

# Ageing and Urbanization



United Nations

# UNITED NATIONS PUBLICATIONS, DATABASES AND SOFTWARE ON POPULATION\*

SELECTED LIST, JUNE 1991

## Studies of population trends and problems

- World Population Monitoring, 1989.* English only. 260 pp., \$28.50. ST/ESA/SER.A/113. Sales No. E.89.XIII.12.
- Concise Report on the World Population Situation in 1989, with a Special Report on Population Trends and Policies in the Least Developed Countries.* English, French and Spanish. 31 pp., \$7.00. ST/ESA/SER.A/118. Sales No. E.90.XIII.32.
- The AIDS Epidemic and Its Demographic Consequences.* English only. 140 pp., \$37.50. ST/ESA/SER.A/119. Sales No. E.91.XIII.5.\*\*
- Review and Appraisal of the World Population Plan of Action.* English, French and Spanish. 45 pp., \$5.50. ST/ESA/SER.A/115. Sales No. E.89.XIII.11.
- Levels and Trends of Contraceptive Use as Assessed in 1988.* English only. 129 pp., \$15.00. ST/ESA/SER.A/110. Sales No. E.89.XIII.4.
- Consequences of Mortality Trends and Differentials.* English, French and Spanish. 202 pp., \$21.00. ST/ESA/SER.A/95. Sales No. E.85.XIII.3.
- Determinants of Mortality Change and Differentials in Developing Countries: The Five-Country Case Study Project.* English, French and Spanish. 184 pp., \$19.50. ST/ESA/SER.A/94. Sales No. E.85.XIII.4.
- Socio-economic Differentials in Child Mortality in Developing Countries.* English only. 319 pp., \$29.00. ST/ESA/SER.A/97. Sales No. E.85.XIII.7.
- Fertility Behaviour in the Context of Development: Evidence from the World Fertility Survey.* English only. 383 pp., \$47.50. ST/ESA/SER.A/100. Sales No. E.86.XIII.5.
- A Comparative Evaluation of Data Quality in 38 WFS.* English only. 463 pp. ST/ESA/SER.R/50/Rev.1.
- Selected Demographic and Social Characteristics of the World's Children and Youth.* English only. 108 pp. ST/ESA/SER.R/60.
- Family Building by Fate or Design: A Study of Relationships between Child Survival and Fertility.* English only. 103 pp. ST/ESA/SER.R/74.
- First Marriage: Patterns and Determinants.* English only. 110 pp. ST/ESA/SER.R/76.
- Patterns of First Marriage: Timing and Prevalence.* English only. 328 pp., \$29.00. ST/ESA/SER.R/111. Sales No. E.91.XIII.6.
- Review of Recent National Demographic Target-setting.* English only. 148 pp., \$17.00. ST/ESA/SER.A/108. Sales No. E.89.XIII.5.
- Adolescent Reproductive Behaviour. Vol. I: Evidence from Developed Countries.* English only. 178 pp., \$22.00. ST/ESA/SER.A/109. Sales No. E.88.XIII.8.
- Vol. II: *Evidence from Developing Countries.* English only. 128 pp., \$17.50. ST/ESA/SER.A/109/Add.1. Sales No. E.89.XIII.10.

## Technical manuals on methodology of demographic analysis and projections

- Manual IX: The Methodology of Measuring the Impact of Family Planning Programmes on Fertility.* English, French and Spanish. 153 pp., \$12.00. ST/ESA/SER.A/66. Sales No. E.78.XIII.8. Addendum. English, French and Spanish. 38 pp., \$8.00. ST/ESA/SER.A/66/Add.1. Sales No. E.86.XIII.4.
- Manual X: Indirect Techniques for Demographic Estimation.* English, French and Spanish.\*\*\* 304 pp., \$32.00. ST/ESA/SER.A/81. Sales No. E.83.XIII.2.
- Model Life Tables for Developing Countries.* English, French and Spanish. 351 pp., \$23.00. ST/ESA/SER.A/77. Sales No. E.81.XIII.7.
- Step-by-step Guide to the Estimation of Child Mortality.* English only. 83 pp., \$50.00. ST/ESA/SER.A/107. Sales No. E.89.XIII.9.
- MORTPAK-LITE: The United Nations Software Package for Mortality Measurement.* English only. 121 pp., \$17.00 (excluding the software). ST/ESA/SER.A/104. Sales No. E.88.XIII.2.
- MORTPAK: The United Nations Software Package for Mortality Measurement. Batch-oriented Software for the Mainframe Computer.* English only. 254 pp. ST/ESA/SER.R/78.
- MORTPAK and MORTPAK-LITE Upgrades: Version 3.0 of the United Nations Software Packages for Mortality Measurement.* English only. 78 pp., \$25.00 (excluding the software). ST/ESA/SER.A/117. Sales No. E.90.XIII.7.
- The United Nations Population Projection Computer Program: A User's Manual.* English only. 119 pp. ST/ESA/SER.R/92.
- Projection Methods for Integrating Population Variables into Development Planning. Vol. I: Methods for Comprehensive Planning. Module One: Conceptual Issues and Methods for Preparing Demographic Projections.* English only. 255 pp. ST/ESA/SER.R/90. Module Two: *Methods for Preparing School Enrolment, Labour Force and Employment Projections.* English only. 471 pp. ST/ESA/SER.R/90/Add.1. Vol. II: *Methods for Sectoral Planning* (forthcoming).

