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# RESEARCH REPORTS AND NOTES

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## THE LINKAGE BETWEEN POPULATION AND ECONOMIC GROWTH IN MEXICO: A New Policy Proposal?\*

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The Mexican government recently proposed as a medium-term objective that the minimum rate of economic growth should be twice the rate of population growth (Mexico, Presidencia de la República 1988). This proposal may indicate a renewed interest in Mexico in linking demographic variables to the economic and development issues of the country. In proposing such a target, the Mexican government seems to be suggesting that its long-term development plans will hinge on criteria that depart radically from those recently used to assess the performance of these plans. The proposal seems particularly revealing because it came from President Carlos Salinas de Gortari, who is an economist himself.

This policy outline seems to constitute explicit acknowledgment that the Mexican economic system has suffered enormous strains due to

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demographic growth in Mexico in the past four decades. Moreover, the population momentum (the ultimate size of the stationary population) is expected to equal 1.9 times the 1985 population of eighty million Mexicans. Another example of this demographic inertia is the high and stable rate of growth of the economically active population, estimated at 3.2 percent per year for 1980–1985 (World Bank 1988, tt. 27, 31). Several economists have suggested that these strains have contributed significantly to progressive exhaustion of the model of development that was providing increasing standards of living for a rapidly growing population until the early 1970s (Alba and Potter 1986).

This sudden change, of course, may indicate that in the future Mexican population policy will not be limited to supporting a successful family planning program, as in the 1980s, and may become an integral part of the political and economic reform proposed by President Salinas de Gortari.

This research note has three objectives. The first is to review the demographic parameters that will shape the dynamics of the Mexican population until the end of the century. To this end, I will consider the results of several population projections made in the past few years<sup>1</sup> as well as those of a national demographic survey conducted in 1987.<sup>2</sup> Reviewing the levels and trends of the main demographic variables in Mexico is important at a time when policymakers may take more interest in discussing population and development issues. Second, given the population dynamics of Mexico and the policy proposal mentioned earlier, I will estimate what may be the minimum expected rates of economic growth in the country. Finally, given the large differentials in the components of population growth among subpopulations in Mexico, I will suggest that if regional imbalances in fertility, mortality, and interregional migration can be reduced, the country's future development plans may accommodate the diversity of the Mexican population more readily.

## THE COMPONENTS OF POPULATION GROWTH

### *Sustained Differentials of Fertility*

The major determinant of population growth in the past four decades has been the fertility of the Mexican population. As has been

1. The official figures used throughout this note were taken from the population projections elaborated by the Consejo Nacional de Población (CONAPO) and the Instituto Nacional de Estadística, Geografía e Informática (INEGI) under the "programmatic" hypothesis of fertility decline. See Mexico, Secretaría de Programación y Presupuesto (1985). The other two sets of population projections used are Núñez and Moreno (1986) and United Nations (1988, 220–21).

2. This survey was the Encuesta Nacional de Fecundidad y Salud (ENFES), which was conducted as part of the U.S. Agency for International Development (AID) program of the Demographic and Health Surveys (DHS).

TABLE 1 *Estimated Total Fertility Rates for National, Rural, Urban, and Metropolitan Populations in Mexico for 1972–1977 and 1982–1987 and Predicted Rates according to Population Projections for 1990–1994 and 1995–1999*

Population	1972–1977	1982–1987	1990–1994		1995–1999	
	WFS <sup>a</sup>	DHS <sup>b</sup>	NM <sup>c</sup>	UN	NM <sup>c</sup>	UN
Rural	7.6	6.2	4.2	—	3.7	—
Metropolitan areas	4.8	2.7	2.7 <sup>d</sup>	—	2.4 <sup>d</sup>	—
Other urban areas	5.7	3.8	2.7 <sup>d</sup>	—	2.4 <sup>d</sup>	—
All Mexico	6.2	4.0	3.0	3.4	2.7	3.0

Sources: For 1972–1977, the total fertility rates were calculated for the sixty months prior to the survey. See United Nations, *Fertility Behaviour in the Context of Development: Evidence from the World Fertility Survey*, Population Studies no. 100 (New York: UN, 1987, tt. 12, 96). For the period 1982–1987, total fertility rates have been calculated for the sixty months prior to the survey. See Mexico, Dirección General de Planificación Familiar (1988). For the periods 1990–1994 and 1995–1999, see Secretaría de Programación y Presupuesto (1985). See also Núñez and Moreno (1986, 112–14) and United Nations (1988, 220).

