,071	8,448,075	42.1	6.2	19.7			
1980			PC 1970-80			PC 1950-80			
	Income	Occupation	Combined	Income	Occupation	Combined	Income	Occupation	Combined
UPPER	1,231,461	839,536	1,035,499	39.8	48.8	43.3	729.5	526.1	633.0
Professional	780,244	561,653	670,949	13.6	129.8	44.1	507.7	714.2	579.9
MIDDLE	6,684,982	6,334,654	6,509,818	65.2	109.2	84.0	317.1	362.6	338.1
Stable	2,050,498	2,750,102	2,400,300	109.0	111.6	110.5	666.3	403.6	490.0
LOWER	10,481,192	14,219,061	12,350,127	39.0	52.0	46.2	60.7	110.1	85.9
1990			PC 1980-90			PC 1950-90			
	Income	Occupation	Combined	Income	Occupation	Combined	Income	Occupation	Combined
UPPER	1,704,244	1,393,236	1,548,740	38.4	66.0	49.6	1,047.9	939.1	996.3
Professional	963,337	569,561	766,449	23.5	1.4	14.2	650.3	725.7	676.7
MIDDLE	9,329,736	8,145,556	8,737,646	39.6	28.6	34.2	482.2	494.9	488.0
Stable	2,140,223	3,644,524	2,892,374	4.4	32.5	20.5	699.9	567.4	611.0
LOWER	11,369,196	13,864,622	12,616,909	8.5	-2.5	2.2	74.3	104.8	89.9

SOURCE: Calculated from Granato and Mostkoff, "Class Structure"; Tables E1 and E2 above.

change was experienced in the transitional stratum, which remained roughly at the same level for the thirty years between 1950 and 1980: 22.7 percent in 1950, 18.4 percent in 1960, 18.6 percent in 1970, and 18.0 percent in 1980. In the 1980s, the transitional stratum jumped a full 7 percentage points to 25.1 percent of the total.

Absolute data provide insights into the rates of growth of the number of persons in the various substrata (refer to Table E4). While the rate of growth of the professional upper class decreased over the three decades (from a high of 141.2 in 1950-60 to 14.2 between 1980 and 1990), the rate at which the stable middle class grew increased over time between 1950 and 1980 (from 61.5 percent in the period from 1950 to 1960 to 110.5 between 1970 and 1980) but then fell to a low of 20.5 percent increase in the 1980s.

The combined income-occupation figures obscure important trends (refer to Table E4). In the period from 1950 to 1970, increases in the absolute number of persons in various class strata were more significant than increases in the number of persons at comparable income levels in three out of four cases. In contrast, for the period from 1970 to 1990, occupation was the more important factor in three out of four cases. This trend suggests that social mobility into Mexico's professional classes in the 1950s and 1960s can be attributed primarily to changes in income rather than changes in occupation. The percentage data in Table E3 provide another way of pointing out the same difference. In the period from 1950 to 1970, the growth of the professional upper and stable middle strata appears to be principally due to increases in the share of income rather than the share of occupation.

Employment of Professionals and Technicians

A closer look at changes in Mexico's professional social strata provides an inside view of historical mobility.¹² The case study of specific social groups also increases the yield of the series developed above by placing them in the context of other data sets.

Analysis of the professional strata is particularly important because of the widely held dream of mobility into the middle classes and the place that dream has had in official rhetoric and popular hopes in Mexico. The idea that an important form of social mobility would be into the professional strata, an idea associated with analysts of the human capital school, had a major influence on individual and family decisions to pursue higher education long before the development of an academic literature on human resource development in Mexico.¹³ Simply put, the hope was that university preparation for professional careers would result in higher incomes and make it possible for university graduates to join the ranks of the middle and upper classes.¹⁴ Pablo González Casanova, the

Mexican sociologist and former rector of the National Autonomous University of Mexico (UNAM), summed up the matter this way in 1962: "In today's Mexico, which is being industrialized and urbanized, there is permanent social mobility. The peasants of yesterday are today's workers, and the workers' children can be professionals."¹⁵ Because these assumptions about how social mobility would progress were widespread among intellectuals, policymakers, and Mexicans at large, university education became one of the most important symbols of upward mobility and social status in Mexico. Let us examine the available data on the issue of mobility into the professional strata of Mexican society and the relationship between the university system and this mobility.

A basic benchmark series on professionals and technicians in EAP in the period 1950–90 can be derived from the census (Table E5). Several steps were taken here to develop data for 1980, again the problem year, that would be comparable with earlier census data. First, sectoral categories were collapsed to make eight basic categories for the period from 1950 to 1980. Second, a new percentage of "not specified" was estimated for 1980 based on trends in the "not specified" category between 1950 and 1970. Third, the remaining percentage of "not specified" was distributed back into the sectoral categories following the relative percentage shares of those categories. No assumptions were made about the likelihood of over- or underrepresentation of some sectors in the original data, for there is little indication that professionals in one sector would be more or less likely to have been classified as "not specified." Finally, new estimated category totals and percentage shares were calculated. The data reveal a dramatic increase in the number of professionals and technicians in EAP, from almost 207 thousand to almost 2.5 million between 1950 and 1990.

It is important to differentiate between professionals and technicians. In the context of the

¹²The following discussion expands on David Lorey, *The Rise of the Professions in Twentieth-Century Mexico: University Graduates and Occupational Change since 1929* (Los Angeles: UCLA Latin American Center Publications, 1992), esp. Chapter 2 and Tables 49–54; and Lorey, *The University System and Economic Development in Mexico since 1929* (Stanford: Stanford University Press, 1993), esp. Chapter Six, presenting new data for 1980 and 1990.

¹³Years before the appearance of literature on dual and segmented labor markets, for example, Mexican students and their families recognized that different sectors of the economy, and particularly different areas within the public sector, had created relatively autonomous internal labor markets. Students used both lore and concrete information about the characteristics of these labor markets to shape their career decisions.

