

**DEMOGRAPHIC TRANSITION, DEMOGRAPHIC BONUS AND
AGEING IN MEXICO**

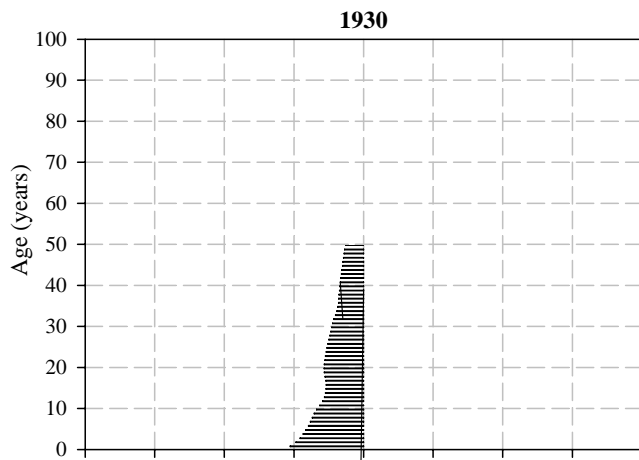
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Nearly all countries have undergone, or are currently undergoing, the demographic transition.

Figure 4. Total fertility rate, Mexico, 1900-2050



Figure V. Population pyramids, Mexico, 1930-2050



Demographic projections indicate that this process will intensify in the first five decades of the present century. The contraction of the base of the pyramid will be increasingly evident, not only in relative terms, but also in absolute numbers. On the other hand, the momentum of the past rapid growth will be clear first in the working years (age 15-59) and later in old age (60 years and above). The working-age population will increase by almost 27 per cent between 2000 and 2015 but by only 3.8 per cent in the following 15 years, and it will decrease by 9.5 per cent in the next two decades. During the same periods, the number of older adults will continue to rise by 76.3, 83.3 and 63.2 per cent, respectively.

The changes in age structure can be seen more clearly in the time series for the six functional age groups shown in figure 6. Pool (2004) suggests equating these groups with distinct stages in the life cycle: childhood corresponds to age group 0-14 years; youth to 15-29 years; early middle age to 30-44 years; late middle age to 45-59 years; early retirement age to 60-74 years; and old age to 75 years and above. The timeline of the childhood group is similar in pattern to that of the crude birth rate (figure 1). This is due to the fact that these generations are still “close” to their year of birth. With the passage of time, the likelihood of survival for the most recent cohorts increases as a result of the fall in mortality. However, from 1960 onwards, these cohorts are

terms of the increase in population by age group during a period of time, i.e. the growth potential of each age group, or the amount that each age interval contributes to the overall growth rate.

The clearest “wave” is the one that occurs around 1960 which is the result of the policy of promoting and, later, discouraging large families. Once the fall in fertility slows drastically beginning in 2005 (figure 4), the process of convergence towards eventual stability will continue to give rise to waves although they will be much smaller than the one that occurred around 1960. The “intergenerational” spacing of these waves will be approximately 15 years throughout the present century although up to 2050 they will be observed only among the children and youth (figure 7).

Demographic bonus

On the way to population ageing, there is a period when the most favourable demographic conditions converge and may help to trigger Mexico’s economic growth potential if proper and sensible use is made of them. The gradual narrowing of the base of the age pyramid and the movement of the largest generations (corresponding to the high growth rates of the past) first to the economically active age groups and then to the older age groups, leads to a relationship between the productive and dependent population groups that is favourable scenario for employment, the economy and investment..

This “window of opportunity”, also called *demographic bonus or dividend*, will briefly remain open in Mexico, for the first and only time, from 2006 to 2028. Among the various indicators that enable the timing of this “window of opportunity” to be identified, the demographic dependency ratio is the one that is generally used. Although it is a crude indicator, the dependency ratio makes it possible to pinpoint changes in the age structure as the demographic transition advances. The dependency ratio is the sum of the number of children and adolescents (aged 0-14 years) and of older adults (60 years and above), who are regarded as the dependent population, divided by the number of people of working age (15-59 years), regarded as being the income-earning population.

Figure 8 shows the development of the dependency ratio. It can be seen that, during the twentieth century, the total dependency ratio was almost entirely determined by the youth dependency ratio (children and adolescents from 0-14 years divided by the working-age population), reflecting high demographic growth. As a result of the rapid decline in the youth

persons or 18.2 per cent during this period. Changes in fertility and mortality each contribute positively to growth in the number aged 15-59 (with growth in births contributing 6,522,654 persons and mortality decline contributing 6,955,228). By contrast, international migration is estimated to reduce the working-age population by 1.2 million persons, which amounts 8.6 per cent of natural increase (that is, the sum of the contributions of fertility and mortality, 13.5 million).

