ECONOMICS / MEXICO

"This comprehensive assessment of Mexico's economic reform process and its consequences will become a standard in its field. It raises new questions about the Mexican case and the impact of economic liberalization over time. The themes and data are fresh, and the authors are well-known experts in their fields." *Manuel Pastor, Jr., University of California, Santa Cruz*

Since the 1980s, Mexico has alternately served as a model of structural economic reform and as a cautionary example of the limitations associated with market-led development. Because of the importance of the Mexican experience in continuing debates about options available to developing countries, the twenty-three contributors to this book provide a comprehensive, interdisciplinary assessment of the principal economic and social policies adopted by Mexico during the 1980s and 1990s.

Mexico was a leader in the shift away from state-led industrialization and in the adoption of market-oriented policies. As a consequence, Mexico emerged as Latin America's largest exporter of manufactured goods, which provided the country's most dynamic source of economic growth. Yet trade and investment opening also significantly increased the Mexican economy's vulnerability to external shocks. A profound financial crisis in 1994–1995 deeply affected Mexico's economic stability, and it raised persistent questions about whether the country's new economic model is capable of achieving sustained growth and equitable socioeconomic development.

The topics covered in the book are (1) macroeconomic and financial policies, including the impact of the adjustment process on growth, inflation, foreign and domestic debt burdens, the Mexican banking system, and foreign investment; (2) trade, export-led growth, and industrial policies, with attention to key actors and strategies behind the rapid expansion of Mexican manufactured exports and the limitations of this export-led growth model for national development; (3) social policies and rural development issues, focusing on education, health care, pensions, and problems affecting rural Mexico; and (4) inequality, employment and wage problems, and poverty, notably income distribution and poverty trends, the efficacy of poverty-alleviation policies, urban and regional disparities, and the effects of economic liberalization on employment and wage levels. A final overview section analyzes the Mexican development experience of the 1980s and 1990s in historical and comparative context.

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CONFRONTING DEVELOPMENT
Assessing Mexico's Economic and Social Policy Challenges

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CONFRONTING DEVELOPMENT

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EDITED BY Kevin J. Middlebrook AND Eduardo Zepeda

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This volume examines economic and social development policies in Mexico during the 1980s and 1990s. All but two of the contributors' essays were presented in draft form at an international conference hosted by the Center for U.S.–Mexican Studies in June 1999; the chapter by Keith Griffin and Amy Ickowitz and that by Lorenza Villa Lever and Roberto Rodríguez Gómez were added to the collection of essays in 2000 and 2001, respectively. All the papers were subsequently revised and updated.

The June 1999 conference was one of three such events organized to celebrate the twentieth anniversary of the founding of the Center for U.S.–Mexican Studies at the University of California, San Diego. Each of these conferences focused on a substantive area that has formed an important part of the Center's research agenda: Mexico–U.S. relations, economic and social policy issues in Mexico, and political change in Mexico. Financial support for these events came from the Center's core grant from the William and Flora Hewlett Foundation.

Collaborative books depend heavily upon the commitment and goodwill of the participating authors. Those qualities were especially important in bringing to conclusion a volume of this length and complexity. The contributors were exemplary in their dedication to this common effort.

Sandra del Castillo, the Center for U.S.–Mexican Studies' highly talented principal editor, had responsibility for the initial copyediting and typesetting. Her skills and professional dedication made vital contributions to this project. At Stanford University Press, Norris Pope provided enthusiastic support and invaluable guidance for the volume from its inception through its completion. Janet Gardiner superbly coordinated final production work.

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Welfare, Inequality, and Poverty in Mexico, 1970–2000

Julio Boltvinik

This chapter examines the evolution of welfare, inequality, and poverty in Mexico from 1970 through 2000. The essay begins with a contextual and conceptual introduction that briefly compares the so-called new poverty agenda that Mexican policy makers adopted in the 1990s with the "development and social justice" approach pursued up until 1982. This introduction also identifies the six sources that determine an individual's and a household's welfare: current income; basic assets (housing and consumer durable goods); non-basic assets (including households' borrowing capacity); access to publicly provided goods and services (including household services such as piped-in water, sewerage, and electricity; education; health care; and social security); free time; and knowledge (education).

The second section turns to calculations of the opportunities for social welfare in Mexico between 1981 and the year 2000, an exercise that links at the macro-social level five of the six welfare sources and their distributive dimensions. In pointing to a deterioration in what can be termed the opportunity set for social welfare, the results of these calculations prefigure the evolution of various dimensions of poverty and their impact on mortality. The following section succinctly analyzes the evolution of income distribution between 1963 and the year 2000.

The fourth part of the chapter examines the evolution of income poverty and of a group of specific poverties (understood as deprivation in specific needs) during the 1970–2000 period. Income poverty is primarily associated with the first source of welfare (current income); poverties of health care and social security are also partly associated with this source.[1] The specific poverties that are analyzed relate to all of

[1] Deprivation of health care and social security services is determined, via the integrated poverty measurement method, by reviewing whether households without social security have sufficient income to allow them to meet these needs through

the other sources of welfare except non-basic assets. The central finding here points to an apparent paradox: there was both an *increase* in income poverty and a *reduction* in specific poverties during the 1980s, although specific poverties declined at a slower pace than in the 1970s. During the 1970s, income poverty—as well as all specific poverties—decreased rapidly. Income poverty fluctuated during the 1990s but ended above its initial level. At the same time, most specific poverties decreased at a pace that was slower than in the 1970s but faster than in the 1980s.[2] This examination shows, then, that the periods 1970–1981, 1981–1989, and 1989–2000 are appropriate ones for analysis, although the last period might be conveniently divided into three stages (1989–1994, growth; 1994–1996, recession; 1996–2000, growth).

The next section focuses on an important determinant of the evolution of specific poverties: social expenditure. The analysis discloses that the usual reading of the evidence—that is, that public social expenditure dropped dramatically during the 1980s in Mexico and elsewhere in Latin America—is based upon the use of inappropriate price indices to deflate current expenditure figures. This discussion shows that when a correct price index is used as a deflator, social expenditures per capita stabilized during the 1980s but did not drop. This finding is consistent with the slower decline (but no increase) in the incidence of specific poverties noted above.

The empirical analysis presented in the sixth part of the chapter shows that the paradox identified above also holds when partial poverty measures are combined via the integrated poverty measurement method, which gauges poverty by income and by specific needs within each household. The evidence confirms that, although the periods of analysis are different, the trends are similar in both sets of poverty measures.

The penultimate section introduces a dimension of welfare not yet taken into account: the length of the life span, or the "quantity" of life. Evidence for Mexico reveals a strong association between poverty and early death. In general, individuals who suffer in terms of the quality of life also suffer in terms of the quantity of life, in the form of premature death. This part of the analysis then identifies periods in the evolution of mortality rates by age group from 1970 to 1999. The resulting periodization coincides in many ways with previous findings regarding the evolution of poverty. Within the context of an overall decline in mortality rates, there were periods of stagnation in the rates for all younger age groups, a pattern that was associated with the economic recessions that Mexico experienced throughout the years under consideration.

The chapter concludes with some reflections on the relationships among the opportunities for social welfare, the heterogeneous evolution of the various dimensions of poverty, the evolution of integrated poverty, changes over time in mortality rates by age group, and the evolution of public social expenditure. This discussion links changes in welfare and poverty over time to an assessment of the public policies associated with the adoption of the new poverty agenda in Mexico.

the market. For a discussion of poverty measurement methodology and the integrated poverty measurement method, see the appendix included at the end of this chapter.

[2] The notable exceptions were poverties of health services and social security, which decreased at a rate that was slower than in the 1980s.

CONTEXTUAL AND CONCEPTUAL INTRODUCTION

Mexico and the New Poverty Agenda

Official public policy rhetoric in Mexico increasingly revolves around the struggle against poverty. This trend reflects the simultaneous presence of various factors. The first is the Mexican government's abandonment of public policies in several areas of economic and social development, areas now made subject (at least rhetorically) to the sway of market forces.[3] Second, the ascendance of anti-poverty policies reflects the agenda imposed by the so-called Washington Consensus, according to which one of the few areas requiring active governmental intervention (because markets are recognized as inadequate in this area) is the struggle against extreme poverty. The Mexican government has patterned its anti-poverty policies on the "new poverty agenda" promoted by the World Bank (Moore and Devereaux 1999). Third, this policy emphasis denotes the minimum that a government can do if it aims to keep social conflict at a manageable level in the face of the population's increasing pauperization.

The first two elements are reflected in government expenditures. Mexico's proposed federal budget for the year 2000 (Poder Ejecutivo Federal 1999: 1–3) stated that 60.7 percent of government expenditures (excluding debt service) were to be allocated to social expenditures, a proportion similar to that in previous and subsequent budgets. According to the same document, an increasing though still small proportion (10.8 percent) of government expenditures specifically targeted poverty. At the same time, the federal government has sought to trans-

[3] For example, Jaime José Serra Puche, who headed the Ministry of Commerce and Industrial Development (SECOFI) during the administration of President Carlos Salinas de Gortari (1988–1994), maintained that "the best industrial policy was no industrial policy."

fer responsibility for basic infrastructure development to the private sector and to reduce public investment in this area.[4]

The Mexican government's approach to poverty changed radically in the 1990s. In previous decades, the government intervened vigorously to alter the basic parameters that determine poverty. In particular, the government increased asset endowments of the poor through, among other measures, agrarian reform, land and livestock improvement, credit, technical assistance, health services, social security, and educational programs. The government also acted to influence relative prices for the goods and services the poor buy and sell by providing price guarantees and input, basic goods, and consumer subsidies; by increasing minimum and public real wages and thereby indirectly raising average wages; by providing public services; and by intervening in basic goods markets to prevent excessive and speculative profits.

This old agenda developed autonomously in Mexico, although it was undoubtedly influenced by Keynesian theories and by the ideas promoted by the Economic Commission for Latin America and the Caribbean (ECLAC). It was more an agenda for development and social justice than a poverty agenda per se. The implicit reasoning was that, because poverty arose from multiple causes, development policies designed to redress it should impinge upon all factors of production and correct the asymmetries that gave rise to poverty. Social programs—especially education—were predominantly universalistic and free. Although there were some targeted programs, their role was always secondary.[5] The government operated such programs directly and distributed their benefits in kind.

In sharp contrast, under the so-called new poverty agenda, government interventions must not alter market signals—and only demand (never supply) may be subsidized, preferably through monetary transfers. In order to avoid "distorting economic incentives," relative prices must not be altered. Growth should be subject to the free play of the market; the state's only role is to help those who cannot participate in the "market game" on their own—that is, the extremely poor. This new agenda does not consider poverty other than extreme poverty to be a problem that merits state intervention. Indeed, it recommends against directing social expenditures to the population that is not in extreme poverty; instead, it concentrates resources on targeted programs that benefit only the extremely poor. Moreover, the agenda recommends

[4] The World Bank has identified the abandonment of basic infrastructure investment as one cause of slow growth in the Mexican economy (World Bank 1998).

[5] One example is Industrialized Milk CONASUPO (LICONSA), which is still in operation. It sells subsidized milk to low-income (mainly) urban households.

user fees for preexisting universal programs both to help finance them and to prevent benefits from going to those who do not need them. Whenever possible, the private sector should operate such programs within a competitive framework, with benefits distributed in cash or quasi-cash (vouchers for specific goods that can be used to choose among different private suppliers).

The diagnosis underlying this approach is that extreme poverty arose because undue state intervention distorted market signals, and because insufficient human capital among the poor prevents them from participating effectively in the market. Whatever extreme poverty remains after the elimination of these distortions and after the provision of public support to those in extreme poverty is to be attributed to individual failures. It is not, therefore, the concern of the state.

A thorough evaluation of this new agenda is beyond the scope of this chapter. The purpose of the preceding paragraphs is to help the reader understand the basic orientation of this poverty agenda and the role it is playing in Mexico. It is within this framework that the empirical analysis presented in this chapter should be interpreted. The chapter's empirical findings do not support the contention that social policy was inefficient or inefficacious during the 1970s. Therefore, substituting the new poverty agenda for the previous "development and social justice" agenda was unjustified.

As noted above, this chapter analyzes the evolution of the basic macro-social parameters that determine welfare and poverty, examining from various angles the evolution of poverty in Mexico from the 1970s through the 1990s, as well as the association between mortality rates and poverty. The starting point for this analysis is a conceptual understanding of the sources of individual and household welfare.

The Sources of Welfare

The welfare of individuals and households depends upon the following sources of well-being: (1) current income; (2) family patrimony, understood as the set of durable goods and assets that provide households with basic services; (3) non-basic assets and households' borrowing capacity; (4) access to publicly provided free goods and services; (5) available time for rest, domestic work, education, and leisure; and (6) individual knowledge, conceptualized not as a means to obtain income but as direct satisfaction of the human need for understanding. The first three categories represent either flows or stocks of private economic resources; the fourth category embodies the flow of public economic resources (the so-called social wage). Together, the first four categories constitute economic resources that can be expressed in mone-

tary terms. The fifth and sixth categories have their own units of measurement, which are not reducible to monetary value. In sum, economic resources, free time, and knowledge are the three irreducible dimensions of the sources of welfare.

These six sources of welfare display two notable characteristics. The first is their degree of *substitutability*. Consuming non-basic assets or borrowing can substitute for low current income without affecting the satisfaction of other present needs. However, the same is not true for basic assets because selling or pawning basic assets in order to compensate for low current income would affect the satisfaction of other needs. Thus, if an individual draws down bank savings (a non-basic asset), he or she can maintain current private consumption. But if that individual takes his or her television, refrigerator, or bed to the pawnshop, the gain in liquidity is offset by a loss in terms of the basic services these assets provide. More current income can substitute for a lack of access to free services (for example, by paying for private education and health care) and for a lack of family patrimony (by renting a house or a furnished apartment). Nevertheless, this substitutability has its limits. More income cannot compensate for ignorance or the absence of free time.

The fact that there is not a perfect substitutability among sources of welfare is related to their second characteristic: their *specificity*. Generally speaking, these sources are not generic; they do not satisfy all needs. However, there are diverse degrees of specificity among different sources. Welfare sources such as current monetary income and non-basic assets permit the satisfaction of a broad range of needs (in principle, any need that can be satisfied through the consumption of goods and services available on the market), but other sources are more specific. Non-monetary current income and basic patrimony take the form of specific goods that provide defined services (for example, corn, a house, a table, and so forth). Therefore, they can only satisfy specific needs. Government social programs usually provide goods and services in kind (education, health care, food, and so forth) associated with a specific need.[6]

From another perspective, several sources of welfare may be required in order to meet each need. For example, increasing a child's knowledge requires the child to attend school. This, in turn, implies devoting personal time to this effort. The government may provide free

[6] In the language of classical political economy and Marxism, monetary incomes are exchange-values expressed in amounts of the general equivalent that can be transformed into almost any use-value through a market exchange. Non-monetary income, basic patrimony, and goods and services provided free by the government are specific use-values.

school services, but the child will also need school supplies, appropriate clothing, and transportation—needs usually met through the market and financed by current family income or accumulated savings. Feeding family members usually requires both income and domestic work, which involves the use of time.