<sup>a</sup>World Fertility Survey.

<sup>b</sup>Demographic and Health Surveys.

<sup>c</sup>Núñez and Moreno (1986).

<sup>d</sup>This figure corresponds to all urban areas.

extensively documented (e.g., Alba and Potter 1986), fertility began to decline in the early 1970s. This trend coincided with an important change in population policy by the Mexican government but should not necessarily be attributed to it.<sup>3</sup> The rate of decline has differed substantially between the urban and rural areas of Mexico, as shown in table 1. The rural total fertility rate fell by more than one child (18 percent) between 1972–1977 and 1982–1987.<sup>4</sup> In absolute and especially relative terms, the decline has been much greater for more urbanized portions of the population: 44 percent for the metropolitan areas versus 33 percent for other urban areas during the same period. For instance, in 1982–1987 the rural population achieved levels of fertility similar to those of the national population ten years earlier.

Most predictions suggest that the rate of fertility decline will slow considerably over the next decade and that high levels of fertility will prevail until the end of the twentieth century, as indicated in table 1. The available population projections assume that contraceptive use among women will continue to increase rapidly enough to bring the total fertility rate close to three children per woman for the last decade of the century.

3. Changes in the Ley General de Población enacted in 1973, which led to creation of CONAPO in 1974, are discussed in Alba and Potter (1986, 61).

4. The total fertility rate is an index that accounts for the total number of live children a woman would bear over her lifetime.

TABLE 2 Estimated Percentage of Mexican Women Using Contraceptives in 1976-77 and 1987

Population	Percentage Using Contraceptives	
	1976-77 <sup>a</sup>	1987 <sup>b</sup>
Rural	13	33
Metropolitan areas	41	65
Other urban areas	34	59
All Mexico	29	53

Sources: For 1976-77, see John B. Casterline, Susheela Singh, John Cleland, and Hazel Ashurst, "The Proximate Determinants of Fertility," *WFS Comparative Studies* 39 (Nov. 1984): 26, 52-53 (published by the International Statistical Institute and World Fertility Survey in Voorburg, the Netherlands).

<sup>a</sup>Figures based on the World Fertility Survey.

<sup>b</sup>Figures taken from the Demographic and Health Surveys

But this level is still 66 percent higher than the rate expected among industrialized countries with a market economy (World Bank 1988, p. 311, t. 28).

The most dynamic proximate determinant of fertility has been the use of modern contraceptive methods among Mexican women. The proportion of women using them increased dramatically between the mid-1970s and the mid-1980s, as shown in table 2. Although the rural rate of use increased nearly 2.5 times within that period (well above the almost 60 percent increase for the metropolitan areas), the rural levels estimated for 1987 are close to those observed for the urban areas in the mid-1970s.

In a recent study, Charles Westoff and I estimated that the potential demand for contraception has been satisfied for nearly 70 percent of married women in the metropolitan areas of the country but for only 37 percent of those in the rural areas (Westoff and Moreno 1991). Unless a considerable effort is made to extend basic health services rapidly to the rural population in the next five to ten years,<sup>5</sup> we expect the unmet need for contraception in the rural areas to remain. The result will be that considerable differentials in fertility among regions will continue to be reflected in the wide gaps in growth rates that have been observed in the past decades.