¹⁴It is clear that in Mexico, as in most other parts of the world, there is a strong correlation between earnings and educational attainment. For analysis of the Mexican case in the Latin American context, see Martin Carnoy, "Rates of Return to Schooling in Latin America," *Journal of Human Resources* 2:3 (Summer 1967), 359–374. See also Carnoy's "Earnings and Schooling in Mexico," *Economic Development and Cultural Change* 15:4 (July); Carnoy's "The Costs and Returns to Schooling in Mexico" (Ph.D. dissertation, University of Chicago, 1964); and van Ginneken, *Socioeconomic Groups and Income Distribution in Mexico*. It is far from clear whether the relationship between earnings and attainment is due to productivity increases associated by some analysts with education or with the socializing function of education emphasized by others. For reviews of the issues involved in this debate, see Mark Blaug, *The Economics of Education: An Annotated Bibliography* (Oxford: Pergamon Press, 1978); and

Carlos Muñoz Izquierdo and José Lobo, "Expansión del mercado de trabajo y distribución del ingreso en México," *Revista del Centro de Estudios Educativos* 4:1 (1974). For data on income and expenditure by level of academic achievement, see BANAMEX, *Como es México* (México, D.F.: BANAMEX, 1983).

¹⁵Pablo González Casanova, "México: El ciclo de una revolución agraria," *Cuadernos Americanos* 120:1 (January–February 1962). Cf. González's later comments on social mobility in *Democracia en México* (México, D.F.: Ediciones Era, 1965).

Table E5
PROFESSIONALS AND TECHNICIANS BY SECTOR, 1950-90

PART I. ABSOLUTE DATA						
Sector	1950	1960	1970	Original 1980	Revised 1980	1990
Agriculture	1.197	16.100	18.966	23.161	29.000	33.737
Extractive Industries	2.990	11.785	14.874	18.856	24.000	24.038
Manufacturing	17.594	46.968	97.957	231.812	293.000	209.115
Construction	5.700	18.237	23.145	61.094	77.000	60.828
Utilities	1.794	3.557	4.987	26.476	36.000	16.135
Commerce	3.257	22.359	21.881	20.563	26.000	89.192
Transportation	2.139	6.523	8.185	6.554	8.000	32.130
Services	168.050	280.304	529.291	798.969	1,011.000	1,946.970
Not Specified	4.218	2.806	13.923	394.752	79.000	61.303
Total	206.939	408.639	733.209	1,582.237	1,583.000	2,473.498
EAP Total	8.272.093	11.332.016	12.955.057	21.393.250	21.393.250	23.403.413

PART II. PERCENTAGE DATA						
Sector	1950	1960	1970	Original 1980	Revised 1980	1990
Agriculture	0.6	3.9	2.6	1.5	1.8	1.4
Extractive Industries	1.4	2.9	2.0	1.2	1.5	1.0
Manufacturing	8.5	11.5	13.4	14.7	18.5	8.5
Construction	2.8	4.5	3.2	3.9	4.9	2.5
Utilities	0.9	0.9	0.7	1.7	2.3	0.7
Commerce	1.6	5.5	3.0	1.3	1.6	3.6
Transportation	1.0	1.6	1.1	0.4	0.5	1.3
Services	81.2	68.6	72.2	50.5	63.9	78.7
Not Specified	2.0	0.7	1.9	24.9	5.0	2.5

SOURCE: David E. Lorey, *The Rise of the Professions in Twentieth-Century Mexico: University Graduates and Occupational Change since 1929* (Los Angeles: UCLA Latin American Center Publications, 1992), table 22, part I.

workplace, a professional is a person equipped with both general knowledge and the ability to apply this knowledge to change the production or management environment by increasing productivity, introducing innovations, or spreading attitudes and techniques. A technician's main function in the workplace, in contrast, is to apply specific techniques learned through the educational process. With regard to their educational qualifications, "professionals" are graduates with a licentiate or higher degree. (We suggest that over time, however, a growing portion of degree-holders have found it necessary to work as technicians—see below.) "Technicians," in contrast, are graduates of upper secondary, non-college preparatory courses, those students who leave the university system by way of a "lateral exit" or "short course" of study, and the portion of *egresados* of university careers that never achieves the licentiate degree (an *egresado* has finished the coursework for the licentiate degree but still must complete social service and a thesis).¹⁶

¹⁶In the census, there are many persons who classify themselves as professionals and technicians who do not fulfill

The difference between professionals and technicians is not to be confused with differences in economic sector of employment: sector is not the same as occupational level.¹⁷ Intersectoral shifts in EAP are highly misleading if used to gauge historical shifts in the level of occupations of the work force. A close examination of census categories shows that a very large proportion of workers in

these functions. At the same time, there is a much larger pool of seekers for professional and technician employment than that represented by university graduates and *egresados*. See the discussion of Table E9 below. For further discussion of the definitions, see Lorey, *Rise of the Professions in Mexico*, Chapter Three.

¹⁷Many analysts equate sectoral distribution and occupational structure; see, for example, A. J. Jaffe, *People, Jobs, and Economic Development: A Case History of Puerto Rico Supplemented by Recent Mexican Experiences* (Glencoe, IL: The Free Press of Glencoe Illinois, 1959), p. 109 and passim; and Jorge A. Padua, "Movilidad social y universidad," in Gilberto Guevara Niebla, ed., *La crisis de la educación superior en México* (México, D.F.: Nueva Imagen, 1981), pp. 131-132.

Table E6
PROFESSIONALS AND TECHNICIANS (DISAGGREGATED) IN EAP, 1950, 1980, AND 1990

PART I. PROFESSIONALS AND TECHNICIANS IN CENSUS DATA

	1950
A. Engineers (and related technicians)	17,793
B. Chemists (and related technicians)	8,966
C. Primary School Teachers ¹	79,234
D. Secondary School and University Teachers	3,241
E. Researchers (and related technicians)	1,175
F. Lawyers	11,604
G. Doctors	17,260
H. Nurses	9,206
I. Writers/Artists	34,131
J. Other Professionals	24,329
K. Public Officials at Director's Level	17,691
L. Directors of Commercial Establishments	19,833
M. Owners/Operators of Industries	17,792
N. Other Directors and Administrators	9,792
O. Typists	58,510
P. Office Accountants	51,818
	1980
Q. Professionals	395,987
R. Artists	132,108
S. Public Officials	20,927
T. Directors General, Area Directors	110,557
U. Secondary School and University Teachers	70,230
V. Primary School Teachers ¹	485,636
W. Technicians	515,045
X. Skilled Office Workers ²	972,440
	1990
	630,621
	200,469
	29,384 ^a
	193,993 ^a
	110,176 ^a
	764,235 ^a
	767,997
	1,053,993 ^a

1. Includes preschool, special, and sports instructors, school inspectors, and other education workers.

2. Includes office chiefs, accountants, machinery operators, library and archival workers, and public relations personnel.

a. Estimated from census data.