Welfare trends in a society are a function of the level and distribution among individuals of the six sources of welfare outlined above. At the same time, the level and distribution of each source have specific determinants. For example, a household's average real income in any given year is determined by prevailing conditions in the broader economy and the factors that shape them, including macroeconomic policy. Access to free government goods and services, in terms of both level and distribution, depends almost entirely upon social policy (expressed in public expenditures for social welfare) and its supporting legislation. The availability of free time depends, on the one hand, upon customs regarding the length of the workday, weekly and annual rest periods, and so forth, and, on the other, upon household income (households with less income will feel pressure to extend the workday) and individual preferences. Although the determinants of the level and distribution of each welfare source are quite different, this does not mean that they are fully independent of one another. Social policy and free time, for instance, may be influenced (although not mechanically determined) by trends in the economy. The welfare of the population is, in turn, the fundamental determinant of mortality rates for specific age groups, as demonstrated by the cross-national empirical relationship between living standards and life expectancy at birth.

To summarize, social welfare is determined by multiple sources, the evolution of which may vary over time because their determinants are diverse. Therefore, when studying welfare trends in a society (whether from a micro-social or a macro-social perspective), one must take into account the diverse sources of human welfare and their determinants.

THE EVOLUTION OF OPPORTUNITIES FOR SOCIAL WELFARE

Evaluating development requires a vision other than the predominant view, which reduces "development" to expanding gross domestic product (GDP). To address this problem, Desai, Sen, and Boltvinik (1992) developed an alternative approach—called the social progress index—that, while not denying the importance of economic growth, defines human welfare as the sole objective of development. The index embraces two complementary perspectives: the *opportunity* set and the *achievement* set for social welfare. The opportunity set focuses on the availability of goods, services, free time, and knowledge—as well as the

fairness of their distribution—in relation to needs, providing a macro-social view of the *potential* for welfare. The achievement set is a micro-social evaluation of the welfare actually achieved at the household level. This section presents calculations of the opportunity set in Mexico during the period from 1981 through 2000. The analysis of different dimensions of poverty and of mortality rates in subsequent sections of this chapter (especially those performed via the integrated poverty measurement method) may be taken as an approximation of the achievement set.[7]

In order to quantify the opportunity set for social welfare, one must consider several factors: (1) the available volume of goods and services in relation to the population's needs, along with equality in the distribution of access to them; (2) available free time (or its complement, working time) and its social distribution; and (3) the level and distribution of knowledge in the population. The author explored two possible options for weighting these different dimensions. The first is to give them equal weight; the second is to accord half the weight to the first dimension because of its broader nature, with the other two dimensions comprising the other half. The second option (the one chosen here) is more faithful to the actual circumstances affecting social welfare.

The calculation of the opportunity set presented here incorporates the following variables: (1) total consumption, rather than the more usual GDP, as a measure of the availability of goods and services (the "size of the pie"); (2) the standardized size of the population, expressed as the number of adult equivalents, as an indicator of the magnitude of needs (the "hunger" of those at the table); (3) the Gini coefficient of income distribution among households as a proxy of inequality in the distribution of total consumption (how the pie is distributed); (4) a measurement of free time based upon observed extra-domestic excess work and on domestic work requirements; (5) an indicator of equality in access to free time; (6) a measure of educational achievement; and (7) an indicator of equality in the distribution of educational achievement.[8]

Total consumption—the sum of private and governmental (public) consumption, as defined in national accounts—is a better indicator than

[7] The approach adopted here differs in some respects from that developed by Desai 1992. The main difference is that the term "achievement set" is employed here to refer to the living conditions of one part of the population (namely, people living in poverty), whereas Desai's use of the term covered the entire population.

[8] The set of variables originally presented in Boltvinik 1992a included the first five elements but not the last two. In that work, the author suggested that the indicator of the availability of goods and services be adjusted so as to reflect environmental degradation and to exclude the production of harmful or destructive goods (such as cigarettes or weapons). These issues are not addressed in this chapter.

GDP of the size of the pie because it excludes asset depreciation (the consumption of fixed capital) and the income received by non-residents. It approximates national disposable income, which is the sum of private consumption, public consumption, and net savings.[9] Total consumption is an expression of the social capacity to attain a certain living standard. It embraces the first four sources of welfare, all of which are material resources that can be expressed in monetary terms.

The number of adult equivalents[10] is a better indicator than population size of the evolution of needs because, in addition to the overall number of people, it takes into account age and gender structures. To the extent that adults have greater needs than children or infants, the aging of the Mexican population means a faster growth in needs than what demographic expansion alone would suggest. Dividing total consumption by adult equivalents yields the size of the pie by unit of need, or total consumption per adult equivalent (TCAE). The values of this indicator for selected years between 1981 and 2000 appear in table 11.1. If TCAE increases, the availability of goods and services per unit of need rises.

The Gini coefficient is the best known and most widely used measure of income inequality. When the coefficient equals 1, there is total inequality in the distribution of income (one household receives all the income); when it equals 0, there is total equality. Its complement—the value that results from 1 minus the Gini coefficient—is a measure of equality in income distribution (table 11.1). Multiplying TCAE by the Gini complement produces the egalitarian total consumption per adult equivalent (ETCAE). In other words, ETCAE is the volume of consumption that would be needed, were it distributed with total equality, to generate the same level of welfare as the observed total consumption generates with the observed degree of inequality. It synthesizes the three variables considered up until this point in the discussion.[11]

[9] The difference between total consumption and national disposable income is only net savings.

[10] Because of the way in which caloric requirements for age groups and genders have been employed in this calculation, in a strict sense the measure is an adult *male* equivalent. Transforming the number of people into adult equivalents is a standard procedure in poverty and welfare studies. For a very good review of the (huge) literature on the topic, see Deaton and Mullbauer 1991.

[11] In ideal terms, this indicator should be based on the Gini coefficient of total consumption, not of household income. Although data exist concerning the distribution of private consumption among households, it is very difficult indeed to distribute public consumption among households—which is what would be required to calculate the Gini coefficient that corresponds to TCAE. The proxy used in the text is quite a good one.

TABLE 11.1. Opportunity Set for Social Welfare in Mexico, 1981–2000

	1981	1984	1989	1992	1994	1996	1998	2000
Total consumption per adult equivalent (TCAE, in constant 1993 pesos)	15,561	14,279	13,785	14,967	15,232	13,660	14,651	15,858
Index of total consumption per adult equivalent (1981=100)	100.0	91.8	88.6	96.2	97.9	87.8	94.2	101.9
Income distribution (Gini coefficients)	0.429	0.429	0.469	0.475	0.477	0.456	0.476	0.481
Income equality[1]	0.571	0.571	0.531	0.525	0.523	0.544	0.524	0.519
Egalitarian total consumption per adult equivalent (ETCAE, in constant 1993 pesos)[2]	8,885	8,153	7,320	7,858	7,967	7,431	7,677	8,231
Index of egalitarian total consumption per adult equivalent (1981=100)	100.0	91.8	82.4	88.4	89.7	83.6	86.4	92.6
Free time[3]	0.936	0.936	0.942	0.915	1.009	0.970	0.954	0.895
Free-time equality[4]	0.706	0.706	0.726	0.696	0.721	0.759	0.748	0.651
Egalitarian free time[5]	0.660	0.660	0.684	0.636	0.727	0.736	0.714	0.583
Educational achievement[6]	0.700	0.700	0.764	0.783	0.789	0.821	0.832	0.874
Educational equality[7]	0.679	0.679	0.663	0.632	0.605	0.620	0.625	0.625
Egalitarian educational achievement[8]	0.476	0.476	0.507	0.494	0.477	0.509	0.520	0.547
Combined egalitarian free time and egalitarian educational achievement[9]	0.568	0.568	0.595	0.565	0.602	0.622	0.617	0.565
Opportunity set for social welfare (in constant 1993 pesos)[10]	5,046	4,630	4,358	4,443	4,798	4,625	4,736	4,648
Index of the opportunity set for social welfare (1981=100)	100.0	91.8	86.4	88.0	95.1	91.6	93.8	92.1

Source: Author's calculations based on Instituto Nacional de Estadística, Geografía e Informática national accounts data and national household income and expenditures surveys.

[1] Calculated as 1 minus the value of the Gini coefficient.

[2] This is the product of the TCAE value multiplied by the income equality value.

[3] Calculated as 2 minus the value for excess extra-domestic work.

[4] This is the quotient of the free time of the poor (defined as the poorest 75 percent of the population) divided by the free time of the non-poor (defined as the richest 25 percent of the population).

[5] This is the product of the free-time value multiplied by the free-time equality value.

[6] Calculated as 1 minus the educational gap.

[7] This is the ratio of the educational achievement of the poor to the educational achievement of the non-poor.

[8] This is the product of the educational achievement value multiplied by the educational equality value.

[9] Simple average of the values for these two categories.

[10] This is the product of the ETCAE value multiplied by the value reported in the preceding category.

The egalitarian free time indicator is constructed in two steps. The first step is to create a measure of extra-domestic excess work, the amount of which expresses a household's excess non-domestic work in relation to the social norm. It takes into account each household's domestic work requirements, according to the household's size, age structure, and resources available to support domestic work.[12] Because the value of this indicator ranges from 0 to 2 (with the norm at 1), subtracting its value from 2 yields a new variable, free time (FT), which also ranges from 0 to 2 with a norm of 1. FT is an indirect measure of available free time; at a value of 0, households have no free time, while at a value of 2 they reach a level of free time beyond which there is no further increase in welfare (that is, they reach the maximum welfare that free time can provide).

The second step is to construct an indicator of equality in free time. This is the quotient of the free time of the poor divided by the free time of the non-poor (FT_P/FT_{NP}), calculated according to the integrated poverty measurement method. The product of the average value of FT for the whole population and this quotient (called free-time equality) is egalitarian free time (EFT).[13] This measure also ranges from 0 to 2, with a norm of 1.

The egalitarian educational achievement (EEA) indicator serves as a proxy for the average level and equality of access to knowledge. It is obtained by multiplying educational achievement (EA, equal to 1 minus the educational lag) by a simple measure of distributive equality, defined as the ratio of the educational achievement of the poor (defined as the poorest 75 percent of the population) to the educational achievement of the non-poor (the richest 25 percent of the population) (EA_P/EA_{NP}). Educational lag is one of the indicators of unsatisfied basic needs that make up the integrated poverty measurement method. It is obtained by comparing each household member's educational level with the norm of completed secondary schooling for adults and school attendance (at an age-appropriate grade) for minors. In EA, the norm is 1 and the worst situation is 0; the maximum that can be reached has been reduced to 2.

[12] The methodology for calculating extra-domestic excess work is discussed in Damián 2000: 113. For a previous version of this methodology, see Boltvinik and Hernández Laos 1999 (Methodological Appendix).

[13] To avoid the bias that would have been introduced in the time series if free-time equality were to be calculated each year with the changing proportion of poor/non-poor in the population, EFT has been calculated defining the wealthiest 25 percent of the population as "rich" and the poorest 75 percent as "poor." These figures reflect the most frequent level these proportions have taken in the period under study, as calculated via the integrated poverty measurement method.

The indicators, combined in the following equation, yield the opportunity set for social welfare (OSSW):

$$OSSW = [(TCAE)\,(E_Y)]\,[\{(FT)\,(E_{FT}) + (EA)\,(E_{EA})\}\,/\,2] \quad (1)$$

where E_Y, the measure of income equality, is equal to $(1 - G_Y)$; E_{FT}, the indicator of free-time equality, equals $(FT_P\,/FT_{NP})$; and E_{EA}, the measure of educational equality, equals $(EA_P\,/EA_{NP})$.

Therefore, (1) may be rewritten as follows:

$$OSSW = [(TCAE)\,(1 - G_Y)]\,[\{(FT)\,(FT_P\,/FT_{NP}) + (EA)\,(EA_P\,/EA_{NP})\}\,/\,2] \quad (1')$$

$$= (ETCAE)\,[(EFT + EEA)\,/\,2] \quad (2)$$

given that $(ETCAE) = (TCAE)\,(1 - G_Y)$; $(EFT) = (FT)\,(FT_P\,/FT_{NP})$; and $(EEA) = (EA)\,(EA_P\,/EA_{NP})$.

TCAE is national total consumption per adult equivalent; G_Y is the Gini coefficient of households' current income (monetary and non-monetary); ETCAE is the product of TCAE and $(1 - G_Y)$ (that is, the egalitarian national total consumption per adult equivalent); FT is the average free time in Mexico's households, and FT_P and FT_{NP} are the average values of this same variable in poor and non-poor households (as defined above); and EA is the average educational achievement of the population older than seven years of age, while EA_P and EA_{NP} are the respective indicators for the poor and the non-poor (as defined).

ETCAE is multiplied by the simple average of EFT and EEA. Given that these last two indicators are both indices expressed in pure numbers that take a value between 0 and 2, with the norm at 1, this operation leaves intact the unit of measurement in which ETCAE is expressed (constant 1993 pesos). Thus, in a society in which everyone is at the maximum welfare that free time can provide, FT would be equal to 2 and E_{FT} equal to 1, so that EFT would also equal 2. If, in that same society, everyone were at the educational maximum, EA would be 2 and E_{EA} would be 1. Therefore, the arithmetic mean for the egalitarian indicators of free time and educational achievement would be 2. If one were to multiply egalitarian total consumption (ETCAE) by 2, its value would double as a consequence of the high results reached in terms of free time and education.

With values at the level of the norm in FT and EA and with total equality in both, the value of EFT is 1 and egalitarian consumption remains the same when multiplied by 1. What is most common is for the

TABLE 11.2. Non-Egalitarian Opportunity Set for Social Welfare in Mexico, 1981–2000

	1981	1984	1989	1992	1994	1996	1998	2000
Total consumption per adult equivalent (TCAE, in constant 1993 pesos)	15,561	14,279	13,785	14,967	15,232	13,660	14,651	15,858
Index of total consumption per adult equivalent (1981=100)	100.0	91.8	88.6	96.2	97.9	87.8	94.2	101.9
Free time[1]	0.936	0.936	0.942	0.915	1.009	0.970	0.954	0.895
Index of free time (1981=100)	100.0	100.0	100.7	97.8	107.8	103.6	101.9	95.6
Educational achievement[2]	0.700	0.700	0.764	0.783	0.789	0.821	0.832	0.874
Index of educational achievement (1981=100)	100.0	100.0	109.2	111.8	112.8	117.3	118.8	124.9
Combined free time and educational achievement[3]	0.818	0.818	0.853	0.849	0.899	0.895	0.893	0.885
Index of combined free time and educational achievement (1981=100)	100.0	100.0	104.3	103.8	110.0	109.5	109.2	108.2
Non-egalitarian opportunity set for social welfare (in constant 1993 pesos)[4]	12,726	11,677	11,760	12,701	13,696	12,228	13,079	14,030
Index of the non-egalitarian opportunity set for social welfare (1981=100)	100.0	91.8	92.4	99.8	107.6	96.1	102.8	110.2

Source: Table 11.1

[1] Calculated as 2 minus the value for excess extra-domestic work.

[2] Calculated as 1 minus the educational gap.

[3] Simple average of the values for these two categories.

[4] This is the product of the TCAE value multiplied by the value reported in the *"combined free time and educational achievement" category.*

empirical values of EFT and EEA to fall between 0 and 1. In this case, the closer their average is to 0, the greater the reduction entailed in making the shift from ETCAE to OSSW.

The final result, the OSSW, is the amount of national total consumption per adult equivalent, adjusted by three factors: equity in income distribution, egalitarian free time, and egalitarian educational achievement. These three adjustments preserve the ETCAE unit of measurement (constant 1993 pesos), but the amount declines (as one can see by reading table 11.1 vertically).[14] For example, in 1989 the TCAE of 13,785 pesos dropped to an ETCAE of 7,320 pesos as a consequence of income inequality. Conceptually, this means that the welfare effects were equivalent: 13,785 pesos distributed in the actually observed pattern (1 minus the Gini coefficient of 0.469) would produce the same aggregate welfare as 7,320 pesos distributed equally (1 minus a Gini coefficient of 1, or an E_Y value equal to 0). Table 11.2 reports the non-egalitarian opportunity set for social welfare, which only considers average achievement indicators in consumption, free time, and education.