### *Constantly Decreasing Mortality?*

Ever since mortality began to decline in Mexico in the early 1940s, the government has operated under the optimistic assumption that mor-

5. This assertion follows from the fact that the rapid increase in the availability of contraceptives during the 1970s and early 1980s resulted not only from introducing and extending family-planning service activities in the various institutions in the public health sector but also from extending the coverage of these institutions. See Alba and Potter (1986, 64).

TABLE 3 *Estimated Life Expectancy at Birth in Mexico, 1970–1975 and 1985–1990, and Predicted Values according to Population Projections for 1990–1994 and 1995–1999*

Population	1970–1975	1985–1989	1990–1994		1995–1999	
			Núñez-Moreno	UN	Núñez-Moreno	UN
Rural	61	65	68	—	69	—
Urban	65	68	70	—	72	—
All Mexico	63	67	70	68	71	70

Sources: For 1970–1975 and 1985–1990, see Núñez and Moreno (1986, p. 53, t. 3.13). For 1990–1994 and 1995–1999, see also United Nations (1988, 220–21).

tality rates would continue to fall until they reach levels similar to those of industrialized nations. For example, the most common statistic used to illustrate the success of Mexican development programs is that life expectancy at birth has increased by nearly 70 percent from 1940 to 1987, from forty to sixty-seven years.<sup>6</sup>

In table 3, estimated levels of life expectancy for the early 1970s and late 1980s are summarized, as well as the predicted values for the 1990s. Life expectancy is estimated to have increased by 6 percent in urban and rural areas between 1970–1975 and 1985–1989. These population projections predict that by the end of the century, life expectancy at birth in Mexico will be around seventy-one years, a figure that corresponds to the trends in mortality observed in developed countries in the early 1960s.

Table 4 lists the observed infant mortality rates for the years 1972–1977 and 1982–1987, as well as available predictions for 1990–1999. Although the mortality rate has unquestionably declined between 1975 and 1985, it is clear that the mortality rate for the rural population changed minimally during this period and remains at a level achieved nationally a decade ago. In contrast, metropolitan and urban areas show reductions in mortality of at least 30 percent during the same period.<sup>7</sup>

These figures make it evident that the benefits of development in Mexico have not been equally shared by urban and rural populations. For example, recent estimates indicate that the mothers of nearly one-fourth

6. For example, a publicity campaign was launched in 1986 by the workers' organization Congreso del Trabajo. It was intended to provide political support for President de la Madrid during the difficult months following the announcement of new austerity measures as a result of the collapse of oil prices. One advertisement referred to an increase of several years in life expectancy at birth between 1982 (when de la Madrid was inaugurated) and 1986 as an indication of "advances in social policy." The life expectancy for 1940 is taken from Alba and Potter (1986, p. 51, n. 4, t. 1). The 1987 figures were taken from Núñez and Moreno (1986, 112–14).

7. The metropolitan areas of Mexico show an unexpectedly low level of mortality according to the latest estimates from the 1987 ENFES survey.

TABLE 4 Mexican Infant Mortality Rates for 1972–1977 and 1982–1987 and Predicted Rates according to Population Projections for 1990–1994 and 1995–1999

Population Infant Mortality (Rate)	1972–1977 WFS <sup>a</sup>	1982–1987 DHS <sup>b</sup>	1990–1994		1995–1999	
			Núñez-Moreno	UN	Núñez-Moreno	UN
Rural	81	79	56	—	52	—
Metropolitan areas	63	29	46 <sup>c</sup>	—	40 <sup>c</sup>	—
Other urban areas	74	51	46 <sup>c</sup>	—	40 <sup>c</sup>	—
All Mexico	75	56	53	41	48	37

Sources: For 1972–1977, see Shea O. Rutstein, “Infant and Child Mortality: Levels, Trends, and Demographic Differentials,” *WFS Comparative Studies* 43 (Dec. 1984), p. 8 in preliminary tables (published by the International Statistical Institute and World Fertility Survey in London). The figures for 1982–1987 are the author’s estimates; see also the sources cited in table 1. For 1990–1994 and 1995–1999, see Núñez and Moreno (1986, 112–14) and United Nations (1988, 220).