PART II. PROFESSIONALS AND TECHNICIANS CALCULATED FROM PART I

	Professionals		Technicians	
1950	Broad Definition ¹	Narrow Definition ²	Broad Definition ³	Narrow Definition ⁴
	150,680	106,040	207,986	128,752
	Professionals		Technicians	
1980	Broad Definition ⁵	Narrow Definition ⁶	Broad Definition ⁷	Narrow Definition ⁸
	729,809	549,022	1,973,121	1,487,485
	Professionals		Technicians	
1990	Broad Definition ⁵	Narrow Definition ⁶	Broad Definition ⁷	Narrow Definition ⁸
	1,164,643	860,474	2,990,892	2,226,657

1. 1950 wide definition of professionals = $2_5A + 2_5B + D + 2_5E + F + G + I + J + K + \frac{1}{2}L + \frac{1}{2}M$.

2. 1950 narrow definition of professionals = $2_5A + 2_5B + 2_5E + F + G + I + J$.

3. 1950 wide definition of technicians = $1_5A + 1_5B + C + 1_5E + H + O + P$.

4. 1950 narrow definition of technicians = $1_5A + 1_5B + 1_5E + H + O + P$.

5. 1980 and 1990 wide definition of professionals = $Q + R + S + T + U$.

6. 1980 and 1990 narrow definition of professionals = $Q + R + S$.

7. 1980 and 1990 wide definition of technicians = $V + W + X$.

8. 1980 and 1990 narrow definition of technicians = $W + X$.

Table E6 (Continued)
PROFESSIONALS AND TECHNICIANS (DISAGGREGATED) IN EAP, 1950, 1980, AND 1990

PART III. SUMMARY STATISTICS ON PROFESSIONALS AND TECHNICIANS IN CENSUS DATA

A. PROFESSIONALS AND TECHNICIANS AS PERCENTAGE OF EAP, 1950, 1980, AND 1990

Year	Professionals		Technicians	
	Broad Definition	Narrow Definition	Broad Definition	Narrow Definition
1950	1.8	1.3	2.5	1.6
1980	3.3	2.5	8.9	6.7
1990	5.0	3.7	12.8	9.5

B. PC, 1950-80

Period	Professionals		Technicians	
	Broad Definition	Narrow Definition	Broad Definition	Narrow Definition
1950-80	384.3	417.8	848.7	1,055.3

C. IMPLICIT ANNUAL RATES OF CHANGE

Period	Professionals		Technicians	
	Broad Definition	Narrow Definition	Broad Definition	Narrow Definition
1950-80	5.4	5.6	7.8	8.5
1980-90	4.8	4.6	4.3	4.1

D. PROFESSIONAL/TECHNICIAN RATIOS, 1950, 1980, AND 1990

Year	Technicians per Professional	
	Wide Definition	Narrow Definition
1950	1.4	1.2
1980	2.7	2.7
1990	2.6	2.6

SOURCE: Lorey, *Rise of the Professions in Mexico*, table 30.

communications, commerce, and industry, for example, have always been self-employed mule-drivers, shopkeepers, and artisans.¹⁸ These are not "professionals" by the definitions employed here.

What has been the relationship *between* employed professionals and technicians over time? This relationship is of the first importance because the ratio between the two groups, and how that ratio has evolved over time, reveals a great deal about the nature of economic development in Mexico. The history of the developed economies is characterized in general by the creation over time of large numbers of positions at the professional

level in both absolute and relative terms.¹⁹ Data on this question can only be developed for 1950, 1980, and 1990.

While both professionals and technicians have made up an increasing part of Mexico's EAP since 1950 (as indicated in the data discussed above), census data for 1950, 1980, and 1990 reveal that the two levels have not grown at the same rate

¹⁸For an early analysis, see Frank Tannenbaum, *Mexico: The Struggle for Peace and Bread* (Englewood Cliffs: Prentice-Hall, 1950), pp. 195-196 (analysis of 1940 census data). For an analysis of shifts in the services sector and what they mean, see Peter Gregory, *The Myth of Market Failure: Employment and the Labor Market in Mexico* (Baltimore: Johns Hopkins University Press, 1986), Appendix to Chapter One.

¹⁹Ideally, of course, numerous technicians should be educated to support each professional. But the ratio in Mexico by 1980 seems unusually large. The ratio in the United States in 1985 was 1.5 technicians for each professional, whereas that for Mexico (as determined above) was almost twice that at 2.7 to 1 in 1980. See *Statistical Abstract of the United States*, 1987, pp. 385-386. For a brief sketch of the U.S. case, see the discussion by John K. Folger and Charles B. Nam, "Education of the American Population," in Ivar Berg, *Education and Jobs: The Great Training Robbery* (Boston: Beacon Press, 1971), pp. 66-68.

Table E7
 RATES OF PROFESSIONAL JOB CREATION AND UNIVERSITY GRADUATES, 1950-90
 (Implicit Annual Rates of Change)

Period	Degrees Granted	Egresados	Degrees Registered	Cumulative Positions for Professionals	Cumulative Positions for Technicians
1950-60	5.8	~	~		
1960-70 ^a	12.4	9.8	~		
1970-80 ^b	~	13.9	10.7		
1980-89	~	5.4	~		
1950-80				5.6	8.5
1980-90				4.6	4.1

a. Egresados data are for 1963 to 1970.

b. Degrees registered data are for 1971 to 1980.

SOURCE: Lorey, *Rise of the Professions in Mexico*, tables 6 and 30.

(Table E6).²⁰ The data imply that Mexican economic development has created a differentially greater demand for technicians compared to professionals over time.²¹ While positions for professionals grew 417.8 percent between 1950 and 1980, those for technicians grew 1,055.3 percent, annual rates of 5.6 and 8.5 percent.²² Between 1980 and 1990 the annual rates came more into line with one another at 4.6 and 4.1 respectively. Over the same forty-year period, the ratio of technicians to professionals climbed from 1.2 to 2.6 (narrow definition).²³

These data show that the Mexican economy developed in a way that led to limited job creation at a very important level of the occupational ladder between at least 1950 and 1980. And the absorption of professionals is, if anything, overestimated

in the census data because the data reflect to some extent the supply of professionals as well as the demand for them. That is, because the census is based on informants' responses, some university graduates will call themselves professional even though they are not working as professionals.²⁴

Professional Employment, Social Mobility, and the Mexican University System

To demonstrate perhaps the most obvious stress in Mexican society caused by these comparatively low growth rates in opportunities for professionals, let us compare them with the rate at which universities were graduating students over the same period. We can compare the rates of growth for employment positions for professionals and technicians in the census data with the rates of production of professionals at Mexican universities (Table E7). The growth rate of degrees granted was matched fairly closely by the growth rate of professional-employment creation until 1960. Between 1950 and 1980 the annual growth rate of professional positions in EAP was 5.6 percent compared to 5.8 percent for degrees granted between 1950 and 1960. Between 1960 and 1970, however, the number of degrees granted grew at an annual rate of 12.4 percent. (The annual rate of growth of degrees granted for the entire period from 1950 to 1970 was 9.0 percent.)