Something similar occurs when one combines ETCAE with the average of egalitarian free time and educational achievement. The resulting OSSW value is 4,358 pesos. This indicates that 4,358 pesos, with total equality of income distribution and an egalitarian distribution of free time and education and no educational or free-time poverty, would generate the same welfare as 13,785 pesos with the actually observed degree of income equality and levels and distribution of free time and education.

The central conclusion to be drawn from table 11.1 is that in the year 2000, seventeen years after Mexico took the first steps toward implementing the neoliberal economic model, Mexicans' opportunities for social welfare had not only failed to increase, but they were actually 7.9 percent below their level in 1981. This situation was the result of negative trends in four of the six indicators employed here: the three measures of equality (in household income, E_Y; free time, E_{FT}; and educational achievement, E_{EA}) and the free-time average achievement indicator, FT. The only indicator that displayed a clear upward trend was

[14] This is a particularity of the social progress index that was consciously sought. The starting point was a diagnosis postulating that alternative indices of development had proved inadequate in part because "when they arrive at a single figure, it is usually expressed in artificial units which do not correspond to the units of daily life" (Boltvinik 1992a: 34). In developing this idea, the author postulated that the new index has the property of being expressed "in units of measurement that are dealt with by people on a daily basis and this allows them to be socially adopted in a generalized way" (Boltvinik 1992b: 8).

educational achievement. Total consumption per adult equivalent (TCAE) was practically stagnant over the 1981–2000 period (an overall increase of only 1.9 percent and an average annual rate of growth of only 0.1 percent). Throughout the 1982–1998 period, the TCAE measure was below its 1981 level.[15] Thus the data point to the inability of the Mexican economy and of government economic policy to attain a steady growth in consumption per unit of need.

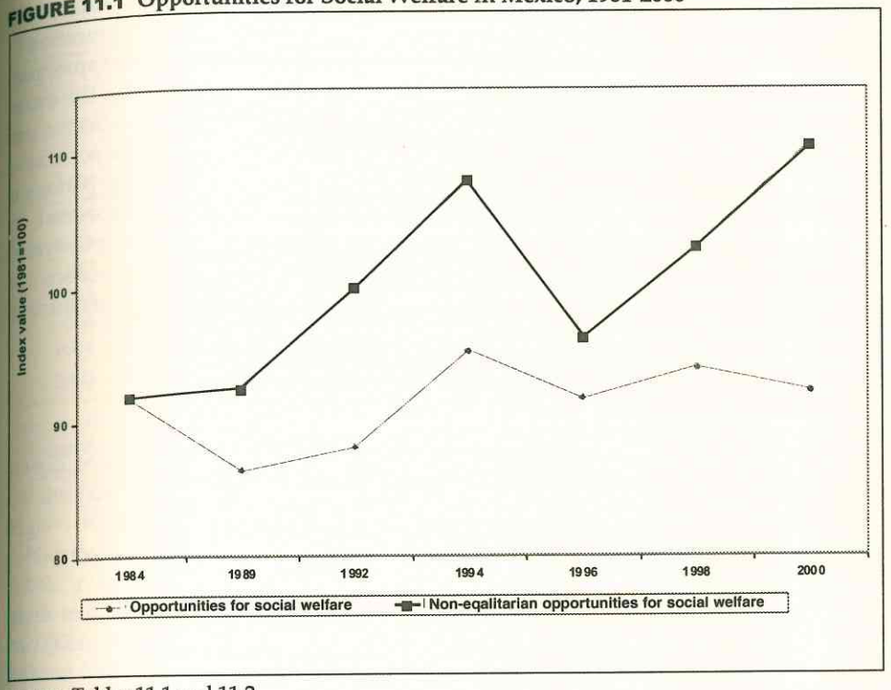
This flow of resources was, moreover, generated with a greater working effort by the population. There was, therefore, less available free time. The average value of FT for the entire population attained a peak in 1994 and has been dropping since then. The level in the year 2000 was the lowest level in the 1981–2000 period (table 11.2), thus causing opportunities for welfare to shrink even further. If the non-egalitarian opportunity set for social welfare (NEOSSW) had been calculated only with these two indicators (consumption and free time), the level in 2000 would still have been 3.5 percent below the 1981 level.

However, in terms of achievements in average values for the population as a whole, education registered a significant advance of 24.8 percent (table 11.2). This advance explains the fact that when the three measures of mean achievement are combined (without taking inequality indicators into account) to obtain the non-egalitarian opportunity set (NEOSSW, table 11.2), the resulting indicator rose 10.3 percent over the 1981–2000 period as a whole, an increase that is basically explained by the important improvement that occurred in educational achievement and by the dramatic change between 1998 and 2000 in total consumption per adult equivalent.

The data reflect increased levels of inequality under Mexico's new economic model. The values for equality in income, free time, and education were between 8 and 9 percent lower at the end of the 1981–2000 period than at the beginning (table 11.1). Income equality worsened systematically from 1984 to 1994, improved temporarily from 1994 to 1996, and then worsened again through the year 2000, a year at which it attained its lowest level in the whole period under analysis. The period ended with the indicator for income equality 9.1 percent below its 1984 level (which was used as an estimate for 1981 as well). Free-time equality improved, with fluctuations, from 1984 to 1996 and then worsened. Educational equality reached its lowest level in 1994. Even though the

[15] Growth in the TCAE indicator was quite fast in the 1998–2000 period (4 percent annually, well above the rate of GDP growth per adult equivalent) because of an expansion in consumption credit. The 1996–2000 period of economic expansion ended with a 0.3 percent decline in GDP in 2001, although consumption apparently continued to grow. It is likely, therefore, that total consumption per adult equivalent stagnated in 2001.

FIGURE 11.1 Opportunities for Social Welfare in Mexico, 1981-2000



Sources: Tables 11.1 and 11.2.

indicator for educational equality rose again in subsequent years, the value for 2000 was much below the 1981/1984 level.

In other words, not only was Mexico's new development model unable to expand the economy, but it also furthered the concentration of income, free time, and education, thereby shrinking the population's welfare opportunities. Figure 11.1 summarizes the role of inequality in the evolution of opportunities for social welfare in Mexico. The area between the two lines may be interpreted as the inequality effect. As one can see, this area attained its maximum width in the year 2000, indicating the peak of inequality at which Mexican society had arrived.

In terms of mean achievements, the advocates of Mexico's economic reform process might argue that, once past the initial period of strong adjustment, the model's performance has been positive. After all, in 1996—even after the 1995 economic crisis—the index value of the non-egalitarian opportunity set for social welfare (NEOSSW) was 96.1, above its level of 91.8 in 1984. Moreover, the level attained in the year 2000 was 18 index points above the 1984 level. However, only 10 of the

points in this recovery were explained by economic performance (growth in TCAE); the rest were explained by evolution in education.

In fact, including measures of social inequality—as it is appropriate to do—produces a very different story, as demonstrated by the evolution of the opportunity set for social welfare. The OSSW indicator continued to fall after 1984, reaching its lowest level in 1989 and separating significantly from the NEOSSW indicator, especially during periods of economic expansion (figure 11.1). Without doubt, then, the overall result of Mexico's economic reform process is a socioeconomic system that offers fewer opportunities for welfare than it did two decades ago. This is a consequence of its meager capacity for growth and its intrinsic tendencies toward the concentration of its benefits.

TRENDS IN INCOME DISTRIBUTION

Although the opportunity set for social welfare takes all three dimensions of inequality (in income, in free time, and in education) into account, income inequality appropriately receives the greatest weight. For this reason, it is worth observing some features of this variable's evolution.

Income distribution in Mexico had moved in a very positive direction between 1963 and 1984. Indeed, Hernández Laos (1999: 177) concluded that the Gini coefficient fell from 0.606 in 1963 to 0.586 in 1968, 0.518 in 1977, and 0.501 in 1984.[16] He emphasized that "this trend is consistent with what is postulated by the Kuznets-Lydall-Robinson hypothesis. It holds that, as an effect of the transfer of the workforce from low- to high-productivity sectors (technology), in the early stages [the 1930s and 1940s] income distribution tends to become more unequal, eventually reaching a peak. Thereafter, once the majority of the workforce is in the nontraditional (or technologically modern) sector of the economy, income distribution becomes less unequal" (1999: 180). Hernández Laos noted that this trend was interrupted in Mexico after 1984, and that between 1984 and 1989 income distribution worsened dramatically, with the Gini coefficient rising from 0.501 to 0.549. He argued that this change was a consequence of both interrupted growth and the implementation of economic adjustment programs that sought to reduce domestic demand by limiting internal credit creation, raising taxes, and reducing government expenditure and transfers. In making this point, he highlighted the major changes that occurred after the early

[16] Hernández Laos developed the only available long-term series of Gini coefficients, calculated on the basis of income and expenditure surveys and adjusted to national accounts for comparability.

TABLE 11.3. Household Income Distribution in Mexico, 1984-2000
(Gini coefficients)

	Total Income Deciles		Per Capita Monetary Income Deciles
Year	*Total Income*	*Total Monetary Income*	
1984	0.429	0.456	0.466
1989	0.469	0.489	0.504
1992	0.475	0.509	0.521
1994	0.477	0.514	0.528
1996	0.456	0.489	0.503
1998	0.476	0.509	0.523
2000	0.481	0.503	0.516

Sources: Data concerning total income are from the Instituto Nacional de Estadística, Geografía e Informática's (INEGI) national surveys of household income and expenditure for each of the years reported. Data concerning per capita monetary income deciles are from Cortés 1997 and the author's communication with Cortés.

1980s in the relative prices of factors of production, especially reductions in wages and increases in real interest rates.

There is no Gini coefficient series with data adjusted to national accounts for the years after 1989. The unadjusted data, which must be viewed with caution, indicate that the rise in total income (the sum of monetary and non-monetary income) concentration continued through 1994, declined in 1996, and then started growing again, reaching its maximum in the year 2000. Table 11.3 presents Gini coefficients for monetary and total income drawn from published survey data on household income and expenditure collected by Mexico's Institute for Statistics, Geography, and Informatics (INEGI), as well as those coefficients calculated for monetary income by Cortés (1997) using the databases of the same surveys. Whereas the INEGI data were ranked based on total household income, Cortés's Gini coefficients were calculated from a ranking of households based on income per capita.

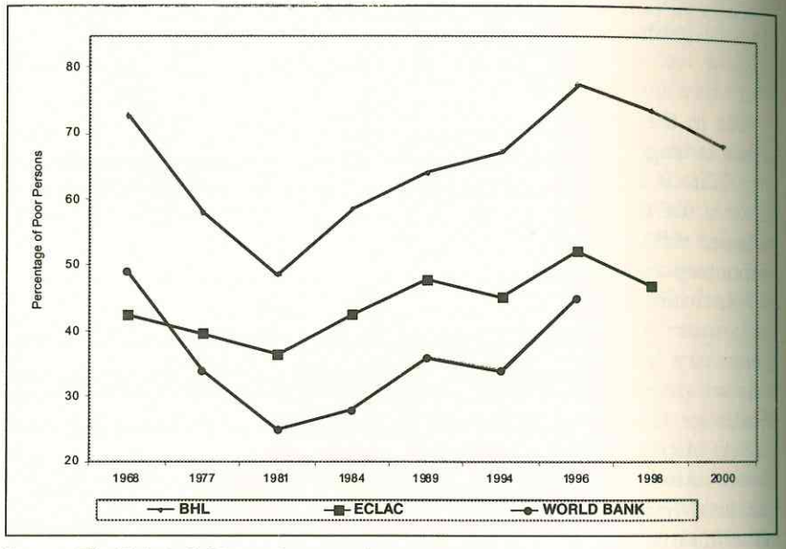
Despite the methodological differences, both data sets show the same trends. The Gini coefficient increased strongly and in a sustained way not only during the 1984–1989 period (a finding that coincides with the Hernández Laos data adjusted to national accounts), but also through the 1989–1994 and 1996–2000 periods. In other words, with the exception of the years between 1994 and 1996, the change in trend that Hernández Laos noted for the 1984–1989 period continued through 2000. This conclusion is important because it means that income concen-

tration has increased in periods of both economic stagnation (1984–1989) and recovery (1989–1994 and 1996–2000). The exception came in the 1994–1996 period, when inequality decreased as income fell for all deciles but most dramatically for the tenth (richest) decile. It would appear, then, that greater inequality is intrinsic to Mexico's new economic model.

INCOME POVERTY AND SPECIFIC POVERTIES: A CONTRADICTORY EVOLUTION

Income poverty in Mexico decreased systematically in the 1960s and 1970s, until 1981 (Boltvinik and Hernández Laos 1999). The same trend

FIGURE 11.2. Three Versions of the Evolution of Poverty in Mexico, 1968–2000



Sources: The Boltvinik-Hernández Laos (BHL) data for 1968-1984 are from Hernández Laos 1992; the remaining data in the BHL series are the author's estimates. ECLAC (Economic Commission for Latin America and the Caribbean) data for 1968 are from Altimir 1979; for 1977, CEPAL-PNUD 1990; for 1981, the author's own estimate; for 1984 and 1989, INEGI-CEPAL 1993; and for 1994 through 1998, CEPAL 2001. The World Bank data are from World Bank 1999: 52-53, except for 1981, which is the author's estimate.

Note: The BHL data estimates for the 1968-1984 period are based on income data adjusted to national accounts, while the estimates from 1989 onwards are based on household income data not adjusted to national accounts. Therefore, the estimations are not strictly comparable and should be analyzed as separate series.

is evident in a reconstruction of the ECLAC's and the World Bank's figures (see figure 11.2).[17] The trend was reversed in the 1980s as income poverty rose significantly, especially between 1981 and 1989. The increases in income poverty tended to level off toward the end of the 1980s and early 1990s (1989–1994). However, there was a further substantial rise during the 1994–1996 period. Finally, income poverty again decreased during the 1996–2000 period.

According to ECLAC estimates, the incidence of income poverty was greater in 1998 than the 1968 level and very similar to the 1989 level. In the author's own reconstruction of the ECLAC calculations, three periods can be identified: decrease (1968–1981); increase (1981–1996); decrease (1996–1998) (figure 11.2). The World Bank, whose series ends in 1996, identifies the same first two periods as the ECLAC. The Boltvinik-Hernández Laos (BHL) series, which extends through 2000, identifies the same three periods as did the ECLAC, but it extends the last period of declining income poverty to the year 2000. Thus, although there are large differences in the level of poverty incidence among the four series analyzed,[18] there is a high degree of consensus regarding the directions of change.[19]

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[17] In order to compare the ECLAC and World Bank series with the Boltvinik-Hernández Laos series (which estimated the level of poverty in 1981, a year in which INEGI did not conduct a household income and expenditure survey), the author estimated poverty levels in 1981 in both the ECLAC's and the World Bank's series.

[18] The main reason why the BHL series and the ECLAC and World Bank series on the incidence of poverty vary so much from each other is the huge distance between their respective poverty lines. This distance, in turn, is explained by a different concept of poverty implicit in these analyses. In contrast to the ECLAC and the World Bank, which define poverty as not having enough income to buy food for a specified diet (for ECLAC, a socially generalized diet, and for the World Bank, a poor man's diet), Boltvinik and Hernández Laos define human needs in terms of much more than food (they include housing, clothing, transportation, energy, and so on), and they base the poverty line level on a complete budget. This approach, developed by a group of researchers working for the General Coordination of the National Plan for Depressed Areas and Marginalized Groups (COPLAMAR) during the 1980–1982 period, employs the normative basket of essential satisfiers (NBES). The methodological appendix to this chapter includes a brief explanation (with further references) of the procedure followed to derive the NBES. For an analytic criticism of the ECLAC and World Bank approaches, see Boltvinik 1996a, 1999, and 2000.