TABLE 1. CONTRIBUTION OF CHANGES IN DEMOGRAPHIC PHENOMENA TO THE FORMATION OF THE DEMOGRAPHIC BONUS IN MEXICO, 2006-2029

<i>Period of change</i>	<i>Age</i>		
	<i>Total</i>	<i>15-59</i>	<i>0-14 and 60 or over</i>
<i>Population</i>			
2006 ^a	106 994 248	66 880 244	40 114 004
2029 ^a	126 443 156	79 204 364	47 238 792
Absolute change ^b	19 448 908	12 324 120	7 124 788
Relative change	18.2	18.4	17.8
<i>Total contribution</i>			
Total	19 450 146	12 324 959	7 125 187
1900-1969	21 470 716	10 134 780	11 335 936
1970-1999	1 189 055	2 863 730	-1 674 675
2000-2028	-3 209 625	- 673 551	-2 536 074
<i>Natural increase</i>			
Total	21 527 064	13 477 882	8 049 182
1900-1969	22 557 638	11 207 607	11 350 031
1970-1999	2 559 377	3 184 351	- 624 974
2000-2028	-3 589 951	- 914 076	-2 675 875
<i>Fertility</i>			
Total	9 031 673	6 522 654	2 509 019
1900-1969	18 306 508	9 900 145	8 406 363
1970-1999	-3 123 683	-1 330 375	-1 793 308
2000-2028	-6 151 152	-2 047 116	-4 104 036
<i>Mortality</i>			
Total	12 495 391	6 955 228	5 540 163
1900-1969	4 251 130	1 307 462	2 943 668
1970-1999	5 683 060	4 514 726	1 168 334
2000-2028	2 561 201	1 133 040	1 428 161
<i>International migration</i>			
Total	-2 076 918	-1 152 923	- 923 995
1900-1969	-1 086 922	-1 072 827	- 14 095
1970-1999	-1 370 322	- 320 621	-1 049 701
2000-2028	380 326	240 525	139 801

Source: Estimates and projections of the National Council on Population (CONAPO).

^aAt start of year.

^bThe differences from the total contributions are due to approximations in the calculation of formula (4) in the methodological annex.

Figure 9. Population pyramids, Mexico, 2006 and 2029

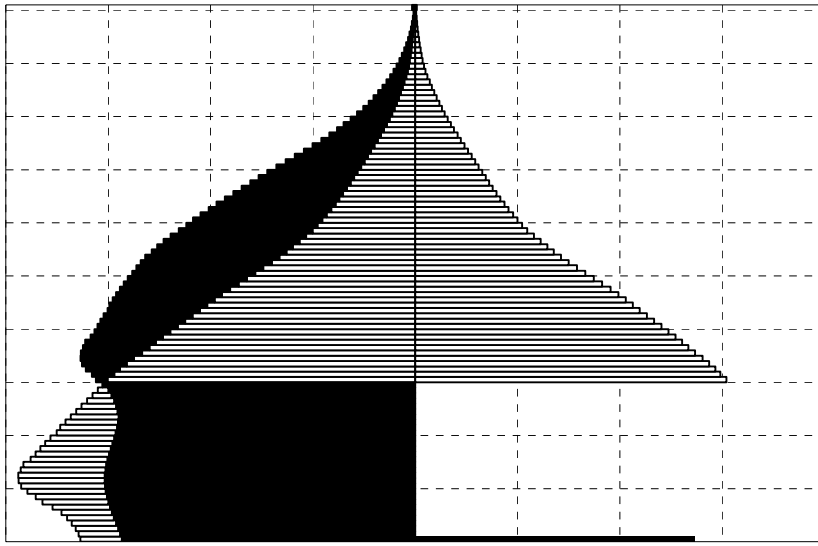


TABLE 2. CONTRIBUTION OF CHANGES IN DEMOGRAPHIC FACTORS
TO POPULATION GROWTH DURING THE AGEING PROCESS IN MEXICO, 2000-2051

<i>Period of change</i>	<i>Age</i>		
	<i>Total</i>	<i>60 or over</i>	<i>0-59</i>
	<i>Population</i>		
2000 ^a	99 929 495	6 752 115	93 177 380
2051 ^a	129 480 027	36 488 325	92 991 702

The contribution of international migration might appear contradictory. Rather than positive, its contribution might be expected to be negative in the future, as it was in the twentieth century. The positive contribution is due to the fact that, the current official projections assume that the migration rates to the United States and back to Mexico that prevailed in 1995-2000 will remain unchanged throughout the projection period. As the latter rate (return migration) is higher than the