²⁰Note that the definitions used in Table E6 are distinct from those employed in discussion of Tables E1-E5 above.

²¹Note that the definition used here for professionals and technicians differs from that in the census data presented and discussed above.

²²Compound rates of change calculated with the following formula: annual rate equals antilog of $(\log(P_n/P_o)/n)$, minus 1, where P_o equals the original population and P_n equals the population after n year. The census data do not allow for calculation of implicit annual growth rates of professional and technician EAP by decade.

²³Two different categorizations of professionals and technicians are developed in Table E6 and employed below. The narrow definition of professionals and technicians includes only the occupational groupings most commonly accepted as professional or technician. The broad definition, in contrast, includes such occupations as directors of commercial establishments (under professionals) and skilled office workers (under technicians).

²⁴It is probably impossible to ascertain the extent of overlap in the case of Mexico given available data. It is not easy to ascertain even in the case of the United States, with the availability of rich statistical resources. See Folger and Nam, "Education of the American Population," in Berg, *Education and Jobs*, pp. 66-67.

Table E8
ABSOLUTE DATA ON PROFESSIONAL JOB CREATION AND UNIVERSITY EGRESADOS, 1950-90

PART I. ABSOLUTE DATA AND ESTIMATES

Period	Cumulative Positions for Professionals ¹	University Egresados ²
1950-60	70,000	50,000
1960-70	100,000	120,000
1970-80	270,000	452,257
1980-90	311,452	1,162,352 ^a

PART II. PERIODIZATION OF SUPPLY AND DEMAND

(PC PER DECADE)

Period	Degrees Granted	Egresados	Degrees Registered	Professional and Technician Positions ³
1950-60	75.1	~	~	97.5
1960-70	232.1	~	~	79.4
1970-80	~	266.5	149.1	115.8
1980-90 ^a	~	69.6	~	56.4

1. Professional positions estimated from data on professionals (narrow definition—see Table E6 above) for 1950, 1980, and 1990, using the decade trends from Table E5 above. Rates for combined professionals and technicians are assumed to be higher than rates for the narrowly defined professional group (overall growth in the 1950 to 1990 period was 1,095.3 for aggregated professionals and technicians in Table E5 and 711.5 percent for narrowly defined professionals in Table E6).
 2. Egresados estimated for 1950-60 and 1960-70 based on ratios discussed in Lorey, *Rise of the Professions in Mexico*, Chapter Three.
 3. Calculated from Table E5 above.
- a. Egresados data are for 1980-89. Estimated datum for 1980-90 is 75 percent.

SOURCE: Lorey, *Rise of the Professions in Mexico*, tables 1, 3, 5, 22, 30, and 54.

By the 1960s, the universities were clearly producing graduates at a rate well above the rate of job creation for professionals in the Mexican economy. The number of degrees registered grew at an annual rate of 11.0 percent between 1975 and 1980, very close to the growth experienced by degrees granted in the 1960s.²⁵ The growth rate of egresados, in contrast, was significantly higher than that of either degrees granted or degrees registered and thus seems to reflect the higher number of positions for technicians. While the number of positions for technicians in EAP grew at an annual rate of 8.5 percent between 1950 and 1980, egresados grew at an average annual rate of 13.9 percent between 1967 and 1980 before slowing to 5.4 percent in the crisis years of the 1980s.

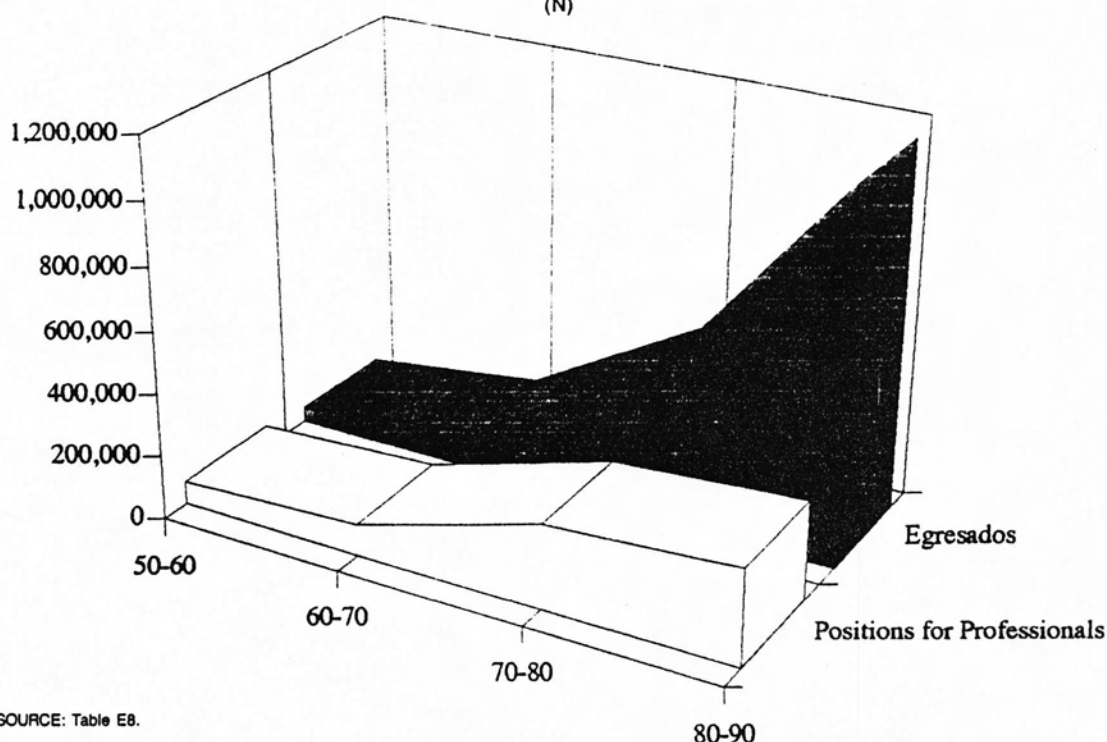
This difference in growth rates might not be a problem, of course, if the base number of jobs was