[19] Setting aside studies by international organizations (see Altimir 1979 and Bergsman 1980), the first poverty estimates made by Mexican researchers were COPLAMAR's calculations for 1977 (COPLAMAR 1982a). Hernández Laos (1992) was the first Mexican researcher to construct a data series on poverty evolution in Mexico. Levy (1991) estimated poverty in Mexico for the World Bank, but he only did so for 1984, using a very low extreme poverty line and COPLAMAR's moder-

Tables 11.4 and 11.5 present an overview of the evolution of specific poverties in Mexico between 1970 and 2000.[20] In these series as well, we can distinguish three periods in the evolution of the satisfaction of specific needs. However, because of differing dates for the available data, these periods are not the same as those for income poverty.

During the 1970s the evolution of specific poverties paralleled the very rapid decline in income poverty. In the 1980s, however, specific poverties and income poverty diverged. Specific poverties continued to decline (albeit more slowly), but the trend in income poverty changed dramatically. Income poverty continued to increase during the early 1990s (although at a lower rate), before experiencing some decline at the end of the period (1996–2000). In contrast, most of the specific poverties fell during the 1990s at a faster rate than in the 1980s. The notable exception was social security poverty, which worsened during the early 1990s and closed in 1999 at the same level as in 1989.

The first part of table 11.4 presents measures of the incidence and equivalent incidence of educational poverty for both adults and school-age children. Incidence is defined as the proportion of poor people in a given population, while intensity tells us how deprived the poor are and is measured as the relative gap in relation to the norm. Equivalent incidence, in turn, is defined as the product of incidence and intensity. The general pattern in the equivalent incidence of adult educational poverty and in the incidence of child educational poverty (non-attendance at school) was a rapid decline during the 1970s, followed by

ate poverty line. Alarcón (1994) made similar estimates for 1989. Pánuco-Laguette and Székely (1996) estimated the incidence of extreme and moderate poverty during the 1984–1992 period using (implicitly) similar conceptual definitions as the ECLAC but not the same poverty lines. They arrived at the rather strange conclusion that poverty decreased between 1984 and 1989 (a period characterized by stagflation) and then remained constant during the 1989–1992 period (years characterized by economic growth and lower inflation levels). Later, Székely worked with Lustig (Lustig and Székely 1997) and corrected this odd result for the 1984–1994 period using the ECLAC's poverty lines and adjusting income survey figures to national accounts. More recently, Damián (2000), Romero (1999), and Escotto (n.d.) have undertaken analyses that develop the integrated poverty measurement method in various directions. Damián, for example, has developed the time-poverty aspect of this method, while Escotto has enriched the methodology.

[20] In some instances, 1999 was the most recent year for which data were available.

The indicators designed for adult education, housing space, and housing services are such that they capture both the incidence and intensity of poverty, which, when combined, measure the equivalent incidence of poverty. The notes at the foot of tables 11.4 and 11.5 define the concepts and explain the specific procedures employed.

a slower decrease in the 1980s, and then a partial recovery in the rate of decline in the 1990s.

It should be noted, however, that in the adult equivalent incidence indicator the differences among these decades were not as marked as in the case of child educational poverty. The incidence of moderate adult educational poverty (adults who have completed six or more, but less than nine, years of schooling) tended to increase when the first two measurement categories—educational indigence (zero schooling) and extreme educational poverty (adults with less than six years of schooling)—decreased. This is what happened in the 1970s, for instance, indicating changes in the composition of educational poverty.

Changes such as these make it clear that poverty incidence by itself cannot be an appropriate indicator because it does not take into account how poor the poor are. This characteristic is disclosed by the equivalent incidence indicator, which (as noted) combines poverty incidence and intensity.[21] It shows a decline in the three main periods, with the 1970s being the fastest and the 1980s the slowest. The average equivalent incidence indicator for both adult and child educational poverty shows the same pattern.

The data in the second part of table 11.4 refer to poverty in living space and housing services. These measures include one indicator of overcrowding (poverty of living space, which has been constructed as an equivalent incidence indicator) and an equivalent incidence indicator for poverty in housing services, which is decomposed into one measure of the overall incidence of housing services poverty and specific measures of incidence in three different strata (indigence, extreme poverty, and moderate poverty). These strata measures are summed to obtain the overall incidence of poverty in housing services.

The indicators for both overcrowding and the equivalent incidence of housing services poverty show a similar pattern of deceleration in the downward trend from the 1970s through the 1980s. In the 1990s, in

[21] Because the figures on education and housing services reported in table 11.4 have been calculated without access to the original databases, it was not possible to calculate effective poverty intensities (gaps) at the household level. For this reason, the intensities used to obtain the values in row 5 are the average intensities that would result if all households in a given poverty stratum (extreme poverty, for example) were at the midpoint of the stratum's gap range (6/9 in the case of extreme educational poverty; see the explanatory note in table 11.4). In the case of education, this procedure misses improvement over time within each stratum. In the case of housing services, the procedure correctly captures the number of services below the norm, but it misses the intensity (when applicable) of poverty within each housing service category.

TABLE 11.4. Equivalent Incidence of Educational, Living Space, and Housing Services Poverties in Mexico, 1970–2000 (percentages)

Category	Year					Average Annual Rate of Change				
	1970	1980	1990	1995	2000	1970–1980	1980–1990	1990–2000	1980–2000	1990–1995
Education										
Incidence of adult educational indigence	31.6	16.1	13.7	10.4	8.7	–6.5	–1.6	–4.4	–3.0	–5.4
Incidence of adult educational extreme poverty (excluding indigence)	38.9	32.1	23.3	21.0	18.3	–1.9	–3.2	–2.4	–2.8	–2.1
Incidence of adult educational moderate poverty (excluding indigence and extreme poverty)	20.6	27.9	25.9	24.0	24.3	3.1	–0.7	–0.6	–0.7	–1.5
Incidence of educational poverty[1]	91.1	76.1	62.9	55.4	51.3	–1.8	–1.9	–2.0	–2.0	–2.5
Equivalent incidence of adult educational poverty[2]	62.1	43.7	35.0	29.7	26.3	–3.5	–2.2	–2.8	–2.5	–3.2
Child educational poverty[3]	36.1	13.5	13.1	6.4	5.4	–9.4	–0.3	–8.5	–4.5	–13.3
Equivalent incidence of adult and child educational poverty[4]	53.4	33.6	27.7	22.0	19.3	–4.5	–1.9	–3.5	–2.7	–4.5

Category	Year					Average Annual Rate of Change				
	1970	1980	1990	1995	2000	1970–1980	1980–1990	1990–2000	1980–2000	1990–1995
Living Space and Housing Services										
Equivalent incidence of living space poverty[5]	43.3	27.2	21.9	17.8	18.6	–4.5	–2.1	–1.6	–1.9	–4.1
Incidence of housing services indigence[6]	35.8	19.1	10.7	5.8	3.7	–6.1	–5.6	–10.1	–7.9	–11.5
Incidence of housing-services extreme poverty[7]	20.4	20.4	23.2	20.3	18.0	0.0	1.3	–2.5	–0.6	–2.6
Incidence of housing-services moderate poverty[8]	12.8	20.8	20.6	22.2	23.8	5.0	–0.1	1.5	0.7	1.5
Incidence of housing services poverty[9]	69.0	60.3	54.5	48.3	45.5	–1.3	–1.0	–1.8	–1.4	–2.4
Equivalent incidence of housing services poverty[10]	53.7	39.6	33.0	26.7	23.6	–3.0	–1.8	–3.3	–2.6	–4.1
Equivalent incidence of living space and housing services poverty[11]	48.5	33.4	27.5	22.3	21.1	–3.7	–1.9	–2.6	–2.3	–4.1

TABLE 11.4 continued

Sources: COPLAMAR 1982b; Boltvinik 1998; and the author's calculations based on Instituto Nacional de Estadística, Geografía e Informática data from the 2000 national population and housing census.

Note: For the measurement of educational poverty, the poor population was divided into three disjointed strata: indigents (those without instruction), the extremely poor (those with some degree of instruction but without complete elementary school), and the moderately poor (those who have completed the six years of elementary education but who have not completed the nine years of secondary education). To obtain a measure of the equivalent incidence of adult educational poverty, each stratum's incidence was weighted by its educational "gap." Thus educational indigents were weighted by 1 (their gap is total and includes the nine years of secondary education), and the extremely poor and the moderately poor were weighted by 6/9 and 2/9, respectively (in each instance, the proportional gap midway in the range of the stratum's variation).

The proportion of the population that exceeds the normative housing capacity of the dwellings in which they live (the relative housing deficit) was selected as the indicator of living space poverty because it expresses both the incidence and intensity of overcrowding—that is, its equivalent incidence. (In contrast, an indicator reflecting the proportion of people who live in overcrowded houses expresses only the incidence of overcrowding.) For the measurement of poverty in housing services (indoor piped water, sewerage, electricity), poor households were divided into three strata: indigents (those without any of the three specified services); the extremely poor (those with one service); and the moderately poor (those with two services). To measure the equivalent incidence of poverty in housing services, each stratum was weighted by its housing services "gap" (1 for indigents, 2/3 for the extremely poor, and 1/3 for the moderately poor).

[1] These values are the sum of the three preceding categories.

[2] These values are the product of incidence multiplied by intensity.

[3] Proportion of school-age children (6 to 14 years of age) not attending elementary school.

[4] Weighted average of "equivalent incidence of adult educational poverty" and "child educational poverty." The indicator for adults was weighted by 2/3 and the indicator for children was weighted by 1/3 to reflect their approximate numerical importance.

[5] Proportion of the population that exceeds the normative capacity of the dwellings in which they live.

[6] Proportion of the population with none of the specified housing services (piped-in water, sewerage, electricity) at or above the norm.

[7] Proportion of the population with one housing service at or above the norm.

[8] Proportion of the population with two housing services at or above the norm.

[9] These values are the sum of the three preceding categories.

[10] These values are the product of incidence multiplied by intensity.

[11] Simple average of "equivalent incidence of living space poverty" and "equivalent incidence of housing services poverty."

contrast, the declining trend in the overall incidence of housing services poverty accelerated slightly, whereas the declining trend in overcrowding further decelerated. On average, the indicator of equivalent incidence in living space and housing services poverty followed the same pattern as the indicator of educational poverty: a decrease in all three periods, with the fastest decline occurring in the 1970s and the slowest in the 1980s.

The data presented in table 11.5 refer to the equivalent incidence of health care and social security poverties.[22] In this instance, the years 1981 and 1989 were used as cut-off dates because both were years of change; 1981 marked the end of sustained economic growth in Mexico, and 1989 was the end of the economic crisis of the 1980s and the beginning of an economic recovery that lasted until 1994. Health services poverty decreased rapidly during the 1978–1981 period (at an average annual rate of 6.4 percent). It fell at a moderate rate between 1981 and 1989 (an average of 2.4 percent per year), and it decreased at a slightly faster average rate (3.5 percent per year) during the 1990s. Social security poverty declined at a moderate rate (an annual average of 3.4 percent) between 1970 and 1981 and at a slower average rate (2.5 percent per year) between 1981 and 1989. Between 1989 and 1999 it ceased to decline. This constancy is explained by the radical shift toward an increase in social security poverty that occurred between 1989 and 1995 (the last year showing the same level of social security poverty as in 1981) and then a sharp fall from 1995 to 1999.

In sum, the following patterns emerged in the three summary indicators employed in this analysis (the last row in the first and second parts of table 11.4 and the last row in table 11.5):

- Looking first only at the average rates of change for longer periods (decades or periods of similar length), all signs for the measures of specific poverties were negative. This indicates that the equivalent incidence of all specific poverties declined during the 1970s, 1980s, and 1990s.
- For all three summary indicators, the rate of decline slowed during the 1980s, and in two instances it accelerated again in the 1990s (albeit without recovering the rates of the 1970s).
- When the rates of decline are calculated for the 1980–2000 period and are contrasted with the rates achieved in the 1970s, the latter were on average 100 percent greater.

[22] The available data here are yearly figures drawn from the administrative records of Mexican social security institutions, allowing one to set any cut-off years. Unfortunately, the earliest available year for the health care indicator is 1978.

TABLE 11.5. Equivalent Incidence of Health Care and Social Security Poverties in Mexico, 1970–1999 (percentages)

Category	Year					Average Annual Rate of Change				
	1970/1978[1]	1981	1989	1995	1999	1970/78–1981[1]	1981–1989	1981–1999	1989–1995	1989–1999
Equivalent incidence of health-care services poverty[2]	58.9	48.4	39.9	37.0	28.0	–6.4	–2.4	–3.0	–1.3	–3.5
Equivalent incidence of social security poverty[3]	74.3	50.9	41.5	50.8[4]	41.5[4]	–3.4	–2.5	–1.1	3.4	0.0
Equivalent incidence of health care and social security poverty[5]	66.6	49.7	40.7	43.9	34.8	–4.9	–2.5	–2.1	1.1	–1.7

Sources: COPLAMAR 1982b, Boltvinik 1998, and the author's calculations based on Instituto Nacional de Estadística, Geografía e Informática (INEGI), *Cuadernos de salud y seguridad social*, various years.

[1] The data series for health services poverty begins in 1978; the series for social security poverty begins in 1970.

[2] Proportion of the population that is not adequately protected by public-sector health institutions, which is calculated by subtracting from the total population the average population that can receive appropriate attention from the available number of doctors, nurses, hospital beds, laboratories, and operating and x-ray facilities.

[3] Proportion of the population not covered by public-sector social security institutions, implying a lack of income protection against sickness, incapacity, old age, or other covered risks.

[4] The INEGI's *Conteo de población, 1995* and *XII Censo general de población y vivienda, 2000* indicate values of 62.5 and 58.6, respectively, for 1995 and 2000.

[5] Simple average of the preceding two categories.

Therefore, our stylized (or simplified) conclusion is that specific poverties continued to decline from the 1970s through the 1990s—with the highest rates of decline in the 1970s, the next highest during the 1990s, and a much slower rate of decline in the 1980s.

One reason why this pattern contrasts so strikingly with the trends in income poverty during the 1980s has to do with the nature of the variables being analyzed. The income variable is a flow variable, while the others are stock variables. With flow variables, today's level is not tied (at least not strongly) to yesterday's level. One's income today may be zero even though yesterday it was very high. With stock variables, however, yesterday's level largely determines today's level. Houses that had indoor plumbing yesterday almost certainly will have it today. In order to reduce the weight of this feature, tables 11.4 and 11.5 include some flow variables (such as the proportion of the school-age population attending elementary school) and rates of change for stock variables. Even so, the nature of a variable cannot be changed; an adult with a secondary education will be at that level for her or his entire life.