Note: The figures for CONAPO-INEGI were not available.

<sup>a</sup>World Fertility Survey.

<sup>b</sup>Demographic and Health Surveys.

<sup>c</sup>Covers all urban areas.

of the children under age five living in rural areas in 1987 received no prenatal care during their pregnancies (Mexico, Dirección General de Planificación Familiar 1988, t. 9.5). All but 6 percent of mothers residing in metropolitan areas received prenatal care. Unfortunately, however, no comparable figures are available for the mid-1970s, precluding assessment of improvements in health coverage in recent years.

Most authors of these projections have assumed that lowered mortality will make only a minor contribution to the rate of growth of the population between now and the year 2000. Several demographers, however, have hypothesized that one of the likely effects of the drastic reduction in the standard of living that Mexico (and other Latin American countries) has experienced since the early 1980s is an increase in infant and child mortality.<sup>8</sup> Such an outcome would cause a different rate of change in the growth rate than the one recently projected. In particular, such a development may be the case in the rural areas of the country, as has already been suggested.

8. Hill and Pebley have analyzed the question of whether the mortality trends in several low-income countries reveal a stalling in the decline of mortality attributable to the economic stabilization programs. They found “little basis for postulating a general slowdown in the pace of mortality decline in the early 1980s, contrary to what might be expected in light of the downturn in economic conditions” (Hill and Pebley 1989, 681).

*Interregional Flows: The Shaping of a New Country*

Reviewing the growth rates in Mexican regions or states reveals that migration is a key component. For instance, the percentage of the Mexican population living in rural areas has declined from 72 percent in 1940 to less than 33 percent in 1980. This decline has continued despite higher rates of natural increase among rural Mexican women.

Speculation about the future course of internal migration is restricted by the urban-rural distribution of the population. The most common assumption is that by the turn of the century, nearly three-quarters of the Mexican population will live in urban areas (Núñez and Moreno 1986, p. 115, t. 7.25; United Nations 1989, t. 1). This estimate implies that sometime around the late 1990s, the population of Mexican rural areas will begin to decline.

Because measurement of interregional migration is confined to intercensal estimates, researchers will know much more about the shaping of the country for the next decade, in terms of defining the rates of growth of the states or regions of Mexico, when the results of the 1990 Mexican census become available. In particular, analysts wish to ascertain the magnitude of the migration flows toward the northern border, given the dramatic increase in economic activity during the past decade due to the spectacular growth of the in-bond industry (*maquiladoras*) in the major urban centers bordering on the United States. Similarly, population analysts would like to study these same questions with regard to south-eastern Mexico, where the oil-producing states of Campeche, Tabasco, and Veracruz have gone from boom to bust following the collapse of oil prices in 1981 and 1986.

*International Migration: Balance in the Flows?*

In addition to studying the steady flow of Mexicans who cross into the United States (which receives the largest proportion of Mexican emigrants),<sup>9</sup> the Mexican government is now looking closely at a relatively new phenomenon: the immigration of nationals from Central America.<sup>10</sup> These immigrants either remain in Mexico or wait there until they can cross into the United States. This flow has increased steadily since the mid-1970s and may become an important counterbalance to the negative

9. The U.S. Immigration Reform and Control Act (IRCA) of 1986 made it illegal to knowingly hire an undocumented worker. It is not yet known to what extent this legislation may have reduced the flow of undocumented Mexicans into the United States. For a recent discussion of the impact of IRCA on this flow, see Espenshade (1990).

10. This issue was first discussed by Víctor Urquidí in his opening remarks during the seminar "México a Fines del Siglo XX," organized by the Academia Mexicana de Investigación en Demografía Médica and held at the Centro Interamericano de Estudios sobre Seguridad Social, Mexico City, 6-7 Mar. 1986.