much larger than the base number of professionals produced by Mexican universities in 1950. This fact introduces a very sticky problem that defies attempts at exact or conclusive measurement. Table E8 presents available and estimated data on job creation and university preparation of professionals and technicians. In the thirty-year period from 1950 to 1980 an estimated 622,257 egresados left Mexican universities to fill 440,000 new jobs for professionals; between 1980 and 1990, a total of 1,162,352 egresados were produced for 311,452 new professional-level jobs. Clearly by the 1980s, a major disparity had developed.

Data on university egresados certainly represent a conservative estimate of seekers of professional and technician positions. Three factors suggest a significantly larger pool of seekers. First, the number of egresados seeking work as professionals and technicians in any year or period is doubtless augmented by a portion of the previous year or period's pool, unless all egresados have found work. Having no reliable long-term data on rates of unemployment among professionals, we have no way of estimating this number for any

²⁵It is necessary to restrict consideration to the 1975-80 period for registrations because changes in regulations caused a major surge in degrees registered between 1974 and 1975.

Figure E:2
COMPARISON OF PROFESSIONAL JOB CREATION AND UNIVERSITY EGRESADOS, 1950-90
(N)



SOURCE: Table E8.

period. We can only say that by the end of the 1980s there were probably 800,000 egresados who had received their degrees in the decade and for whom no professional jobs were available. Second, there are many seekers of professional positions other than university egresados. The largest group is undoubtedly university students who never reach the egresado stage but find work as professionals or technicians (or find work at lower levels and work their way up). Technicians trained up to professional positions, the exploitation of family networks for job placement, and patterns of political patronage (to name just three factors) all play important, yet unquantifiable, roles in professional hiring in Mexico. To further complicate the picture, these factors probably played a more important role in the early period covered here, when in many fields formal professional training was just being established as a job requirement. Third, the pool of persons looking for technician positions is greatly augmented by graduates of secondary, vocational, and technical programs and schools, which applies a significant squeeze on the ability of university egresados to find work as technicians.²⁶

²⁶On the other side of the equation there is equal uncertainty as to absolute numbers. Census data on professionals

Clearly, the demand for professionals and the university system's production of egresados to fill those places crossed paths sometime between 1950 and 1990. Because the absolute difference does not appear overwhelming in the thirty-year period from 1950 to 1980, and yet we know it to be large during the 1980-90 period, we can posit a demand for professionals not entirely met by the university system in the early part of the 1950-80 period. Secondary data and impressionistic information indicate that there was indeed a robust demand for professionals in the 1940s and 1950s in Mexico, expressed in high wages for professionals (see dis-

and technicians are developed from the self-described activities of census respondents. Many persons describe themselves as professionals or technicians when they would not fit commonly accepted definitions for those categories. Thus it is likely that census data are greatly inflated. An additional aspect on which census data throw little light is the effect of mortality and retirement on job creation for professionals and technicians. But because professional careers in Mexico tend to be long (at least 40 years), little distortion is likely in the period under review here.

Table E9
COMPARISON OF GROWTH RATES OF UNIVERSITY DEGREES GRANTED, EGRESADOS,
AND DEGREES REGISTERED WITH GROWTH OF SOCIAL CLASSES, 1950-90

PART I. PERCENT CHANGE 1950-90 AND PER DECADE

Period	Degrees Granted	Egresados	Degrees Registered	Classes ¹	
				Stable Middle	Professional Upper
1950-90				611.0	676.7
1950-60	75.1	~	~	61.5	141.2
1960-70	232.1	~	~	73.6	95.7
1970-80	~	266.5	149.1	110.5	44.1
1980-90*	~	69.6	~	20.5	14.2

PART II. IMPLICIT ANNUAL GROWTH RATES

Period	Degrees Granted	Egresados	Degrees Registered	Classes ¹	
				Stable Middle	Professional Upper
1950-90				5.0	5.3
1950-71	9.9				
1967-89		10.6			
1971-80			11.0		

1. Growth of absolute numbers of persons in the subclasses, gauged by combined income and occupation.
- a. Egresados data for 1980-89.

SOURCE: Calculated from Tables E4 and E8 above; Lorey, *Rise of the Professions in Mexico*, tables 1, 3, and 5.

cussion of Table E4 above), the rapid expansion of low-cost public university education, and the high prestige attached to university study.²⁷

The partially estimated data on jobs and university egresados (Table E8 and Figure E:2) suggest that by the 1960s the demand for professionals was met and exceeded. To determine more precisely when the supply and demand trends crossed, we can contrast growth rates for university graduates and egresados with growth rates for highly aggregated census data on professionals and technicians (Table E8, Part II). The number of profes-

sional and technician positions grew 97.5 percent between 1950 and 1960, while the number of degree-holders grew 75.1 percent—rates not too dissimilar. But between 1960 and 1980 the growth rate of graduates and egresados, 232.1 percent for 1960-70 and 266.5 percent for 1970-80, respectively, far outpaced the growth of jobs, at 79.4 percent between 1960 and 1970 and 115.8 percent between 1970 and 1980. In the 1980s, the growth of the number of egresados, while much reduced from the high reached in the 1970s, still was much higher than that of professional jobs, an estimated 75 percent as opposed to 56.4 percent. While we are hampered by the use of decennial data (with its arbitrary choice of key years), we can place the merging of the trends in the late 1950s or early 1960s if we factor in the effects of our conservative estimate of seekers (discussed above). All of these factors taken together indicate that after the late 1950s or early 1960s the number of seekers of professional employment exceeded the number of professional-level jobs in absolute terms.