A second reason for these observed differences derives from the fact that a non-commodity form of access (in the form of public transfers or self-production) is predominant in the needs analyzed in tables 11.4 and 11.5. Public transfers clearly constitute the main route of access in areas such as education, health care, and water and sewerage. In other words, the determinant source of welfare here is the fourth welfare source identified at the beginning of this chapter: access to free government-provided goods and services. In the case of other needs, access occurred primarily through self-production (for example, self-built housing). The so-called social wage behaved differently than current income during periods of economic crisis. Public social expenditure was not cut during the 1980s, even in per capita terms.[23] Structural adjustment in education and health services did not proceed by reducing the volume of employment and services; rather, it occurred by depressing the real wages of teachers, doctors, and nurses.[24]

Given the worldwide fashion of privatizing the social sphere and Mexican attempts to "rationalize" public expenditure and eliminate subsidies, one should value the fact that—despite the pauperization of their parents—children did not stop going to school in the 1980s or in

[23] See the discussion in later sections of this chapter and in Boltvinik 1998.

[24] There was, nevertheless, a marked slowdown in the growth of services compared to the 1970s, and it is very likely that in many instances there was a decline in the quality of services as well. A question for political scientists to answer is why the administration of President Miguel de la Madrid (1982–1988) did not adjust social expenditure more dramatically, as it did with such important areas of expenditure as rural development and infrastructure investment.

1995, because education is free (that is, it has been decommodified). Thus institutions in the social sphere continued to provide protection—even though it was insufficient, uneven, and sometimes contradictory—during these periods of economic crisis.

In sum, the data in figure 11.1 and tables 11.4 and 11.5 demonstrate that:

- Educational and housing poverties maintained the same dominant temporal profile—rapid decline, slowdown, and partial acceleration—in the three periods studied, with poverty levels diminishing throughout.
- Trends in health care and social security poverty followed a downward trajectory that slowed between the first and second periods, and then changed sign and increased during the first half of the 1990s (for social security) and continued slowing (for health services). However, recovery of the downward trend in the second half of the 1990s brought health services into line with the common pattern, while it brought social security poverty to a zero rate of change during the 1989–1999 period.
- Income poverty declined between 1968 and 1981, increased between 1981 and 1989, and approached stabilization between 1989 and 1994. However, it again grew very fast between 1994 and 1996 as a consequence of renewed economic crisis and the way it was managed, before decreasing between 1996 and 2000.

The two noteworthy exceptions to the general pattern of declining poverty were income poverty and social security poverty. Both may be considered types of poverty that are determined more by market forces and government economic policy than by social policy.

Thus the 1981–1989 period cannot be characterized simplistically as a retreat on all fronts. Because of the continuation of government social welfare expenditure, several policy measures that promoted the horizontal expansion of social security protection, and the maintenance of minimum conditions for improvements in housing, all of the specific poverties examined here continued to decline, albeit at a slower rate than in the 1970s. At the same time, income poverty increased at the alarming average rate of 3.5 percent annually.

The 1989–1994 period (or 1990–1995, depending upon data availability) should not be viewed as a return to the dynamics of the 1970s, despite the notable recovery in the rates of decline for specific poverties (except social security and health care), because income poverty continued to rise (although asymptotically) until 1994 and then jumped

sharply with the 1994–1995 financial crisis. Moreover, for the first time in Mexico, a historic reversal occurred in social security coverage.

The second half of the 1990s witnessed a general recovery and renewed downward trends in all specific poverties, including income and social security poverties. However, economic recovery came to an end in 2001, reversing some of these trends. For instance, the population covered by the Mexican Social Security Institute (IMSS) decreased in absolute terms during 2001.

THE EVOLUTION OF SOCIAL EXPENDITURE

The evidence presented in the preceding section demonstrates that in a time-series analysis the correlation between income poverty and specific poverties is very low, sometimes approaching zero. Indeed, an analysis of the evolution of both types of poverty over time reveals different (sometimes diametrically opposed) patterns. The obvious explanation is that the factors that determine the satisfaction of some needs—such as education, living space, housing services (access to piped water, sewerage, and electricity), and access to health services—are not the same as the factors that determine the evolution of households' current income. The correlation is also imperfect when cross-sectional analyses are performed at a given moment in time; a significant proportion of households is income-poor but not poor in terms of the satisfaction of basic needs, or vice versa (Boltvinik and Hernández Laos 1999: section 5.4).

Public social expenditure is a fundamental determinant of most of these specific needs (except ownership of durable household goods and, partially, access to housing). Figure 11.3 illustrates the yearly evolution of per capita public social expenditure between 1970 and 2000, using four alternative price indices to deflate the expenditure series in order to express them in constant prices. Using generic deflators (such as the national consumer price index or the price index implicit in the gross domestic product) yields abrupt declines in social expenditure in 1983 and in the 1985–1988 and 1994–1995 periods. The index values (1980 = 100) in 1988 were 68.6 using the price index implicit in GDP and 55.2 using the national consumer price index, representing a drop in social expenditure of 43.3 and 53.7 percent, respectively, from 1981—the year in which per capita social expenditure reached its peak. Such circumstances would signal a true catastrophe, but in fact these are not appropriate indices to use as deflators of social expenditure.

Two other indices were tested to obtain a more accurate picture of the evolution of public social expenditure during this period. In contrast to the national consumer price index and the price index implicit

FIGURE 11.3. Real Per Capita Social Public Expenditure in Mexico, 1970–2000

Sources: Author's calculations based on Instituto Nacional de Estadística, Geografía e Informática (INEGI) data regarding current social public expenditures. For 1970–1999, INEGI, *Anuario estadístico de los Estados Unidos Mexicanos*, various years; for 2000, INEGI, *El ingreso y el gasto público en México 2001* (Aguascalientes: INEGI, 2001). Consumer price index data are from www.inegi.gob.mx; data for the other indices are from INEGI, *Sistema de cuentas nacionales: cuentas del sector público*, various years, and *Sistema de cuentas nacionales: cuentas de bienes y servicios*, various years.

Note: The graph shows four series of the evolution of real per capita public social expenditure. Each series is the result of deflating current per capita public social expenditure by a specific price index. The consumer price index and the index of implicit gross domestic product prices are general, while the other two indices are specific to social expenditure. See the text for a fuller explanation of these indices and their meanings.

in GDP (which reflect, respectively, the evolution of consumer prices and prices for the economy as a whole), these alternative indices—both of which refer to the public sector—are based on the basket of specific goods and services that are acquired with public social expenditure.

The first, the implicit index in public-sector value added in communal services (or the communal services value-added price index, CSVAPI) only takes into account value added. In practical terms, therefore, this index is limited to wages and salaries paid, although in principle it also includes the consumption of fixed capital while omitting intermediate consumption (government purchases). The slower evolution of the CSVAPI reflects the pattern of wages and salaries paid to public servants (doctors, teachers, and nurses, among others), which during the period under analysis rose far more slowly than inflation in general. Selecting the CSVAPI as the deflator is equivalent to underestimating the rise in the cost of what is paid to provide public services; therefore, using it to deflate the expenditure series entails an overestimation of public social expenditure in real terms. Nevertheless, these biases should not be empirically important given that government purchases represented only about 20 percent of total government consumption during the 1988–1996 period and only 4 to 6 percent of education expenditure (which, in turn, represented close to 50 percent of total public social expenditure).

The public consumption price index (PCPI) is the most appropriate index to reflect changes in the cost of public consumption because it includes gross value added and the purchase of current goods and services. There are enormous differences between the evolution of the index of purchases and the index of value added; in fact, in years of strong inflation, the index of purchases is almost twice the index of value added. For this reason, the proportion of wages (value added) in total expenditure determines the level of its price index. In education, where purchases represented 4 to 6 percent of total expenditure, trends in teachers' salaries were the principal determinant. In the health care sector, government purchases represented between 20 and 25 percent of public expenditure. We can conclude, therefore, that it makes a great deal of sense to choose the average of the indices of public consumption in health care and education as the provisional deflator for public social expenditure. The choice of the simple average is based on the fact that the amounts of public expenditure in education were similar to those in health care during the period under consideration.

The pattern of real social expenditure after 1983 changes radically if we use the PCPI to adjust for inflation. Even in the worst year (1988), the index expressing the evolution of per capita social expenditure (1980=100) stayed slightly above 100, meaning that social expenditure

per capita did not decline in comparison to 1980. Even when the 1988 values (the lowest attained) are compared with those for 1981 (a year of exceptionally high expenditure, well above the trend), the declines are far from catastrophic—11.7 percent using the PCPI and 4.3 percent employing the CSVAPI. Thus the trend in social expenditure during the 1983–1988 period can be regarded as one of stagnation, a view entirely consistent with the deceleration in the downward trend of specific poverties that was noted in the preceding section of this chapter.

THE INTEGRATED POVERTY MEASUREMENT METHOD AND THE PARADOX OF UNEVENLY EVOLVING POVERTIES

The Evolution of Poverty as Measured by the Integrated Poverty Measurement Method and Its Components

Table 11.6 presents information concerning the incidence, intensity, and equivalent incidence of poverty in Mexico in the period between 1984 and 1998, calculated by applying the integrated poverty measurement method (IPMM) to databases in which household income data have already been adjusted to national accounts. It also presents disaggregated data on unsatisfied basic needs and poverty line–time components.

These data show that the proportion of poor people in Mexico's total population rose from 68.5 percent in 1984 to 73.4 percent in 1989, 74.2 percent in 1992, and 75.3 percent in 1998. In other words, there was a relatively rapid rise in the incidence of poverty between 1984 and 1989 and an apparent stabilization between 1989 and 1998. In fact, this last period is comprised of three subperiods: stabilization, 1989–1994; rapid increase, 1994–1996; and substantial decrease, 1996–2000.

Comparably quantified evidence is missing for 1994, 1996, and 2000.[25] In 1996 the incidence of poverty (as calculated by the IPMM) might have approximated 80 percent, and it might have declined to 72 percent by 2000. However, information about the level of poverty (again, as calculated by the IPMM) prior to the 1982 debt crisis is lacking.

[25] The author has in fact used the integrated poverty measurement method to quantify the incidence of poverty for 1994, 1996, and 2000, but these calculations were performed without adjusting household income to national accounts. The results show that poverty increased sharply from 75.8 percent in 1994 to 81.9 percent in 1996, then grew slowly during the following two years (reaching a level of 80.3 percent in 1998), and fell significantly between 1998 and 2000, ending the period at 77.0 percent. If the 1994–1996 and 1998–2000 trends thus depicted were to be reproduced in the adjusted series, adjusted poverty calculated by the integrated poverty measurement method would have been 80.1 percent in 1996 and 72.3 percent in 2000.

TABLE 11.6. Incidence, Intensity, and Equivalent Incidence of Poverty in Mexico, 1984–1998[1]

	Year				Percent Change			
	1984	1989	1992	1998	1984–1989	1989–1992	1992–1998	1984–1998
				Integrated Poverty				
Incidence	0.685	0.734	0.742	0.753	7.2	1.1	1.5	9.9
Intensity	0.391	0.435	0.455	0.479	11.3	4.6	5.3	22.5
Equivalent incidence	0.268	0.319	0.338	0.361	19.0	6.0	6.8	34.7
				Unsatisfied Basic Needs Poverty				
Incidence	0.750	0.701	0.707	0.677	–6.5	0.9	–4.2	–9.7
Intensity	0.466	0.454	0.467	0.479	–2.6	2.9	2.6	2.8
Equivalent incidence	0.349	0.318	0.330	0.313	–8.9	3.8	–5.2	–10.3
				Income-Time Poverty				
Incidence	0.508	0.628	0.649	0.694	23.6	3.3	6.9	36.6
Intensity	0.484	0.536	0.547	0.572	10.7	2.1	4.6	18.2
Equivalent incidence	0.246	0.336	0.355	0.397	36.6	5.7	11.8	61.4

Source: Author's calculations from databases from the Instituto Nacional de Estadística, Geografía e Informática's national surveys of household income and expenditure for each of the years reported. Household income data have been adjusted to national accounts.

[1] Calculated via the integrated poverty measurement method. See this chapter's methodological appendix for a discussion of this method.

A huge increase must have occurred between 1981 and 1984, so that the 1984–1989 rise is only part of the growth that occurred—which might have been as large as 10 percentage points over the 1981–1989 period. If this is in fact the real picture (and the strong income evidence presented in figure 11.2 points in this direction), then the incidence of integrated poverty experienced a very substantial increase during the 1981–1989 period, followed by stabilization (with some fluctuations) in the 1990s. This, then, is a pattern similar to the one previously discussed concerning income poverty.

Not only did the incidence of poverty expand during the 1984–1998 period, but there was also a change in its structure, with more people in extreme poverty and more indigence (strata not included in table

11.6).[26] The growth in indigence in fact explains the entire increase in the number of the poor. This implies a rise in the average intensity of poverty, and as table 11.6 shows, poverty intensity did grow much faster than the incidence of poverty. Poverty intensity (or the average gap for integrated poverty) rose throughout the period, from 0.391 in 1984 to 0.435 in 1989, 0.455 in 1992, and 0.479 in 1998. Indeed, the whole structure of social stratification worsened. This change can be succinctly expressed: in 1984 there were four indigents for every member of the upper class, while in 1998 there were almost seven; in 1984 there were two indigents for every member of the middle class, and in 1998 there were three.

Because not all the poor are equally poor, simply adding up the number of poor is like adding apples and oranges. It is useful, therefore, to shift our focus from the incidence of poverty to the equivalent incidence of poverty, using instead of the number of poor people the number of equivalent poor (that is, the standardized number of poor individuals). If we multiply the number of poor individuals in a household or in a stratum by their average gap, we estimate the equivalent incidence of poverty for the group; dividing this product by the total population, we derive the equivalent incidence. Table 11.6 shows that the equivalent incidence of poverty (as measured by the IPMM) grew very rapidly over the 1984–1998 period, from 0.268 in 1984 to 0.361 in 1998. This represented a substantial 19.0 percent increase between 1984 and 1989 and smaller increases between 1989 and 1992 and between 1992 and 1998.

In the author's view, the IPMM is the poverty measurement method that most appropriately grasps the magnitude of poverty. It does so because it considers five of the six sources of welfare outlined at the beginning of this chapter. On the other hand, the best practice for quantifying poverty whenever income or consumption expenditures are involved is to adjust survey income data to national accounts. Finally, the equivalent incidence of poverty is the most adequate measure of poverty for a nation or any given set of households.[27] On all these

[26] Indigence is defined here as a situation in which a household meets less than half of social norms. Extreme poverty is defined as being below two-thirds of those norms.

[27] This is not a fashionable statement. Indices like those constructed by Sen (1981: chap. 3 and appendix C) and by Foster, Greer, and Thorbecke (1984), which take into account income distribution among the poor, give the gap of the poorest a greater weight than its numerical value would grant directly. Both indices assume decreasing marginal welfare (or utility) at all levels of income. This is implicitly formulated in the "weak transfer" axiom (one of the three axioms from which Sen derived his index), which states that a pure transfer of income from a richer person to a poor person below the poverty line—without making either cross the poverty line—must reduce the poverty measure (Sen 1981: 186). The transfer implies an increase in the richer person's level of poverty and a decrease in the poverty level of the poorest. If the richer person is also below the poverty line (the only case of interest, as otherwise the equivalent incidence indicator meets the axiom), the only valid reason to argue that the decrease in the poverty level of the poorer person will be larger than the increase in the poverty level of the richer person is that marginal welfare (utility) is a decreasing function throughout. This, however, is disputable. For arguments along these lines and for alternative positions, see Desai 1992 and Boltvinik 1993: 636–38.

grounds, one must conclude that poverty grew substantially (by 34.7 percent) in Mexico between 1984 and 1998 (table 11.6).