TABLE 5 Estimated Annual Rates of Growth for Mexican Urban, Rural, and National Populations in Projections for 1985–1999

Period	CONAPO-INEGI	Núñez-Moreno	United Nations
Urban Population			
1985–1989	—	2.56	3.27
1990–1994	—	2.36	2.90
1995–1999	—	2.19	2.54
Rural Population			
1985–1989	—	0.18	0.35
1990–1994	—	0.07	0.18
1995–1999	—	0.06	0.05
Total Population			
1985–1989	1.92	1.85	2.42
1990–1994	1.60	1.73	2.18
1995–1999	1.47	1.65	1.94

Sources: For CONAPO-INEGI figures, see Mexico, Secretaría de Programación y Presupuesto (1985, 2); see also Núñez and Moreno (1986, 112–14) and United Nations (1988, 220).

net emigration that Mexico has experienced in the past four decades.<sup>11</sup> Any estimates of these international flows, however, will remain highly speculative for the rest of the century, probably even more tentative than for interregional migration flows.

#### AIMING AT A MOVING TARGET

Under the most optimistic assumptions, the annual rate of growth of the Mexican population is likely to remain above 1.5 percent throughout the next decade, according to the most recent official population projections (Mexico, Secretaría de Programación y Presupuesto 1985; Núñez and Moreno 1986; United Nations 1988, 220–21). Table 5 shows this rate for the last three five-year intervals, as estimated by several recent population projections. The table also lists the rates of growth of the urban and rural populations for the same periods, when available.

The annual growth rate of the Mexican population is expected to reach nearly 1.7 percent for the period 1990–1994 and to be no less than

11. The net international annual immigration rate has been estimated as declining from -1.8 to -1.4 per hundred inhabitants between 1980 and 2000. The -1.8 figure has been regarded as a reasonable estimate for the past four decades. See Núñez and Moreno (1986, p. 114, t. 7.24).



1.4 percent for 1995–1999.<sup>12</sup> Given these rates of population growth and President Salinas de Gortari's proposal, the minimum expected rate of growth of the Mexican gross domestic product for the remainder of the century must fluctuate between 3 and 4 percent per year.

According to this scenario, an average growth of income per capita close to 1 percent per year is expected between now and 1995. Although this rate would certainly be an improvement from the decline of 1.3 percent per year observed between 1983 and 1987, it will fall far short of the historical records observed for the late 1960s (3.4 percent annually), a time well before the population issue began to concern the Mexican government.<sup>13</sup>

It is assumed here that President Salinas de Gortari's target is based on the view that Mexico's historical rate of growth of income per capita is far from attainable in the near future. Under this assumption, his proposal aims to halt the deterioration in standards of living since the early 1980s and to lay the foundation for a new model of development that can accommodate Mexico's high rate of population growth.

At this point, no proposal has been made about whether to set the targets of economic growth for various regions of the country.<sup>14</sup> But as table 5 indicates, the differences in the rate of growth of the urban and rural populations reveal that if income per capita were to grow at similar rates for all the regions in the country, the economic growth of these regions would necessarily differ drastically. For example, the projected rate of growth of the urban population for the period between 1990 and 1999 is nearly thirty times greater than that of the rural areas, mainly because of the considerable migration from rural to urban areas that has occurred since the early 1940s.

Similar conclusions may be drawn from analyzing the rates of growth of the thirty-two states of Mexico (not shown). Whereas rates of natural growth for the period 1990–1994 exhibit a range of less than half of a percentage point, the rates of total growth show an astonishing range of nearly four percentage points. In addition, while the highest rate of natural growth for the period is 2.3 percent (for Zacate-

12. At the national level, the range of the growth rates is nearly half a percentage point. In urban-rural projections, the difference between the rates predicted by the UN and the Núñez-Moreno projections is about half a percentage point for the urban population and one-tenth of a point for the rural areas. These differences mostly result from the assumptions made regarding future fertility levels.

