

# Demographic Transition in the Americas

The population of Latin America increased from 11 million in 1700 to 30 million in 1850, with an annual growth rate of 0.6%. It had risen to 61 million by 1900 and to 165 million by 1950; by 1995 it is estimated that the Latin American population will total 482 million, which signifies annual growth rates of 1.4% between 1850 and 1900, 2.0% between 1900 and 1950, and 2.4% during the second half of the present century.

Inasmuch as the size, growth, and age structure of a country's population are the result of the interaction of three basic factors--mortality, fertility, and migration--any attempt to explain population dynamics in the medium and long term must first establish an interpretive model that relates these variables with one another and with other variables of economic and social development. The rapid population growth that has occurred worldwide in this century provided the basis for the theory of demographic transition, which grew out of the historical experience of the western countries, especially those of Europe, and viewed population growth as a feature of contemporary development. This theory attempts to formulate a generalized explanation of the process of declining mortality and fertility observed in the developed countries of Europe (excluding from the model, except in isolated cases, the role of the migration). It postulates a close relationship between the rate of population growth and the level of socioeconomic development. Although in individual cases it cannot always be maintained that less population growth is synonymous with more development, in general there appears to an inverse relationship between these two processes.

As the trend toward lower mortality in the early years of life continues, the age distribution of the population will also change, as will the most prevalent health problems in most countries of the Region of the Americas. These changes, together with the clear reduction in fertility observed in recent years, will undoubtedly result in an intensification of the trend toward aging in the medium and long terms. With a growing proportion of the population entering adulthood and old age, the epidemiological profiles of the countries of Latin America will tend increasingly to reflect diseases and health problems of adults and the elderly rather than those of children. In some countries--Chile, Costa Rica, Cuba, Barbados, Bahamas--this process has been hastened in recent decades by rapid declines in infant and child mortality. These demographic and epidemiological changes are occurring at different rates, depending on existing fertility and mortality levels, as well as on the

distribution of risk factors that contribute to the appearance of diseases, the resources available, the accessibility of health services, and their effectiveness in responding promptly to these changes. Regardless of whether or not one accepts the validity of theories that attempt to explain demographic and epidemiological changes in light of socioeconomic and political changes, the fact that such changes have taken place cannot be denied. Moreover, it seems highly likely that most of these changes cannot be reversed.

"Demographic transition" is understood to mean a series of stages characterized by successive reductions in mortality and fertility. In order to define these stages, the artificial indicators of mortality and fertility will be used: life expectancy at birth (LEB) and total fertility rate (TFR). It will thus be possible to eliminate the influence of age distribution, a problem that arises when crude death and birth rates are used. Owing to lack of generalized information, the variable "migration" will not be considered, although it is recognized that it is impossible to study population dynamics in various countries of the Americas without taking into account migratory movements. As a clear illustration of the importance of migration it suffices to point out that of the 54 million emigrants who left Europe between 1815 and 1930, 50 million settled in the Americas, 32.6 million of them in the United States, 6.4 million in Argentina, 4.7 million in Canada, 4.3 million in Brazil, and a large number in Uruguay and Cuba, as well.

Adapting L. Tabah's presentation of the subject in "World Population at the Turn of the Century" (United Nations, New York, 1989, ST/THAT/SER.A/111), this article will separate the demographic transition into 5 stages with the following levels of mortality and fertility:

**Stage one (1,1):**

High mortality and high fertility.

LEB of under 45 years and TFR of more than 6.5.

**Stage two (2,2):**

Both mortality and fertility begin to decline, although the decline in mortality takes place first.

LEB of between 45 and 55 years and TFR of between 5 and 6.5.

**Stage three (3,3):**

The declines in mortality and fertility accelerate.

LEB of between 55 and 65 years and TFR of between 3.5 and 5.

**Stage four (4,4):**

Low levels of mortality and fertility.  
LEB of between 65 and 75 and TFR of between  
2 and 3.5.

**Stage five (5,5):**

Very low mortality and fertility, below  
replacement level.  
LEB of 75 or more years and TFR of under 2.