The basic components of integrated poverty, as calculated by the IPMM, are unsatisfied basic needs (a direct measure of the actual dissatisfaction of a set of needs) and income-time poverty (an indirect measure of potential satisfaction of another set of needs, whose welfare source is current income, combined with actual dissatisfaction of free-time needs). Table 11.6 disaggregates the incidence, intensity, and equivalent incidence of unsatisfied basic needs and income-time poverty for the 1984–1998 period. Most notable are the inverse trajectories of unsatisfied basic needs and income-time poverty. The incidence of poverty as measured by the unsatisfied basic needs indicator declined significantly between 1984 and 1989 (from 75.0 to 70.1 percent), stabilized between 1989 and 1992, and then decreased again to 67.7 percent in 1998. Its 1998 level was substantially (9.7 percent) below the 1984 level. In contrast, both the incidence of income poverty (not shown in table 11.6) and the incidence of income-time poverty rose throughout this period, especially between 1984 and 1989.[28]

In which components of the integrated poverty measure did the equivalent incidence increase? Although the intensity of unsatisfied basic needs declined slightly between 1984 and 1989 (from 0.466 to 0.454 in 1989), the relative gap for income-time poverty grew substantially, from 0.484 in 1984 to 0.536 in 1989 (table 11.6). Intensities in both categories increased slightly between 1989 and 1992, and between 1992

[28] The incidence of income poverty rose abruptly between 1984 and 1989, from 41.3 to 55.6 percent. Income poverty as measured here, using a poverty line derived from the normative basket of essential satisfiers (NBES), differs from that measured by applying the poverty line method in its NBES variant, as in figure 11.2. The difference results from subtracting from the NBES the total cost of those items in the budget (such as housing) that were directly accounted for in the measurement of unsatisfied basic needs. At the same time, expenses for these categories were subtracted from household income, so that what is being contrasted is disposable income for a set of needs versus the cost of satisfying those needs at the normative level. See this chapter's methodological appendix for more details.

and 1998 the intensity of unsatisfied basic needs rose slightly while the intensity of income-time poverty increased substantially. Over the 1984–1998 period as a whole, although the intensity of unsatisfied basic needs poverty remained almost constant (a 2.8 percent increase), the intensity of income-time poverty increased significantly (18.2 percent). As a result of these changes, while poverty intensity in these two dimensions was quite similar in the initial year (less than a 4 percent difference), there was a wide gap by the end of the period (19.4 percent higher for income-time poverty).

Table 11.6 summarizes the average annual rate of change in the incidence, intensity, and equivalent incidence of integrated, unsatisfied basic needs, and income-time poverties in Mexico for the 1984–1989, 1989–1992, and 1992–1998 subperiods and for the 1984–1998 period as a whole. The data show that the equivalent incidence of integrated poverty increased by 34.7 percent over the entire period, and that this shift resulted from a 61.4 percent increase in the income-time equivalent incidence and a 10.3 percent drop in the unsatisfied basic needs equivalent incidence. In other words, the decline in the latter was insufficient to offset the brutal increase in the former. Because the increase in the intensity of integrated poverty (22.5 percent) was much greater than the growth of its incidence (9.9 percent), the magnitude of the increase in intensity explains a larger proportion of the overall change.

This conclusion highlights the limitations of employing the incidence of poverty as an isolated indicator, as well as the importance of taking intensity and equivalent incidence into account. Between 1984 and 1989, when unsatisfied basic needs poverty and income-time poverty followed very different trajectories, these differences appeared in both the incidence and intensity measures. While the incidence of unsatisfied basic needs poverty declined by 6.5 percent, the incidence of income-time poverty rose by 23.6 percent. And while the intensity of unsatisfied basic needs poverty fell by 2.6 percent, the intensity of income-time poverty rose 10.7 percent. In this case, too, the decline in the unsatisfied basic needs category was not sufficient to compensate for the rise in income-time poverty, so that both the incidence and the intensity of the integrated poverty measure rose (by 7.2 percent and 11.3 percent, respectively). Once again, the greatest increase was in intensity, which turned out to be the foremost contributor to the increase in equivalent incidence.

The IPMM and Fragmented Analysis: A Comparison of Findings

Up until this point in the analysis, we have obtained results that are consistent with the findings in the fourth section of this chapter. There

we found that, during the 1980s, different components of poverty evolved in contradictory fashion. Income poverty trends changed course and the incidence of income poverty began to increase, while specific poverties (defined in terms of basic needs, including education, living space, piped-in water, sewerage, electricity, and access to health care and social security) continued to decline, albeit more slowly than in the 1970s. We also found that, during the decade of the 1990s as a whole, educational and housing services poverties decreased rapidly, at rates above the pace of the 1980s but below the pace in the 1970s. Moreover, we found that the indicator for social security poverty rose during the first half of the 1990s for the first time in modern Mexican history, and that it was stagnant over the 1989–1999 period as a whole.

What the analysis in that previous section illustrated "externally" (using independent measures for each dimension) has been "internalized" and ratified in this section via the integrated poverty measurement method. Income poverty grew and unsatisfied basic needs poverty declined between 1984 and 1998. In the earlier, fragmented analysis there was no way to synthesize the totality of changes in poverty.[29] The most we could do was to point out the contradictions in the evolution of different poverties. In contrast, the integrated poverty measurement method has allowed us, first, to synthesize the entire set of indicators for specific poverties in terms of incidence, intensity, and equivalent incidence of unsatisfied basic needs as a whole.[30] Second, the IPMM has allowed us to include the income dimension, which was combined with free time to form the income-time dimension. The integrated poverty indicator is constructed as a weighted average of income-time and unsatisfied basic needs, expressed in the measures for incidence, intensity, and equivalent incidence.

Disaggregating unsatisfied basic needs into the specific poverties that comprise it confirms the following trends:

- The incidence of living space and housing quality poverty declined from 86.3 percent in 1984 to 78.8 percent in 1989 and to 76.4 percent in 1992,[31] ratifying the findings presented in the preceding section

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[29] The inability to synthesize is present in most poverty studies by international organizations such as the World Bank or the ECLAC. A similar problem characterizes the work of the vast majority of researchers who study poverty.

[30] Among the specific poverties included in the overall indicator for unsatisfied basic needs were health care and social security poverty. These were constructed as mixed indicators that take into account both access to health care and social security and the income of households lacking such access.

[31] This analysis has not been performed for the 1992–1998 period.

of this chapter concerning overcrowding in the 1980s.[32] The indicators for intensity and equivalent incidence declined as well.

- The incidence of sanitation deprivation poverty dropped sharply between 1984 and 1989, from 63.3 to 55.9 percent. It fell once again between 1989 and 1992, closing at 50.4 percent. Although intensity increased slightly during the 1989–1992 period, the final value was lower than in 1984, so that between 1984 and 1992 the intensity of sanitation deprivation poverty fell from 0.40 to 0.30.
- The proportion of the poor without sufficient access to durable household goods fell from 58.0 percent in 1984 to 53.0 percent in 1989 and to 51.9 percent in 1992. The intensity indicator also declined.[33]
- The proportion of the poor with an educational lag dropped dramatically, from 83.5 percent in 1984 to 74.7 percent in 1989 and 74.1 percent in 1992. Despite the high incidence of this form of poverty, it must be noted that the intensity was the lowest of all the indicators evaluated here. Moreover, the intensity measure declined from 0.40 in 1984 to 0.39 in 1989 and 0.38 in 1992.
- Health care and social security poverty behaved differently. Its incidence remained almost constant between 1984 and 1989, after which it changed course and increased to 48.1 percent by 1992—far above the 1984 figure. Intensity increased over the period examined, rising from 0.85 in 1984 to 0.88 in 1989 and 0.90 in 1992.[34] The equivalent incidence remained virtually unchanged from 1984 to 1989, after which it rose significantly in the 1989–1992 period to a level far above the initial year. The deterioration in this dimension of welfare during the 1989–1992 period coincided with the evolution of health care and social security poverty indicators between 1990 and 1995, although the time periods do not match. The trend in this area also contrasts with the decline in all the other indicators of unsatisfied basic needs.

[32] Besides overcrowding, this measurement includes an evaluation of the quality of dwellings in terms of the materials with which walls and ceilings are constructed and floors are covered.

[33] Change in this indicator depends upon household income, as does (but only partially) change in the indicator for housing poverty. The fact that it declined requires further explanation.

[34] These intensity levels have no parallel in the other categories examined here.

THE EVOLUTION OF POVERTIES AND MORTALITY RATES

In the mid-1980s, in the aftermath of the 1982 debt crisis, some observers of Mexico's social reality (including this author) expected that infant mortality rates would rise as a result of the brutal drop in the population's standard of living. Surprisingly, however, vital statistics for 1982, 1983, and subsequent years showed that infant mortality rates continued to decline. What observers did not understand at the time was that the satisfaction of certain needs such as education, health care, piped water and sewerage, and housing had not declined along with income. This section analyzes the evolution of mortality rates by age groups and outlines an overall hypothesis that links specific poverties and income poverty to mortality rates.

Poverty Kills

Countries with significantly different standards of living are also separated by enormous gaps in life expectancy. For example, in 1994 life expectancy in Japan was 79.8 years, but in Haiti it was only 54.4 years. The conclusion to be drawn is that there is a clear link between standard of living and average years of life. In other words, poverty kills.

Two specific pieces of evidence from Mexico show that, indeed, poverty does kill. Poor women in Mexico have more children, but these children are less likely to survive than the children of non-poor women.[35] This means that the poor die younger than the non-poor, which also means that they have a higher mortality proportion.

Table 11.7 presents information concerning the survival proportion (the number of surviving children divided by the number of live births) and its complement (1 minus the survival proportion), an indicator we label the mortality proportion. The data are stratified by standard of living and by urban and rural areas, and they are ranked from greater to lesser mortality proportion.[36] The survival proportion increases and

[35] The first piece of evidence draws upon results derived from a one-percent sample of the 1990 population census. The second is derived from the 1995 National Family Planning Survey. Details regarding the methodology employed in these studies can be found in Boltvinik 1996b: 17–19 and Romero 1999.

[36] There is a methodological problem in the calculation of mortality proportions. The events (births and deaths) used for the calculation of this proportion occurred over a relatively long period, but they are compared on the basis of a current social stratification. The evidence, however, suggests that this methodological difficulty is not an important problem in practice. The indigent/non-poor and poor/non-poor quotients for mortality proportions according to mother's age showed a surprisingly narrow range of variation. If we eliminate the 12–20 age group (which had very few observations in the non-poor strata), the indigent/non-poor quotient

the mortality proportion decreases as one goes from the poorer to the better-off strata and from the rural to the urban environment—showing that the expression "poverty kills" is not a metaphor but a crude reality. Variation in the mortality proportion in 1990 ranged from 12.8 percent among rural indigents to 4.0 percent among the urban upper class, a ratio of 3.2 to 1. If we adopt the urban upper class as a reference point, more than two-thirds of the deaths of rural indigents' children were avoidable.

Among all strata of the rural poor—and even in the "satisfaction of basic needs and income requirements" stratum—one can observe a mortality proportion that is more than twice that of the urban upper class. As a result, the average rural mortality proportion was 12.2 percent, over three times higher than the one corresponding to the urban upper class; the mortality proportion for the rural poor as a whole was 12.3 percent. This figure means that two-thirds of rural deaths—basically deaths of poor people—were avoidable.

The mortality proportion of the total rural population was substantially higher in 1990 than that of the total urban population (12.2 versus 7.5 percent). However, only part of this difference can be explained by the rural population's greater poverty. Comparing the same social strata in both environments, we note that there was always a difference in favor of the urban population. Part of the difference in mortality proportions must stem, then, from factors that are not measured by the poverty index. These would include, for example, access to health services.[37] Indeed, the ratio of mortality proportions among rural and urban indigents was 1.4 to 1; it was 1.3 to 1 among the very poor, and 1.5 to 1 among the moderately poor. Even among the population whose basic needs and income requirements were satisfied, the ratio was 1.9 to 1. If there were no significant measurement errors, these figures would indicate that rural-urban mortality differences sharpened at higher standard-of-living levels.

ranged from 1.48 among mothers over 70 years of age to 2.73 among those aged 31 to 40, while the poor/non-poor quotient varied from 1.40 to 2.28. If the group of mothers above 70 years of age is eliminated, the range of variation in the quotients becomes very narrow (ranging from 2.13 to 2.73 in the first case and from 1.86 to 2.28 in the second instance). Thus the conclusions presented in the text would not be altered if we calculated mortality proportions only for the youngest group of women, thereby shortening the time gap between the events (births and deaths) and the stratification employed in this analysis.

[37] The calculations presented here using the integrated poverty measurement method employed data from the 1990 population census (see Boltvinik 1994), which did not include any questions on access to health services.

TABLE 11.7. Mortality and Survival Proportions in Rural and Urban Mexico, by Standard-of-Living Stratum, 1990

Environment and Stratum	Mortality Proportion[1] (percent)	Survival Proportion[2] (percent)	Relative Mortality Proportion[3]
Rural indigents	12.8	87.2	3.2
Rural very poor	9.8	90.2	2.5
Rural moderately poor	9.7	90.3	2.4
Rural satisfaction of basic needs and income requirements	9.4	90.4	2.4
Urban indigents	8.8	91.4	2.2
Urban very poor	7.4	92.6	1.9
Urban moderately poor	6.4	93.6	1.6
Urban satisfaction of basic needs and income requirements	4.6	95.3	1.2
Urban middle class	4.2	95.8	1.1
Urban upper class	4.0	96.0	1.0
Total rural poor	12.3	87.7	3.1
Total rural population	12.2	87.8	3.0
Total urban poor	8.0	92.0	2.0
Total urban population	7.5	92.5	1.9
Total poor	9.4	90.6	2.4
Total population	8.7	91.3	2.2

Source: Boltvinik 1994: chap. 12.

[1] Calculated as non-survivors among live births, multiplied by 100.

[2] Equal to survivors among live births, multiplied by 100.

[3] Equal to each stratum's proportion of mortality, divided by the urban upper-class proportion.

Romero (1999) used micro-level data from the 1995 National Family Planning Survey and the integrated poverty measurement method to stratify Mexico's population. He presented results for nine priority states (Chiapas, Guanajuato, Guerrero, Hidalgo, the State of México, Micho-

acán, Oaxaca, Puebla, and Veracruz, states that include the country's poorest areas) and for Mexico as a whole, calculating infant mortality for each stratum. Romero's findings confirmed a strong link between infant mortality and social stratum. Indigents had an infant mortality proportion of 41.3 for every 1,000 live births; the corresponding figure for the non-indigent poor was 26.5, and for the non-poor it was 22.0. Thus the infant mortality proportion among the non-poor was approximately half that of indigents.

Yet if poverty kills and the poor die at a younger age, why did the expected change in mortality statistics not materialize in the mid-1980s, despite obvious signs that poverty was increasing? Is what can be verified in a cross-sectional analysis (such as that presented above) also true over time? We know that mortality rates have declined in virtually all countries where there has been sustained improvement in living standards, but is the opposite also true? In other words, when poverty increases in a society, do mortality rates also rise? The following section analyzes the evolution of mortality rates in Mexico.

The Evolution of Mortality Rates in Mexico by Age Group

Table 11.8 presents a synthesis of the evolutionary stages of mortality rates by age group between 1970 and 1999. In the case of mortality rates in the population between the ages of 0 and 14 years, it distinguishes among seven periods defined in terms of the economy's overall performance. In operational terms, an economic crisis existed whenever the average annual rate of change in GDP per capita was negative in most years (1982–1988, for example). Average GDP per capita growth of less than 2 percent per year defined a mild recession (1976–1977, for instance), whereas a per capita GDP rate above 2 percent annually in most years defined a growth period (1996–2000, for example). Mortality rates were calculated for periods that approximate (but do not always precisely overlap with) economic periods.