Analysis of various data sets on professionals and technicians points to four general conclusions. First, the ability of the Mexican economy to absorb university graduates at the professional level has not grown as fast as the number of university students entering professional courses of study. Sec-

²⁷For secondary information on the timing of shifting needs for professionals and technicians, see Sanford Mosk, *Industrial Revolution in Mexico* (Berkeley and Los Angeles: University of California Press, 1950), pp. 265-256, 271-272; Charles Nash Myers, *Education and National Development* (Princeton: Industrial Relations Section, Princeton University, 1965), p. 123; Clark Reynolds, *The Mexican Economy: Twentieth-Century Structure and Growth* (New Haven: Yale University Press, 1970), pp. 236-238; Jesús Reyes Heróles González Garza, *Política macroeconómica y bienestar en México* (México, D.F.: Fondo de Cultura Económica, 1983), pp. 95, 102; and Peter Gregory's discussion of Reyes Heróles in *Myth of Market Failure*, pp. 255-256.

Table E10
DATA ON PROFESSIONAL INCOMES, 1968, 1977, 1984, AND 1989^a
(% Except Where Noted)

	1968	1977	1984	1989
Heads of Surveyed Families with University Education	5.7	4.7	10.0	10.9
Income of Above Families (1978 pesos)	24,593	103,561 ^b	36,115	45,888
Factor by Which Incomes of Above Families Exceeds Average Income of Surveyed Families	3.9	3.3	1.9	2.4
Factor by Which Incomes of Professionals and Technicians Exceeds Average Income	~	~	1.7	1.8
Percentage of Professionals and Technicians Receiving Less Income Than Office Workers	~	~	52.5	59.4
Percentage of Professionals and Technicians Receiving Less Income Than Workers and Artisans	~	~	23.0	23.6

- a. Survey results for 1968 and 1977 are considered less accurate than data for 1984 and 1989. Further, while the 1984 and 1989 surveys were conducted using identical methodology, the previous ones were not; thus comparisons of data from the surveys must be made with great caution.
- b. This datum seems obviously erroneous.

SOURCE: Banco de México, *Encuesta sobre los ingresos y gastos de las familias* (México, D. F.: Banco de México, 1968); Secretaría de Programación y Presupuesto (SPP), *Encuesta nacional de ingresos y gastos de los hogares* (México, D. F.: SPP, 1977); INEGI, *Encuesta nacional de ingresos y gastos de los hogares* (México, D. F.: INEGI, 1984); INEGI, *Encuesta nacional de ingresos y gastos de los hogares* (México, D. F.: INEGI, 1989).

ond, the demand for technicians has grown at a much faster rate than that for professionals. Third, the universities have produced both professionals and technicians at rates significantly greater than the rate of job creation. Fourth, the mismatch between demand and output and the differentially greater demand for technicians than for professionals appears to have been particularly marked since the late 1950s or early 1960s.

We can use the data on Mexican class structure developed and discussed above to examine the linkage between Mexican universities and society (Table E9). As shown above, the professional strata of Mexican society grew at a relatively modest rate in the 1950–90 period. The absolute number of stable middle class slots grew 611.0 percent over the period, while those in the professional upper stratum grew 676.7 percent—average annual rates of 5.0 and 5.3 percent. The universities, however, were producing graduates and egresados at rates at least twice those over the same period of time. University graduates were being produced at an annual rate of 9.9 percent between 1950 and 1971, egresados at an annual rate of 10.6 percent between 1967 and 1989, and professional degrees were registered at a rate of 11.0 percent between 1971 and 1980. Clearly, slots were not opening up fast enough to satisfy the ambition of many university graduates and egresados.

Comparing the data on economic demand with rates of social mobility confirms the historical

mismatch. The annual growth rate of positions in the economy was 5.6 percent for professionals and 8.5 percent for technicians for the 1950 to 1980 period. The annual rate of growth of slots in the professional middle and upper class strata was 5.0 for the stable middle class and 5.3 for the professional upper class. These growth rates coincide closely; they are much lower than the annual growth rate of university graduates.

Data from Mexico's household income surveys (available for 1968, 1977, 1984, and 1989) provide a final perspective on how professionals have fared over time in Mexico. Table E10 shows that while the percentage of heads of families with university education and the incomes of families with university-educated heads almost doubled in the two decades between 1968 and 1989, the factor by which incomes exceeded the average incomes of surveyed families decreased by almost half. An interesting perspective is gained by examining the relationship of professional incomes to the incomes of other occupational groups in the 1984 and 1989 surveys. In 1984, 52.5 percent and in 1989, 59.4 percent of aggregate professionals and technicians earned less than office workers; in 1984, 23.0 percent and in 1989, 23.6 percent of professionals and technicians earned less than workers and artisans. These patterns would seem to indicate a declining value of professional labor relative to that of other segments of the work force.

Three basic conclusions can be derived from a comparison of Mexico's evolving class structure with data on university graduates, all three of them key for understanding trends in the 1980s and 1990s. First, there was a significant degree of social mobility into the professional strata of Mexican society in the 1940s and 1950s, a trend that encouraged a large number of young Mexicans to seek university places and professional careers. High wages for professionals, particularly in the public sector, and low private costs for higher education (low fees) reinforced the demand. Second, shifts in income were generally more important than shifts in occupation in producing social mobility at the professional level of Mexican society at least through the 1960s. Third, the rate at which graduates and egresados have been leaving the university system has exceeded the rate of creation of social places for university graduates and egresados by a factor of roughly two.

Why Has Professional Employment Lagged Behind?

Until the late 1950s or early 1960s, the expanding industrial and commercial sectors and the growing state apparatus apparently absorbed the bulk of the universities' production of professionals relatively easily. The perception of observers in the late 1950s that there was a shortage of engineers, business managers, highly skilled workers, and scientists appears to have been correct.²⁸ Demand for engineers and business managers was especially high as presidential administrations focused economic development efforts on industrialization and the modernization of commercial networks. The fact that many working people at the technician and lower occupational levels were promoted to professional positions implies a vacuum at the professional level during this period.²⁹ This fits with the evidence given in Tables E4-E9.

After the late 1950s, this was all to change. Employment opportunities for professionals were increasingly restricted by the underdevelopment of Mexican industry and by the saturation of public-sector demand for professional-level employees.

²⁸See Frank Brandenburg, *The Making of Modern Mexico* (Englewood Cliffs: Prentice-Hall, 1964), pp. 232-233, and Reynolds, *Mexican Economy*, pp. 236-238.

²⁹See William P. Glade, "Revolution and Economic Development: A Mexican Reprise," in William P. Glade and Charles W. Anderson, *The Political Economy of Mexico* (Madison: University of Wisconsin Press, 1963), pp. 87-88.