Table 1  
**Demographic transition in the Americas:**  
Total fertility rate, life expectancy of birth, and stages in the transition,  
by country, 1950-55, 2020-2025

COUNTRY	1950-1955			1970-1975			1990-1995			2020-2025		
	TFR	LEB	SDT	TFR	LEB	SDT	TFR	LEB	SDT	TFR	LEB	SDT
ARGENTINA	3.15	62.5	(4,3)	3.15	67.2	(4,4)	2.79	71.3	(4,4)	2.24	74.1	(4,4)
BAHAMAS	4.22	59.8	(3,3)	2.99	66.6	(4,4)	2.01	72.2	(4,4)	1.85	77.6	(5,5)
BARBADOS	4.67	57.2	(3,3)	2.74	69.4	(4,4)	1.80	75.6	(5,5)	1.85	79.3	(5,5)
BOLIVIA	6.75	40.4	(1,1)	6.50	46.7	(2,2)	4.56	61.2	(3,3)	2.55	72.5	(4,4)
BRAZIL	6.15	51.0	(2,2)	4.70	59.8	(3,3)	2.75	66.2	(4,4)	2.00	72.1	(5,4)
CANADA	3.70	69.0	(3,4)	1.97	71.3	(5,4)	1.78	77.4	(5,5)	1.80	80.7	(5,5)
CHILE	5.10	53.7	(2,2)	3.63	63.6	(3,3)	2.66	72.0	(4,4)	2.25	74.6	(4,4)
COLOMBIA	6.76	50.6	(1,2)	4.66	61.7	(3,3)	2.67	69.3	(4,4)	2.09	74.6	(4,4)
COSTA RICA	6.72	57.3	(1,3)	4.33	68.1	(3,4)	3.14	76.3	(4,5)	2.34	79.4	(4,5)
CUBA	4.10	59.4	(3,3)	3.55	70.9	(3,4)	1.87	75.7	(5,5)	2.00	77.0	(5,5)
ECUADOR	6.90	48.4	(1,2)	6.05	58.9	(2,3)	3.62	66.6	(4,4)	2.13	72.5	(4,4)
EL SALVADOR	6.46	45.3	(2,2)	6.10	58.7	(2,3)	4.04	66.4	(3,4)	2.31	74.1	(4,4)
GUADELOUPE	5.61	56.5	(2,3)	4.49	67.8	(3,4)	2.16	74.6	(4,4)	1.85	78.8	(5,5)
GUATEMALA	7.09	42.1	(1,1)	6.45	54.0	(2,2)	5.36	64.8	(2,3)	2.92	72.3	(4,4)
GUYANA	6.68	52.3	(1,2)	4.90	60.0	(3,3)	2.55	65.2	(4,4)	2.10	72.8	(4,4)
HAITI	6.30	37.6	(2,1)	5.76	48.5	(2,2)	4.79	56.6	(3,3)	3.67	66.1	(3,4)
HONDURAS	7.05	42.3	(1,1)	7.38	54.0	(1,2)	4.94	65.8	(3,4)	2.69	73.6	(4,4)
JAMAICA	4.22	57.2	(3,3)	5.00	68.6	(3,4)	2.38	73.6	(4,4)	2.10	78.3	(4,5)
MARTINIQUE	5.71	56.5	(2,3)	4.08	69.2	(3,4)	1.99	76.2	(5,5)	1.85	79.8	(5,5)
MEXICO	6.75	50.8	(1,2)	6.37	62.9	(2,3)	3.16	70.3	(4,4)	2.03	75.3	(4,5)
NICARAGUA	7.43	42.3	(1,1)	6.79	55.3	(1,3)	5.04	66.7	(2,4)	2.55	74.1	(4,4)
PANAMA	5.68	55.3	(2,3)	4.94	66.3	(3,4)	2.87	72.7	(4,4)	2.12	74.3	(4,4)
PARAGUAY	6.80	62.6	(1,3)	5.65	65.6	(2,4)	4.34	67.3	(3,4)	3.10	69.6	(4,4)
PERU	6.85	43.9	(1,1)	6.00	55.5	(2,3)	3.57	64.6	(3,3)	2.23	72.0	(4,4)
PUERTO RICO	5.02	64.8	(2,3)	2.99	72.5	(4,4)	2.16	75.0	(4,5)	2.10	78.0	(4,5)
DOMINICAN REPUBLIC	7.40	46.0	(1,2)	5.63	59.9	(2,3)	3.34	67.5	(4,4)	2.19	73.6	(4,4)
TRINIDAD & TOBAGO	5.30	58.2	(2,3)	3.45	65.7	(4,4)	2.74	71.3	(4,4)	2.10	77.2	(4,5)
URUGUAY	2.73	66.1	(4,4)	3.00	68.8	(4,4)	2.33	72.5	(4,4)	2.09	74.6	(4,4)
USA	3.45	69.0	(4,4)	2.02	71.3	(4,4)	2.07	75.9	(4,5)	1.80	79.7	(5,5)
VENEZUELA	6.46	55.2	(2,3)	4.96	66.2	(3,4)	3.12	70.3	(4,4)	2.12	73.7	(4,4)