13. The rates of growth of income per capita for the mid-1960s were derived from data reported by Alba (1979, p. 127, t. 8.1). The estimates for 1983–1987 were taken from Banco de México, Dirección de Investigación Económica (1989).

14. The recently disclosed Plan Nacional de Desarrollo (PLANADE) proposed rates of growth of 2.9 to 3.5 percent for 1989–1991 and 5.3 to 6.0 for 1992–93. The plan contains no reference, however, to targets for economic growth for the various regions. See Mexico, Secretaría de Programación y Presupuesto (1989, p. 139, t. 1).

cas),<sup>15</sup> the peak is 4.6 percent for total growth (for Querétaro).<sup>16</sup> It is a matter of speculation whether the divergence in standards of living among regions will continue to result from rising population without concomitant economic growth (as has occurred in Michoacán) or whether the divergence will be based on stagnant demographic and economic regimes (as in Oaxaca) in contrast with dynamic ones (like the Bajío region).

#### IMPLICATIONS FOR POLICY FORMULATION

Given the emphasis that President Salinas de Gortari has placed on his plans to reform and modernize the economy and political system of Mexico, it is certainly encouraging that his proposal to define the minimum rate of economic growth for the next decade will be based on considerations that explicitly take into account the dynamics of population growth.

From an economic perspective, this proposal projects a pace of economic growth for the next decade that at least equals the projected rate for developing economies in general (World Bank 1988, p. 225, t. 2).<sup>17</sup> The lower limit (4 percent), however, is about two-thirds of the rate of growth of economies oriented toward exporting manufactured goods. Whether this target is the most appropriate one for satisfying the increasing needs of the Mexican population is an issue that will have to be carefully studied by the Mexican government. For instance, there is no indication of how the government intends to reduce the large inequalities in well-being between urban and rural areas, nor whether the less dynamic regions (like the southern states of Chiapas, Guerrero, and Oaxaca) will receive special attention to increase their rates of economic growth to a rate that at least equals the rate of natural population growth.

From a population perspective, President Salinas de Gortari's plan suggests that the Mexican government may intend to review the role played by population policy as proposed by the 1973 population law. For example, the president's proposal may lead to a thorough review of the feasibility and sustainability of the demographic targets proposed by the Mexican government for the year 2000. In carrying out these analyses, policymakers in Mexico may realize that unless rural fertility and mortality rates match those of urban areas, the flow of rural population to the urban areas is reduced, and the growth rates of regions and states are equalized, the Mexican population will be split into demographic regimes

15. Zacatecas is a poor state in central Mexico with an agriculture-dependent economy and one of the highest migration rates to the United States.

16. Querétaro is a rapidly industrializing state near the metropolitan area of Mexico City.

17. The period used for comparison is 1980–1986.

as diverse as those currently observed in sub-Saharan Africa and South-east Asia. It would therefore become progressively more inconsistent for the Mexican government to accommodate its development plans to the needs of populations with diverging demographic characteristics. The government must also review carefully the feasibility of official projections of the pace of decline of rural fertility as well as consider specifically how it intends to equalize population growth between urban and rural areas.

Finally, the proposal may generate new ideas about how Mexico's population policy can cover areas other than a successful family-planning program. For example, the government may create a program through which remittances and savings of migrants to the United States are matched by federal or state funds when these resources are invested in housing projects or small agricultural or industrial enterprises that would generate employment opportunities for young adults. These newly employed individuals would then be entitled to receive the health services provided by social security, including family-planning services.<sup>18</sup> In addition, the prospect of a comprehensive trade agreement between Mexico and the United States would certainly include thorough revision of the political stance of the Mexican government on international migration, a subject that has received little attention in designing population policies in Mexico. A new population policy that would envision the flow of Mexican migrants to and from the United States as another interregional flow and propose a program to regulate its magnitude and direction would have much to recommend it.

18. According to Mexican law, all individuals employed by private corporations, institutions, or individuals, as well as those who are self-employed, are entitled to the medical and social services provided by the Instituto Mexicano del Seguro Social (IMSS).

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