The professional employment-creating effects of the dynamic economic growth after 1940, growth engendered by protective policies and the expansion of the state, were much diminished by the late 1960s. This new reality was reflected in Echeverría's stopgap attempts in the 1970s to increase employment at the professional level and in López Portillo's use of oil wealth to expand public-sector employment for professionals.

Protection from domestic and international competition allowed Mexican industry to produce goods with outmoded equipment, minimal investment in research and development, and limited innovation: protection limited the need for new technology and associated professional knowledge.³⁰ Protection meant that Mexican entrepreneurs had little incentive to innovate to raise productivity.³¹ The use of outmoded technology, and the reliance for economic growth during the 1940s and 1950s on increased utilization of installed capacity idle up to the late 1930s, greatly restricted the number of professionals needed by the economy. Little of the economic growth brought to Mexico during the process of import-substituting industrialization was due to technological change.³² Most of the technology used in industrial plants as late as the 1980s continued to be obsolete or lag behind state-of-the-art innovations.³³

The importation of capital goods, of technology developed outside of Mexico, as a basis for industrial expansion also restricted employment opportunities for professionals. Importation of professional expertise embodied in foreign-made machines constricted employment opportunities for Mexican professionals because technology in industry is not an independent, abstract body of knowledge held by professionals but rather a func-

³⁰Frank Tannenbaum early recognized this relationship in Mexico. See his *Mexico: The Struggle for Peace and Bread*, p. 198.

³¹Robert Looney, *Economic Policymaking in Mexico: Factors Underlying the 1982 Crisis* (Durham: Duke University Press, 1985), p. 35.

³²Looney, *Economic Policymaking in Mexico*, p. 32.

³³Daniel Reséndiz Núñez, "Science and Technology in Mexico: Looking Forward," *Voices* 6 (1989), p. 39. The author of "La investigación tecnológica, en crisis," *Unomásuno* 29 (January 1990), p. 3, claims that 92 percent of Mexican businesses, both public and private, possess obsolete machinery.

tion of machines and their development.³⁴ The capital-goods industry has a much greater relative need for professional-level employees than other manufacturing firms, "requiring services such as preinvestment studies . . . complex technology, quality control, credit, and marketing."³⁵

The reliance of Mexican industry on imported capital goods meant that the primary stimulus to professional education took place in the countries that produced advanced capital goods for domestic use and for export.³⁶ This tendency was strengthened by the pattern of foreign investment in capital-intensive industries. Foreign investment, particularly by large, multinational corporations, came to dominate ". . . in areas demanding sophisticated technology and large amounts of capital, such as rubber, chemicals, fabricated metals, electrical and nonelectrical machinery, and transportation."³⁷ A good example of this relationship between foreign investment and demand for professional expertise is the Mexican auto industry. An important employer of professionals in the developed world, the auto industry has created very little demand for highly trained professionals, since the major portion of innovation continued to take place in the United States, Japan, and Europe. The auto parts industry, the sector of the Mexican auto

industry most stimulated by the development of auto manufacturing for export, although it has had some positive effects on increasing demand for professional expertise, expressed relatively weak demand for professional-level employees compared to what an independent terminal auto industry could.³⁸

Thus the Mexican economy was able to get by with a smaller relative number of professionals than that found in the developed world. Because of government protection and the importation of capital goods, Mexican employers had little incentive to develop original technology or adapt advanced technology to Mexican markets. Protection and importation of technology made it possible for industrialists to save on costs by reducing research-and-development investments, hiring fewer professionals, and upgrading workers through formal and informal on-the-job training. These factors were bound together in a vicious circle wherein the reduced need to innovate limited opportunities for highly trained professionals and the lack of highly trained professionals raised the supply price of innovations in Mexico. When the sluggishness with which Mexican industry evolved technologically came to be understood as one of the economy's critical points of weakness in the 1980s and 1990s, it would prove difficult to break the circle.³⁹

The way in which the government, in both centralized and decentralized sectors, acted as a sponge for absorbing professionals produced by the universities greatly complicated the employment picture for professionals after the late 1950s. Much of the increase in Mexico's professional and technical EAP after the late 1930s occurred in state or parastate concerns, the number of which mushroomed after the 1950s. Over time, the government became the largest employer of university graduates and egresados. The growth of public-sector hiring of professionals peaked in the late 1970s and early 1980s; public-sector employment exploded by 82 percent between 1975 and 1983. By 1983 public-sector employees accounted for

³⁴For data on imports of capital goods as a share of all imports, see Miguel D. Ramírez, *Mexico's Economic Crisis* (New York: Praeger, 1989), p. 57. Between 1955 and 1970, capital-goods imports hovered at an average of 47.7 percent of all imports. See also René Villareal, "El desarrollo industrial de México: Una perspectiva histórica," in *México: 75 años de revolución. Desarrollo económico I* (México, D. F.: Fondo de Cultura Económica, 1988), pp. 297, 307-308, and James M. Cypher, *State and Capital in Mexico: Development Policy since 1940* (Boulder: Westview Press, 1990), pp. 7, 65, 75, 76, 162 and passim.

³⁵Laura Randall, *The Political Economy of Mexican Oil* (New York: Praeger Press, 1989), p. 71.

³⁶For an interesting analysis of the relationship between historical technological development and economic growth in Mexico in the context of Mexican political economy in the 1980s and 1990s, see IBAFIN/CIDAC, *Tecnología e industria en el futuro de México: Posibles vinculaciones estratégicas* (México, D. F.: Editorial Diana, 1989). The authors note that it is not necessary for a country like Mexico to be on the cutting edge of technological development, but rather more efficient (as in the case of Japan) in adapting technology to Mexican domestic and international markets; see pp. 27, 31, and passim.

³⁷Douglas C. Bennett and Kenneth E. Sharpe, *Transnational Corporations Versus the State: The Political Economy of the Mexican Auto Industry* (Princeton: Princeton University Press, 1985), p. 36.

³⁸Bennett and Sharpe, *Transnational Corporations Versus the State*, pp. 54-55, 115-116, and passim.

³⁹See Cypher, *State and Capital in Mexico*, p. 7.