Despite underreporting and other problems,[38] the overall tendency in the infant (under one year of age) mortality rate appears reliable. During the 1970s (up to 1981), the rate fell slowly during the years from 1974 to 1977 (a period of mild recession) and experienced very rapid drops during two periods (1970–1974 and 1977–1986) that partially coincided with eras of strong economic growth. Infant mortality rates continued decreasing despite the outbreak of Mexico's debt crisis in 1982 and the collapse of oil prices, but the decline ended suddenly in 1986. Whereas the rate of decrease had been 7.3 percent per year between 1977 and 1986, infant mortality rose at an average rate of 0.9 percent annually between 1986 and 1990. This might be interpreted as a lagged response to the 1982 debt crisis, or as a consequence of the new recession in 1986 and its impact on the already deteriorated income levels of the population.

[38] See the explanatory note in table 11.8 for further details.

As we have seen in the analysis of opportunities for social welfare, total consumption per adult equivalent (TCAE) reached its lowest level in 1989. When TCAE began growing again during the 1989–1994 period, infant mortality again declined quickly. The infant mortality rate experienced a new period of slow growth during the 1993–1995 period (one that partially coincided with the period of economic contraction), but it then improved during the 1996–2000 period of economic recovery. In fact, all the drop in the 1994–1999 period came between 1997 and 1999 when strong economic growth resumed. Therefore, except for the 1982–1986 period, there was an almost perfect (negative) correlation between the rate of decline in infant mortality and growth in total consumption per adult equivalent.

From 1970 to 1999, infant mortality rates declined from 74.9 to 18.8 per thousand live-birth children. Of the total decline of 56.1 points that occurred over these three decades, the 1970s contributed more than half (30.3 points). The 1980–1999 period included ten years of mortality stagnation or slower decline (1986–1990 and 1993–1999), a period when the net decrease in infant mortality rates totaled only 2 percentage points.

In general, mortality rates for the pre-school population (ages 1 to 4) displayed a pattern similar to infant mortality rates. However, instead of a slow drop, this rate increased during the 1974–1977 period. The second very rapid decline in pre-school mortality rates coincided closely with the 1978–1981 oil boom. There was no lagged response to the start of the 1982 debt crisis, and the period of stagnation in mortality rates was longer. During the lengthy period of economic stagnation from 1982 to 1990, the pre-school mortality rate fell by a cumulative total of only 14.4 percent. Yet the rate of decline during the economic recovery of the early 1990s was the highest recorded in table 11.8. This phase lasted only two years, but the drop in mortality rates (from 2.2 to 1.2 per thousand inhabitants) meant an absolute decrease equivalent to that achieved during the whole of the 1980s. The accelerated decline in pre-school mortality rates during the 1996–2000 period of economic recovery was also sharper than for infant mortality rates.

Mortality rates for the school-age population (ages 5 to 14) showed almost identical periods and patterns of evolution as those for the pre-school group. The principal exceptions were the absence of positive

TABLE 11.8. Evolution of Mortality Rates by Age Group and Economic Growth in Mexico, 1970–1999[1]

	Final Import-Substitution Period, 1971-1918			Economic Crisis, 1982-1988	New Economic Model, 1989-2000		
	Growth, 1971–1975	*Mild Recession, 1976–1977*	*Oil Boom, 1978–1981*		*Recovery, 1989–1994*	*Crisis, 1995*	*Recovery, 1996–2000*
Infant mortality	–6.3 (1970–1974)	–1.7 (1974–1977)	–7.3 (1977–1986)	0.9 (1986–1990)	–8.6 (1990–1993)	–1.7 (1993–1995)	–3.0 (1995–1999)
Pre-school mortality	–15.6 (1970–1974)	1.0 (1974–1977)	–12.3 (1977–1982)	–1.7 (1982–1990)	–25.8 (1990–1992)	–1.3 (1992–1996)	–8.1 (1996–1999)
School-age mortality	–8.1 (1970–1975)	–2.4 (1975–1979)	–8.1 (1979–1983)	–1.6 (1983–1990)	–10.0 (1990–1994)	–0.6 (1994–1997)	–3.1 (1997–1999)
Younger-age mortality trends	*Very rapid drop*	*Slow drop*	*Very rapid drop*	*Stagnation*	*Very rapid drop*	*Slow drop*	*Average drop*
Productive-age mortality	←---------- –2.0 ----------→ (1970–1981)			–3.3 (1981–1991)	←---------- –1.4 ----------→ (1991–1999)		

Sources: Author's calculations using corrected population data from the Consejo Nacional de Población (CONAPO), except for the 0–1 and 1–4 age-group disaggregations for the 1970–1994 period, which are the author's own calculations. For the 1970–1979 period, data concerning the number of deaths in each age group are from Camposortega 1992: tables 3.9, 3.10; for the 1980–1999 period, these data are from the Secretaría de Salud and the Instituto Nacional de Estadística, Geografía e Informática (INEGI). Data concerning gross domestic product per capita (see below) are the author's calculations based on data in INEGI, "Banco de información económica" (www.inegi.gob.mx) and CONAPO's population series.

Note: The average annual rate of change in real gross domestic product per capita for the economic sub-periods identified at the top of the table were as follows: 1971–1975, 3.3 percent; 1976–1977, 1.1 percent; 1978–1981, 6.6 percent; 1982–1988, –2.1 percent; 1989–1994, 2.0 percent; 1995, –8.0 percent; 1996–2000, 3.9 percent.

Population statistics are troubled by many problems. The number of both live births and deaths, especially at younger ages, is a matter of dispute. For a strong criticism of CONAPO estimates, see Ordorica 2001. Nonetheless, the only coherent long-term population figures are from CONAPO. Thus, rather than using census data and interpolating for intermediate years (the result of which would not be a smooth series), CONAPO estimates were used for the calculations reported in this table.

Infant mortality rates were calculated using as the denominator the population of less than one year of age, rather than the more usual number of births (which fluctuate abruptly from year to year). Before adopting this decision, the author compared three sets of infant mortality rates for the 1985–1999 period, all of them using the same numerator (the number of deaths) but with three different denominators: (1) population 0–1 years of age; (2) total births registered each year; and (3) registered births of babies born in the same calendar year (excluding babies registered with a time lag). This exercise showed that the infant mortality rate is lowest (that is, the denominator is at its maximum) with the second option; it is highest with the third option. The first option (the one adopted in this analysis) yielded an intermediate rate. The trends are, nevertheless, determined more by the numerator than by the denominator. As a result, the series derived by using the first and third options are completely parallel, but their distance diminishes progressively from 3 deaths per thousand in 1985 to 1 in 1999. The series derived by using as the denominator the total births registered each year generally moves in parallel with the other two, but it moves in the opposite direction in several years.

[1] Average annual rate of change for each period indicated.

rates during the mild recession of 1976–1977 and some differences in the speed of decline during the 1990s. There was a very rapid drop in school-age mortality between 1979 and 1983, when the rate fell from 8.3 to 6.3 per thousand school-age children (a 25.3 percent decline in just four years). As in the case of the infant and pre-school populations, the school-age mortality rate stagnated between 1983 and 1990; the rate fell from 6.3 to 5.6 per thousand, representing an 11.1 percent decline over seven years. During the 1990s, there was a period of especially rapid decline between 1990 and 1994, a period of stagnation between 1994 and 1997, and a period of average decline in mortality rates from 1997 to 1999.

In contrast to these trends for Mexico's younger age groups, changes in mortality rates for the productive-age population (15–65 years) coincided with just three longer economic periods: the last phase of import-substitution industrialization (1970–1981), economic crisis (1981–1991), and the shift to a new economic model (1991–1999). Despite the impact of the post–1982 economic crisis, the rate of decline accelerated from the 1970s to the 1980s. However, it then decelerated substantially during the 1990s. The overall drop in the productive-age mortality rate was from 5.5 to 2.8 deaths per thousand (a decline of 49.1 per cent). Somewhat surprisingly, the largest drop occurred during the 1980s.[39]

The Relationship between Poverties and Mortality Rates

The preceding discussion identified phases in the evolution of mortality rates by age group. Trends in mortality rates for infants, pre-schoolers, and school-age children each defined seven successive phases from 1970 to 1999 with the same sequence: very rapid decline, slow decline, very rapid decline, stagnation (during the 1980s), very rapid decline, slow decline, and average decline. Rates for the productive-age group stagnated in the 1990s.

This pattern presents a double challenge. The first task is to explain the interruptions or decelerations in the downward trend in mortality rates at three moments in time: the mild recession of the mid-1970s, a part of the 1980s (associated with the debt crisis and the fall in oil prices), and the 1995 recession. The second challenge is to explain why mortality rates for the productive-age population do not seem to be affected by economic ups and downs (as the rates for younger age groups are), and why these rates decelerated during the 1990s when the rates for other age groups were recovering their earlier pace of decline.

[39] The following subsection offers a preliminary interpretation of this pattern.

On the basis of the evidence presented earlier, it is perfectly valid to hold that two forces acting in opposite directions came into play in the determination of mortality rates during the 1980s. On the one hand, the increase in income poverty eroded some aspects of the population's living standards. Several of these aspects are directly linked to the chances of becoming ill and dying: nutritional intake, access to health services for individuals not covered by social security (who had, therefore, to pay for such services), and housing for persons who did not own a home and had to pay rent. The worsening of conditions in these areas drew mortality levels upward. On the other hand, living conditions whose satisfaction depends mainly upon public expenditures (school attendance, education, public health care, piped water, sewerage, and the availability of household electricity) or which are a stock variable (such as housing) continued to improve during the 1980s. These improvements pushed mortality rates downward. As a result, mortality rates during the decade were simultaneously subjected to upward and downward forces—forces that nearly canceled each other out and produced stagnating mortality rates.

The 1990–1994 period (or a similar one, depending upon the precise years for which data are available) was noteworthy for the simultaneous recovery of trends toward rapidly declining mortality rates among the three youngest age groups. This development was linked to the favorable evolution of some specific poverties and to the stabilization of income poverty. It is also likely that some technological advances in medicine (such as oral rehydration and an increased emphasis on improved health care for mothers and infants) and changes in reproductive patterns (see below) may have shifted the relationship between living standards and mortality rates. This may have been particularly true for infant and pre-school mortality rates, although it is very difficult to establish the quantitative impact of such changes.

Since the 1970s, then, living conditions have been the principal determinant of mortality rates by age group, especially at younger ages. These forces lagged in the case of infant mortality, but pre-school and school-age mortality rates stagnated almost immediately in the 1980s as a result of a drop in family income levels. Rapid declines in mortality rates promptly reappeared in the 1990s when living conditions began to improve and income poverty tended to stabilize.

Mexican demographers (Hernández Bringas 1998; Romero 1999) have identified certain factors that can be interpreted as causing a downward trend in infant mortality rates independent of living conditions. Three sets of factors appear especially important in this regard: women's reproductive patterns and maternal health care, the mother's level of education, and whether the mother breast-feeds her baby. In

the first set of factors (the most important of the three), the interval between births, the number of children, and the mother's age are the determining variables. According to Hernández Bringas, the reproductive pattern of Mexican women underwent great changes during the 1980s, and he concluded that this shift largely explained why infant mortality rates continued to decline despite the severity of the country's economic crisis.[40]

The behavior of productive-age mortality rates is more difficult to unravel. It is particularly hard to explain why, despite falling incomes, mortality rates continued to drop during the economic crisis of the 1980s. Part of the explanation surely lies in the fact that social security coverage continued to expand at a steady pace during that period—in stark contrast to the sharp shrinkage of coverage during the early 1990s.

It is important to note that a complex process of economic restructuring between 1990 and 1995 displaced many people from their jobs, which was a factor underlying the contraction of social security coverage during this period. Mexico's adoption of the neoliberal economic model brought free trade, privatization, and the rule of the market. In terms of labor, it encouraged businesses to decentralize many activities, a shift that often transformed contractual employees with social security coverage into unprotected independent contractors and freelancers. Layoffs did not necessarily appear in unemployment statistics because there is no unemployment insurance in Mexico, but in practice they meant the loss of social security benefits. This change, in addition to the loss of access to organized, prepaid, and subsidized health services, worsened the impact of losing a stable income. Job loss also entails stress that can manifest itself as cardiovascular problems or alcoholism—factors related to a very significant proportion of deaths in the productive-age group.

POVERTY, MORTALITY, AND OPPORTUNITIES FOR SOCIAL WELFARE

As noted earlier, the tendency for mortality rates to decline stagnated in both the 1980s and the two other periods of economic recession we have identified (1976–1977 and 1995), particularly among younger age groups. The relationship between the two sets of welfare indicators (household income and satisfaction of specific basic needs) and mortality requires much more analysis. Nevertheless, there is a discernible functional relationship; both sets of indicators affect mortality. When they move in the same direction, as they did in the 1970s, mortality drops rapidly; when they move in opposite directions, as occurred in the 1980s, mortality rates remain stagnant. This allows us to postulate the following counterfactual hypothesis: if public expenditures had declined rapidly in the 1980s, mortality rates in Mexico would have increased.

[40] Perhaps because he based his analysis on demographic surveys (rather than the administrative records employed in the present study), Hernández Bringas did not identify the period of stagnation in infant mortality rates.

Two sets of public policies were important determinants (although they were not the only ones) in the evolution of each set of welfare indicators. Economic policy was a crucial determinant of household income, while social policy significantly influenced the satisfaction of specific basic needs. Thus our findings in this area highlight the joint action of economic and social policy. In the 1970s, economic and social policies acted in the same direction, improving both dimensions of welfare (income poverty and specific poverties) and producing an accelerated decline in mortality rates. This pattern contrasts with the 1980s, when economic policy (and economic crisis) produced an increase in income poverty but social policy maintained basic social services (education and health care); extended water, sewerage, and electricity coverage to households; and supported the consolidation of households in poor neighborhoods by regularizing land ownership and providing support services. In the 1990s, there was a partial return to the virtuous circle of the 1970s, as manifested by a renewed decline in mortality rates among younger age groups. The picture was clouded, however, by stagnation in mortality rates within the productive-age group.

The examination of opportunities for social welfare in Mexico that was presented earlier in this chapter included only the 1981–2000 period. However, on the basis of the many indicators presented in the course of this analysis, we can conclude with a high degree of confidence that opportunities for social welfare increased rapidly between 1970 and 1981. There is also sufficient indirect evidence to estimate the direction and rate of change for other indicators even when the period of analysis did not include the 1970s. Thus this concluding section summarizes in qualitative terms what occurred over the course of the three periods analyzed: 1970–1981, 1981–1989, and 1989–1999. The following paragraphs present this information through a vertical reading of table 11.9.

From 1970 through 1981 or 1982 (the last phase of inward-oriented development), there was positive synergy in all aspects of social welfare in Mexico. The central objective of public policy was to maintain economic growth despite the exhaustion of the import-substitution model (Boltvinik and Hernández Laos 1981) and to generate well-paying

TABLE 11.9. Overall Assessment of the Evolution of Well-Being in Mexico, 1970s–1990s

Category	1970s	1980s	1990s
Opportunity set for social welfare	Rapid increase	Rapid decline	Slow increase, with fluctuations
Non-egalitarian opportunity set for social welfare	Rapid increase	Decline	Increase, with fluctuations
Equality (income)	Rapid increase	Rapid decline	Slow decline, with fluctuations
Equality (free time)	NA	Increase	Rapid decline, with fluctuations
Equality (education)	NA	Slow decline	Decline
Poverties of education, living space, and housing services	Very rapid decline	Decline	Rapid decline
Poverties of health care and social security	Very rapid decline	Decline	Slow decline
Income poverty	Very rapid decline	Very rapid increase	Increase, with fluctuations
Integrated poverty	Very rapid decline	Rapid increase	Slow increase, with fluctuations
Mortality in young age groups	Very rapid decline	Stagnation (part of period)	Rapid decline (except for years around 1995)
Public social spending per capita	Rapid increase	Stagnation	Increase
Character of public policies	Final phase of import-substitution development	Stabilization and introduction of the neoliberal model	Structural adjustment and consolidation of the neoliberal model

NA = Not available

jobs. Wage policies protected real wages, which continued to rise until 1981 (Boltvinik 1998: 259–70). However, the high point in wages' share in gross national product (the so-called functional distribution of income) came in 1976.