TFR = Total Fertility Rate

LEB = Life Expectancy at Birth

SDT = Stage of Demographic Transition (the first number in parenthesis refers to the fertility level and the second one to the mortality level; 1 indicates a high level of mortality or fertility, and 5 indicates very low mortality or fertility levels).

Table 1 shows the values of LEB and TFR for the various countries in the region for 1950-1955, 1970-1975, 1990-1995, and the estimates for 2020-2025. The countries are also classified by stage of demographic transition (SDT) in accordance with the preceding definitions of fertility and mortality levels 1-5. Accordingly, a value of 3,4 represents a fertility level of 3, or 3.5-5 children per woman, and a mortality level of 4, that is, life expectancy at birth of 65-75 years. Based on the general trends of the values corresponding to the subregion, it is possible to distinguish 3 phases in the demographic transition: an initial phase of significant gains in LEB accompanied by slower reductions in fertility, followed by an intermediate phase in which the reductions in fertility are more pronounced than the gains in LEB, and a final phase in which reductions in fertility slow but LEB continues to increase.

Often couples will seek to increase family size because, given the prevailing levels of productivity and mortality (with LEB of under 45 years, only half of those born will reach the age of 15) the economic contribution of the children who do survive is essential, as is support for old age. Hence, in order for the demographic transition to begin and for progress to be made to successive stages of the process, mortality must be reduced sufficiently to allow a decline in fertility to take place. This explains why transitional progress, with rare exceptions, is always greater in terms of mortality than in terms of fertility.

In the period 1950-1955, only six of the 31 countries considered--Bolivia, Guatemala, Haiti, Honduras, Nicaragua, and Peru--were in the first stage, which might be called the pretransitional stage, with life expectancy at birth of under 45 years and fertility of 6.5 children or more per woman. By 1970-1975 these countries had clearly moved on to another demographic stage. Mortality had fallen appreciably, with LEB increasing between 6 and 13 years, while fertility decreased more slowly or remained essentially unchanged. It can thus be stated that in most of the countries the demographic transition was under way before 1950, and several countries--namely, Canada, the United States, and Uruguay--were in advanced stages by that year. It should be noted that the latter country, Uruguay, remained at the same stage over the entire period examined (1950-1995) and is expected to be at that stage even within 30 years: (4,4).

At present, in the period 1990-1995, most of the countries are in advanced stages of demographic transition, with mortality and fertility levels of 4 or 5, excepting the aforementioned countries, plus El Salvador and Paraguay. Only in Haiti is LEB under 60 years. Twenty of the remaining thirty countries have already attained LEB of more than 70 years. By 2020-2025, it is expected that only Haiti and Paraguay will not belong to this group,

and in several of the countries, namely, Bahamas, Barbados, Canada, Cuba, and the United States, as well as the French Overseas Departments of Guadeloupe and Martinique, LEB will exceed 80 years, while fertility rates will have fallen to below the population replacement level.