20.4 percent of all Mexican employees; in 1975 it had accounted for 14.0 percent.⁴⁰

But over time, the high wages in the public sector and low costs at the public universities (precedents established during the 1940s and 1950s and difficult to undo afterward) eventually gave the wrong signals about real demand for professional expertise in the public sector. Government employment became a sponge that soaked up excess supply of professionals for essentially political reasons, reducing the number of professionals who could not find work because their skills were not really needed by either the public or the private sector. But even with the expansion of public services such as health and education and the rapid creation of decentralized agencies, the public sector could not close the employment gap. During the same period when government employment increased by 82 percent (1975 to 1983), the number of university egresados grew 155 percent. Another gap developed as the government could not provide employment for professionals in areas desperately needed by the Mexican population—doctors and teachers, for example—particularly in the provinces.

The contraction of the Mexican economy and policy changes following the economic crisis of 1982 and lasting through the 1980s had a major impact on the outlook for professional employment as the great sponge, created by sixty years of government hiring, became saturated and, by the 1990s, was being squeezed to eliminate redundant professionals. The oil industry—the motor of Mexico's economic growth from the late 1970s to 1982 and a key prop to the economy during the crisis of the 1980s—provides a useful example. Developed during the boom period in an inefficient and non-competitive way, relying for its success on high prices for oil and on imported technology, the government oil monopoly PEMEX spent next to nothing on basic research or developing secondary petroleum products.⁴¹ President Salinas's purging of the corrupt leadership of the petroleum workers union in 1989 was in part a move toward making operations at all levels more efficient. A key aspect of plans to improve efficiency at the oil company was to reduce the drain of overlapping and super-

fluous jobs at the professional level. Effects of economic contraction and changes in policy like these in the oil industry were felt almost immediately in the university system. At the Autonomous University of Nuevo León in Monterrey, to cite just one example, the percentage of egresados employed one year after leaving the university fell from 76.2 percent in 1980–81 to 49.1 percent in 1986–87.⁴²

The drastic reduction of government jobs for professionals after the economic crisis of 1982 meant that pressures against the system would continue to build. With the increased foreign investment and free-trade initiatives pursued by President Carlos Salinas de Gortari, many professionals were certain to be laid off and replaced by new, largely imported technology.⁴³ In privatizing parastate enterprises, the government planned to transfer perhaps a third of the work force to the private sector, which in turn would reduce superfluous labor.⁴⁴ It is becoming clear that one major benefit of the inefficiency of the state-guided Mexican economy (and the overlapping jurisdictions within the public sector itself) was the employment of large numbers of professionals who otherwise would have swelled the ranks of the unemployed. Looking forward, while in the long term professional employment may well be enhanced by a Mexican economy that is more competitive internationally, the outlook for professionals in the short term (perhaps to the end of the century) is not bright.⁴⁵

Conclusions

Regarding the notion of the 1980s as a "lost decade," the evidence from the 1990 census for changes in class structure and social mobility is perplexing. Data on both income and occupation imply that the situation in the 1980s was charac-

⁴²Dirección de Planeación Universitaria, *Universidad en cifras* (Monterrey: UANL, various years).

⁴³At least one analyst affiliated with the government recognized the probable negative effect of the renewed reliance on foreign investment to spur economic growth and professional employment. See Norma Samaniego, "El desafío del empleo ante la modernización," in *Los profesionistas mexicanos y los desafíos de la modernidad* (México, D. F.: Editorial Diana, 1989), pp. 156–157.

⁴⁴See María Amparo Casar, "La reestructuración de la participación del estado en la industria nacional," *El Cotidiano* 23 (1988), pp. 28–38.

⁴⁵It is possible that we see the signs of these adjustments already in the marked growth of the marginal middle class in the 1980s, noted above.

⁴⁰INEGI, *Participación del sector público en el producto bruto de México, 1975–1983* (México, D. F.: Secretaría de Programación y Presupuesto [SPP], 1984), pp. 5, 7.

⁴¹Cypher, *State and Capital in Mexico*, p. 112.

terized by a clustering of population in the lowest middle-class and highest lower-class subgroups rather than by dramatically increasing misery at the lowest levels of Mexican society. This leaves us with a comparatively rosy picture, one that contradicts the impressions of most observers who view the 1980s as a "lost decade." Data on occupation and income for the upper class seem to follow the long-term trend but caution must be used with data on the middle and lower strata. Some of the changes in the lower class levels may be due to the rapid shifting of occupations in the 1980s at those levels. For example, the 1980s were a period in which rural Mexico was particularly hard hit by both the crisis and resulting changes in policy and many peasants were forced to shift to service occupations. With respect to income data, it is possible that daily income as estimated by census respondents cannot be assumed to be stable over the long term. (In 1990 census respondents were asked their daily incomes in units of the minimum salary established by the government, whereas in previous censuses the question referred to monthly income.) Estimates of monthly income are likely to be more reliable than extrapolation from daily income, particularly in a period as uncertain as the 1980s.

Overall the data indicate a concentration of economic hardship at the stable- and marginal-middle subclasses and transitional lower subclass. Fully 80.7 percent of the Mexican population could be classified as marginal middle class or below in 1990, earning less than one million pesos of 1990 per month and concentrated in occupations in services, agriculture, and petty commerce, with many probably holding supplementary jobs in the unreported "informal sector." And the 1980s did not bring significant improvement for the upper

echelons of Mexican society either: the strata from stable middle through the managerial subclasses only grew from 17.4 to 19.4 percent of the population over the decade.

Our case study of social mobility into the professional strata of Mexican society indicates that the absorption of large numbers of professionals into the economy in the 1950s did not signal the beginning of indefinitely expanding employment opportunities for professionals. While the proportion of all skilled labor increased in the Mexican economy between 1950 and 1990, that general trend obscures the differential growth of less skilled labor (technicians) within the skilled group. Gross domestic product grew rapidly during the 1960s (7.0 percent per year) and during the 1970s (6.6 percent a year), yet employment for professionals increased at a much lower rate. At the same time, the rate at which universities produced egresados and graduates far outpaced the capacity of the economy to create professional positions for them. Economic, social, and political stresses have resulted from this unintended outcome of Mexico's economic development that were not foreseen by optimistic observers of the "Mexican Miracle." These stresses became particularly acute in the 1980s as economic crisis led to the reduction of government spending and the contraction of direct public-sector employment of professionals.

This essay demonstrates the need for renewed attention to issues related to measuring social change in Mexico. Time-series data developed here have the advantage of providing a long-term view of social issues. In order to yield their full value, however, these data are best considered in the light of other data sets, as we have attempted to show in our case study of the historical evolution of Mexico's professional strata.