TABLE 3. CONTRIBUTION OF CHANGES IN DEMOGRAPHIC FACTORS TO POPULATION MOMENTUM IN MEXICO FROM 2000 TO 2015

<i>Functional age groups</i>	<i>Population at mid-year</i>		<i>Period of demographic change</i>				<i>Contribution of demographic factors</i>		
	2000	2015	<i>Increase</i>	1890-1969	1970-1999	2000-2015	<i>Fertility</i>	<i>Mortality</i>	<i>Migration</i>
<i>Momentum effects</i>									
Total	100 569 263	116 344 933	15 775 670	16 261 428	1 038 266	-1 524 024	8 689 642	8 584 801	-1 498 773
0-14	33 557 864	28 028 698	-5 529 166	0	-3 230 769	-2 298 397	-6 201 822	563 819	108 837

TABLE 4. CONTRIBUTION OF THE STAGES OF DEMOGRAPHIC TRANSITION AND OF ANTICIPATED LEVELS OF PARTICIPATION IN THE GROWTH OF THE ECONOMICALLY ACTIVE POPULATION IN MEXICO FROM 2006 TO 2028, BY SEX

<i>Period of change</i>	<i>Total</i>	<i>Men</i>	<i>Women</i>
<i>Population</i>			
2006 ^a	46 761 458	31 359 014	15 402 444
2029 ^a	63 411 901	40 457 308	22 954 593
Absolute change ^b	16 650 443	9 098 294	7 552 149
Relative change	35.6	29.0	49.0
<i>Total contribution</i>			
Total	16 651 677	9 099 202	7 552 475
Demographic change	13 833 483	9 673 338	4 160 145
1890-1969	11 122 640	7 615 007	3 507 633
1970-2005	1 468 167	1 115 656	352 511
2006-2028	1 242 676	942 675	300 001
Joining workforce ^c	2 818 194	- 574 136	3 392 330
<i>Proportional contribution</i>			
Total	100.0	100.0	100.0
Demographic change	83.1	106.3	55.1
1890-1969	66.8	83.7	46.4
1970-2005	8.8	12.3	4.7
2006-2028	7.5	10.4	4.0
Joining workforce ^c	16.9	-6.3	44.9

Source: Estimates and projections of the National Council on Population (CONAPO).

^aAt start of year.

^bThe differences from the total contributions are due to approximations in the calculation of formula (6) in the methodological annex.

^cOnly during the period 2006-2028.

In the coming years, there will be heavy pressure on the country's labour markets. The rapid population growth that occurred before 1970 will lead to a large increase in the EAP between 2006 and 2028, and this expanding workforce will need to be employed productively in order to take advantage of the opportunity represented by the demographic bonus. For.9(onu)3.95.4(F)6.6(o)ageFo d

minimizes any possibility of savings. A limited savings capacity not only puts family assets at risk from major unforeseen expenses, but also prevents the accumulation of resources needed to cope with old age.

Together with the low percentage of workers currently contributing to social security systems, those who do contribute to pension plans do so for too short a time, with the result that the fund so constituted is inadequate for the purchase of an adequate annuity to ensure a dignified old age. If recent patterns of contribution were to remain unchanged in the future, those aged 15 years — some of whom contribute, while some do not, and others have not yet joined the workforce — would spend the major part of their active life outside social security systems. The average number of years during which they would pay into retirement savings systems — about 12 years for men and 8 for women — is far short of the mi

D. FINAL REMARKS

with B_t being the number of births during the year that begins at t .

To analyse the contribution of changes in demographic variables and of the beginning of employment, we consider the definition of the rate of participation in working life:

where $EAP(a,t)$ is the annual density of the economically active population (EAP) at time t . Thus,

$$A(a,t) = \frac{EAP(a,t)}{P(a,t)}$$

the change in the EAP is:

$$\frac{\partial}{\partial t} EAP(a,t) = \frac{\partial}{\partial t} P(a,t) A(a,t) = A(a,t) \frac{\partial}{\partial t} P(a,t) + P(a,t) \frac{\partial}{\partial t} A(a,t) \quad (5)$$

In the first element on the far right one can identify the contribution of demographic change and in the second term the part played by transformations on incorporation into labour markets. The discrete version of equation (5) for the year beginning at t is:

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- Collver, Andrew (1965). *Birth rates in Latin America: New estimates of historical trends and fluctuations.*, Berkeley: University of California.
- CONAPO (2002). *Proyecciones de la población de México 2000-2050.* Mexico: Consejo Nacional de Población.