Table 2  
Demographic changes in Latin America

Indicators	Around 1950	Around 1995
Birth Rate (x 1000)	42.5	25.7
Mortality (x 1000)	15.4	6.9
Natural growth	27.1	18.8
Migration (x 1000)	0.6	-0.8
Life Expectancy at birth (LEB):		
- Total	51.3	67.9
- Male	49.8	65.2
- Female	53.1	70.9
Proportion reaching:		
- at age 15:	80%	94%
- at age 65:	45%	70%
Total Fertility Rate (TFR):	5.86	3.13
Net Reproduction Rate (NRR):	2.15	1.51
Population aged under 15 (%):	40.46	33.81
Population aged 65 and over (%):	3.45	5.11
Urban Population (%):	41.7	74.5
Pop. in cities of > 1 million (total percentage of population):	10.0	30.0
Median age:	19.7	23.2
Proportion of dependents:	78.3	63.7
Infant Mortality Rate (IMR):	125	47
Deaths in > 5 age group (%):	45*	26**
Deaths in > 65 and over (%):	19*	36**

\* 1960-65

\*\* 1985-90

Table 2 summarizes the changes associated with demographic transition in Latin America over the period 1950-1995, during which the region went from fertility and mortality levels of 2,2 in 1950-1955 to 2,3 in 1960-1965 and 1970-1975, reaching 3,3 in 1980-1985 and 4,4 in 1990-1995.

The convergence of LEB and TFR as they move from values of around 1,1 or 1,2 toward values of around 4,4; 4,5; or 5,5 can be seen in the course followed by some countries. Bolivia, for example, went from 1,1 to 2,2 and 3,3 between 1950-1955 and 1990-1995, and it is expected to reach levels of 4,4 in 2020-2025. A similar evolution is observed in the cases of Ecuador, Guatemala, Haiti, Honduras, and Nicaragua, countries that were in the pretransitional stage at the beginning of the period examined. Other countries which had already begun the transition evolved similarly, with some variations, all due to a lag in the decline of fertility with respect to mortality in the early stages.

Another way to perceive the convergence is through a comparison over time of the ranges of variation in LEB and TFR between countries. Whereas in 1950-1955 the range of variation in LEB was 31.4 years (from 69 in Canada and the United States to 37.6 in Haiti), for 1990-1995 it has dropped to 20.8 (Canada 77.4, Haiti 56.6) and it is estimated that by 2020-2025 it will have decreased to 14.6 (Canada 80.6, Haiti 66.1). As for fertility, the range has diminished from 4.7 children in 1950-1955 (Uruguay 2.73, Nicaragua 7.43) to 3.26 in 1990-95 (Canada 1.78, Nicaragua 5.04), and it is estimated that by 2020-2025 it will be 1.87 (Canada and the United States, 1.80, Haiti 3.67).

If "demographic lag" is defined as a difference of 2 between mortality and fertility levels, an examination of the data reveals that such a lag occurred only at the beginning of the period under study, during 1950-1955, when both Paraguay and Suriname showed a mortality level of 3, indicating that evident strides had already been made in reducing mortality--especially in Paraguay--while fertility remained at more than 6.5 children per woman.

The differential behavior of the two components was noted above in connection with the observations regarding the trends in the various countries, in which the decline in mortality generally preceded the decline in fertility in the early stages of the demographic transition, the time

lag between the two phenomena varying depending on the country. In the last decade, however, there has been a notable reduction in fertility--greater than had been expected. While 1988 United Nations projections of life expectancy at birth for the countries of the Region during 1990-1995 differ very little from 1992 projections (an exception being Bolivia, which showed a 5-year increase), the same cannot be said of the projected total fertility rates. Taking into account census findings, especially in countries that had high fertility (although not only in those countries, as evidenced by the case of Brazil), it is possible to predict an acceleration of the demographic transition as a result of a marked reduction in fertility in the coming decades.

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