Opportunities for social welfare increased as a result of both rising average achievements and greater income equality (the only dimension of equality with data available for this period). The government contributed significantly to the growth of these opportunities through greater public social expenditure, which expanded public social consumption rapidly (table 11.9 and figure 11.3). These increased opportunities translated into a very rapid decline in all the specific poverties analyzed. Improved living conditions and wider access to health care explain the very rapid drops in mortality rates for younger age groups. The articulation between economic and social policy was positive; both contributed to the improvement of living conditions. However, the pattern of growth that was achieved—based in part on the petroleum boom and foreign borrowing between 1978 and 1981—clearly could not be sustained in the face of radical changes in external parameters (the sudden drop in oil prices accompanied by the simultaneous rise in international interest rates). The period ended with the onset of a severe economic crisis in 1982.

During the 1980s Mexico abandoned the import-substitution industrialization model in favor of the neoliberal model, reversing nearly every positive result achieved in the previous period. The principal goal of economic policy—to which all other objectives were subordinated—was to service Mexico's foreign debt. The debt crisis did not just interrupt the flow of foreign capital; it actually reversed the flow, and Mexico found itself having to transfer substantial quantities of capital abroad. The country financed these transfers with large trade surpluses, which economic policy achieved by reducing aggregate demand via peso devaluations, accelerating inflation, and holding nominal wage increases below the rate of inflation. These policies produced drastic declines in real wages and in wages' share of national product, placing the costs of economic adjustment almost entirely on workers (Boltvinik and Torres 1987). Opportunities for social welfare suffered a rapid decline as a result of both the deterioration of average achievements and the increase in income inequality, despite the favorable but very slow change in educational equality and free-time equality that occurred between 1984 and 1989.

The decline in opportunities for social welfare did not, however, translate into widespread increases in all poverties. Although income poverty rose very rapidly, specific poverties continued to decline. This was a result of public social expenditure, which did not fall despite the

severe financial crisis in the public sector. Indeed, per capita social expenditure grew (albeit slowly) in real terms during this period. The worsening of some aspects of the Mexican population's standard of living (aspects that were satisfied through the market and that depended upon families' monetary income) and the continuing improvement in other aspects (elements that were not dependent upon families' monetary incomes) translated into stagnation in mortality rates for younger age groups. Although the government's economic policy pauperized the population, its social policy acted in the opposite direction.[41]

The 1990s witnessed the consolidation of the neoliberal model, with rather mixed consequences for welfare and equality. Real per capita public social expenditure grew at a moderate pace (below the rate of the 1970s but above that of the 1980s). Average achievements, which constitute the non-egalitarian opportunity set for social welfare, halted their decline and (with some ups and downs) expanded substantially. Yet equality in income, free time, and education decreased. Indeed, in the year 2000 income and free-time equality reached their lowest levels ever. As a result, opportunities for social welfare grew very slowly, ending the century at levels below those attained in 1981.

In the 1990s the evolution of specific poverties underwent a change compared to the 1980s. Although education, housing, and housing services poverties resumed a rapid decline, the average of health care and social security poverties experienced only a slow decrease as a result of zero change in social security poverty and an average decline in health care poverty. In other words, both sets of specific poverties fell at a similar pace and behaved in a uniform manner during the 1980s, but their evolution was not uniform during the 1990s.

During this same period, the trajectory of mortality rates showed a rapid decline positively associated with the favorable, though slow, increase in opportunities for social welfare. A number of trends favored the decline in mortality rates in the 1990s, including significant growth in non-egalitarian opportunities for social welfare; the slow but positive growth in opportunities for social welfare; the very rapid fall in education, housing, and housing services poverties; the slow decrease in health care poverty; and the average increase in public social expenditure. The unfavorable elements were increases in all the inequalities measured here; the stagnation in social security poverty; and growth in income and integrated poverties.

Whether these changes were sufficient to explain the very rapid fall in children's mortality rates is an open question. It is likely that changing medical treatments and emphases in health care, as well as shifts in the reproductive patterns of Mexican women, also contributed to this decline.

There is nothing in this analysis to suggest, even indirectly, that social policy during the 1970s was inefficient or inefficacious. The simplistic view upon which the shift to targeted social welfare programs was based—a perspective that maintains that non-targeted expenditure represents a waste of resources—does not take into account the complexity of social dynamics. Radically transforming large population groups' access to goods and services can provoke a cultural change that converts the goods and services in question into a social need. In sum, the analysis presented in this chapter has yielded nothing that justifies the Mexican government's shift in the mid-1990s to the so-called new poverty agenda.

[41] Paradoxically, this period included the De la Madrid administration, which ended some of the anti-poverty programs in operation during the administration of President José López Portillo (1976–1982). It discontinued completely the Mexican Food System (SAM) but maintained those elements of COPLAMAR that had been institutionalized. These included IMSS–COPLAMAR, which continues operation under the name IMSS–Solidaridad and provides free health care services to the rural population not protected by the IMSS. Similarly, CONASUPO–COPLAMAR, a joint program with the National Basic Foods Company (CONASUPO), continues to provide basic supplies in rural areas.

METHODOLOGICAL APPENDIX

The Methodology for Measuring Poverty: The Normative Basket of Essential Satisfiers and the Integrated Poverty Measurement Method

This appendix provides a brief explanation of two principal methods used in this chapter to measure poverty: the poverty line procedure based on the normative basket of essential satisfiers (NBES), and the integrated poverty measurement method (IPMM).

The Poverty Line Procedure Based on the Normative Basket of Essential Satisfiers

This poverty line methodology is known as the budget approach. The first step is to determine the basket of goods and services required by a given household during a particular period (a year, for instance). In the case of consumer durable goods, one needs to distinguish between the quantities required and their annual use by the household, the former being larger than the latter. For example, a household requires a stove but uses, consumes, or depreciates only 0.10 stoves each year (if the stove's useful life is estimated to be 10 years). In the case of nondurable

goods such as food, both quantities are equal. The basket is defined by the vector of quantities of annual use. This vector must be multiplied by the prices of goods and services in order to obtain the annual cost of each item. The sum of the annual cost of all items yields the annual cost of the normative basket of essential satisfiers, which constitutes the poverty line. This cost is compared with a household's income or consumption to determine whether or not the household is poor.

There are two main problems involved in calculating normative requirements. The first consists of defining the foundations for those normative requirements. In constructing the NBES, two main criteria were employed: Mexico's social reality, as reflected in the list of goods and services frequently consumed by households; and Mexican law, which reflects a combination of reality and goals. The NBES is thus an operational definition expressing a concept of relative poverty.

The second difficulty is that the list of total requirements must be classified into two groups: those satisfiers that must be met through private consumption (that is, the satisfiers that must be produced by, or whose cost must be paid for by, households), and those satisfiers that are to be met through public expenditures (via government programs, public social security institutions, and so forth). Only satisfiers in the first group should form part of the poverty line, because this is to be compared with a household's current income or private consumption expenditures.

At this point, there are two possibilities. The simplest one consists of defining a unique classification of satisfiers in both groups, which is then applied to all households. The second, though more laborious, option consists of specifying for each household a classification according to its particular circumstances where access to public transfers is concerned. The first approach was adopted when the NBES measure was constructed under the auspices of the General Coordination of the National Plan for Depressed Areas and Marginalized Groups (COPLAMAR) in the early 1980s. The satisfiers that are to be met through public expenditures or social security were primary and secondary education, for both the school-age population and adults; health-care services; and water supply and sewerage infrastructure. Access to these services would then be through public transfers. Households would have to take care of all other satisfiers, which means that access to these is through the market or through self-production. Applying this single classification to all households facilitated the necessary calculations but underestimated the level of the poverty line because, for example, a household lacking free access to public health services has to pay for such expenses—even though these are not contemplated in the poverty line.

The resulting poverty line is then compared with household income. Here again, COPLAMAR's procedure was a simplified one. The poverty line was defined for the national average household size and age structure. A better and more accurate alternative would have been to define a poverty line for each household, which can be done by calculating the NBES per person or per adult equivalent so that the poverty line applied to each household is the result of multiplying this unitary cost by the number of persons or equivalent adults in each household.

The Integrated Poverty Measurement Method

The integrated poverty measurement method combines two previously existing methodologies: the poverty line procedure based on the normative basket of essential satisfiers, and the improved version of the unsatisfied basic needs method (see Boltvinik 1992c and Government of Bolivia 1994). Its foundation is the conception of a household's sources of welfare (set forth in the first section of this chapter) and the consequent critique of the poverty line and unsatisfied basic needs methodologies.

In brief, this critique holds that the main limitation of both the poverty line and unsatisfied basic needs methods is that they proceed as if satisfaction of basic needs depended only upon a couple of welfare sources. The poverty line method, for instance, assumes that needs satisfaction depends only upon current income or households' current private consumption. Similarly, in its usual applications in Latin America, the unsatisfied basic needs method assumes that need satisfaction depends only upon basic asset holdings (housing) or rights of access to free or subsidized services (piped water, sewerage, children's attendance at a primary school). Implicitly, therefore, it does not consider any of the other sources of welfare.

The integrated poverty measurement method was developed to account fully for all welfare sources. In order to achieve full complementarity of the two methods on which the IPMM rests, it is necessary to specify which needs are to be assessed by the unsatisfied basic needs method and which are to be assessed by the poverty line method. In principle, all needs whose satisfaction in most households depends predominantly upon public expenditure (consumption and investment), household patrimony (accumulated assets), and available time should be assessed directly by the unsatisfied basic needs method. Needs whose satisfaction depends essentially upon current private consumption should be assessed by the poverty line method.

In applying the IPMM, the analysis assessed six dimensions of welfare via the unsatisfied basic needs or direct method, and one dimension

(health care and social security) via a mixed procedure. The six dimensions assessed by the unsatisfied basic needs method were: (1) *inadequacy of housing quality and quantity*, an indicator constructed by multiplying the values for two component elements: inadequacy of the building materials used in walls, roofs, and floors; and insufficiency of housing space per dweller (overcrowding), as measured by the relationship between the total number of rooms and the total number of dwellers while taking into account the different types of household space (kitchen, bedrooms, living rooms, and so forth); (2) *inadequacy of sanitary conditions*, the weighted average of indicators for water supply, sewerage, and single-household toilet facilities; (3) *inadequacy of other services*, the weighted average of indicators for electricity and telephone (in the latter case, only in metropolitan areas); (4) *inadequacy of basic patrimony* (as in the case of income, an indicator of one of the sources of welfare rather than of a particular need), including appliances used for food preparation and conservation, personal hygiene, and recreation; (5) *educational deprivation* (the educational gap), measured by child school attendance and adult educational levels (where literacy acts as a controlling element); and (6) *excess working time*, an inverse indicator of available time for education, recreation, and domestic work, as well as an indicator of one of the sources of welfare.

As noted above, a mixed procedure was used to construct an indicator for inadequate access to health care and social security. For the population lacking access to social security, the poverty line was increased to include the cost of private health care and insurance. The satisfaction of all other needs was identified by the poverty line or indirect method, comparing households' income per adult equivalent (with the poverty and extreme poverty lines also defined in terms of adult equivalents).

When applying the improved unsatisfied basic needs method, one starts by building an achievement indicator, which involves assigning scores to variables such as those mentioned above and defining the minimum norm for each dimension. This indicator is then standardized by dividing it by the normative score, so that the variable is expressed as a multiple of the norm. The variable thus loses the original unit of measurement in which it was expressed and becomes a pure number. The next step is to make uniform (insofar as it is possible) the range of variation in the standardized indicators by rescaling all values above 1 (the normative score) when there are values above 2, so that these values will range from 1 up to 2. The goal is for all indicators to vary from 0 to 2, with 1 as the normative value. The final step is to transform this achievement indicator into a deprivation indicator, which is done by subtracting its value from 1. Deprivation indicators will thus vary from

–1 to 1, with 0 as the normative value. It follows that positive values express deprivation and negative values express welfare. Unfortunately, because of the limited options built into survey questionnaires, it was not possible to achieve the complete range for all indicators. Therefore, the values of some deprivation indicators vary only from 0 to 1.

Following this approach, one obtains for each household six indicators of deprivation by the unsatisfied basic needs method, one by the poverty line method, and the mixed indicator. The synthesized indicators for each of the first five dimensions of unsatisfied basic needs (inadequacies of housing quality and quantity, sanitary conditions, other services, basic patrimony, and education) and the mixed indicator for health care and social security are combined as a weighted arithmetical mean to obtain the overall unsatisfied basic needs indicator for each household, which indicates the degree of dissatisfaction of the set of needs that is verified directly (or the intensity of unsatisfied basic needs poverty). The excess work and the income indicators are combined into a time-income indicator. This measure is constructed by dividing income by an excess working time index, before comparing it with the poverty line to obtain a measure of the intensity of income-time poverty. A system of cost-based weights, derived from the cost structure provided by the normative basket of essential satisfiers, is then used to integrate all of the indicators described above.

By thus integrating the poverty line–time and the intensity of poverty line–time measures, and the unsatisfied basic needs and intensity of unsatisfied basic needs measures, one obtains an integrated poverty indicator for each household, which shows both whether the household is poor (or not poor) and the intensity of its poverty. Once the poor and the non-poor populations have been identified by each of the partial methods and by the integrated method, one proceeds to (1) define three strata each for the poor population (according to the intensity of their poverty) and the non-poor population (according to their degree of wealth), and (2) calculate the main poverty indices (incidence, intensity, and equivalent incidence) for each stratum and for the poor population as a whole.

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12

Income Distribution and Poverty Alleviation in Mexico: A Comparative Analysis

Diana Alarcón

INTRODUCTION

Deteriorating living conditions throughout most of Latin America during the 1980s, along with the negligible improvements that occurred in the 1990s, brought renewed attention to issues of poverty and inequality. Although Mexico has been among the Latin American countries implementing a new wave of structural economic changes to recover its growth potential, the evolution of poverty and inequality is far from satisfactory.

Early in the 1980s, low petroleum prices and rising international interest rates forced the Mexican government to adopt radical stabilization and structural adjustment programs in order to restore macroeconomic stability. In the mid-1980s a second round of reforms aimed to trigger major structural changes in the economy. Although Mexico made rapid progress in altering the composition of exports—away from petroleum and into more diversified manufactured exports—macroeconomic instability remains a problem. Trapped by a heavy burden of foreign debt and highly dependent upon international capital flows, the performance of the Mexican economy has followed cyclical changes in the expectations of international investors. Almost two decades after the adoption of major reforms, Mexico's economic growth is highly unstable and subject to recurrent crises of confidence.

The most controversial aspect of Mexico's neoliberal reform program has been its failure to improve the living conditions of large sectors of the population. The adoption of broad social programs has failed to reverse the sharp deterioration in living conditions that took place in the 1980s. Indeed, all available measures reveal unfavorable trends in poverty and income distribution.