## Population estimates and projections

- World Population Prospects, 1990.* English only. 607 pp., \$85.00. ST/ESA/SER.A/120. Sales No. E.91.XIII.4.
- The Sex and Age Distributions of Population: The 1990 Revision.* 391 pp., \$49.00. ST/ESA/SER.A/122. Sales No. E.90.XIII.33.
- World Urbanization Prospects, 1990.* English only, 232 pp., \$29.00. ST/ESA/SER.A/121. Sales No. E.91.XIII.11.
- Mortality of Children Under Age 5. World Estimates and Projections, 1950-2025 (1984 revision).* English only. 50 pp., \$9.50. ST/ESA/SER.A/105. Sales No. E.88.XIII.4.

## Population Bulletin of the United Nations

- No. 28. Articles include: From one demographic transition to another (Léon Tabah); comparative analysis of completed parity distributions, a global WFS perspective (Wolfgang Lutz); predicting the "vagaries" of mortality—the causes of death in Bamako from 1974 to 1985 (N. Bonneuil and P. Fargues); correlates of fertility in selected developing countries (United Nations Secretariat). English, French and Spanish. 106 pp., \$9.00. ST/ESA/SER.N/28. Sales No. 90.XIII.3.
- No. 29. Articles include: The demographic response to economic crisis in historical and contemporary populations (Ronald Lee); population projection as prediction, simulation and prospective analysis (Anatole Romaniuc); urban and rural populations and labour-force structures, current patterns and their implications (Alain Marcoux); improvements in the census questionnaires and handbooks that gather information on the female labour force in Latin America (Zulma Recchini de Lattes); non-governmental organizations and the World Population Plan of Action (United Nations Secretariat). English, French and Spanish. 88 pp., \$9.00. ST/ESA/SER.N/29. Sales No. 90.XIII.5.
- No. 30. Articles on: The use of new model life tables at very low mortality in population projections (Ansley Coale and Guang Guo); old-age mortality patterns in low-mortality countries — an evaluation of population and death data at advanced ages, 1950 to the present (Gretchen A. Condran, Christine L. Himes and Samuel H. Preston); the demography of disability (Yuen-chung Yu); applications of the Heligman/Pollard model mortality schedule (Andrei Rogers and Kathy Gard); measurement and analysis of cohort-size variations (Shiro Horiuchi). English, French and Spanish. 125 pp., \$15.00. ST/ESA/SER.N/30. Sales No. E.91.XIII.2.

\* All inquiries should be addressed to the Director, Population Division, United Nations Secretariat, Rm. DC2-1950, New York, NY, USA.

\*\* A joint publication of the United Nations and the World Health Organization.

\*\*\* Spanish out of print.

# Ageing and Urbanization

**Proceedings of the United Nations  
International Conference on Ageing Populations  
in the Context of Urbanization  
Sendai (Japan), 12–16 September 1988**



# URBANIZATION AND DEMOGRAPHIC AGEING: THE CASE OF A DEVELOPING COUNTRY, ARGENTINA

Zulma Recchini de Lattes\*

Like many other socio-demographic processes, population ageing does not occur homogeneously, but is one of many aspects by which internal or regional inequalities are manifested in a country. Population ageing usually differs between urban and rural areas (Pelaez y Arguello, 1982) and can be expected to differ among regions and urban agglomerations as much as the demographic and socio-economic history of regions and cities differentiate.

But, since migration and population redistribution are not popular topics in population studies, the ageing process of cities in relation both with migration and the demographic transition has not been a privileged subject of analysis. On the contrary, the literature on urban population ageing is relatively rare. Rarely has the analysis of changes in the urban (rural) age structure as a country urbanizes been systematically undertaken. Most notable exceptions are the cases of Canada (Stone, 1969; Weiss-Altaner, 1983) and Argentina (Recchini de Lattes, 1973).

This paper attempts to throw light on the subject by presenting an analysis of the demographic ageing of the urban population for the case of Argentina. After a brief presentation of the general relationship between urbanization, demographic transition and migration on the one hand and ageing on the other, long-term trend data for Buenos Aires (Argentina's largest city) and recent data for the rest of the urban population are presented and interpreted in relation to available knowledge on migration and demographic transition for the urban population. Information on ageing for individual cities proved to be important, not only for a clear comprehension of the phenomenon of ageing, but for effective policy formulation as well.

## Urbanization, demographic transition migration and ageing<sup>1/</sup>

Urbanization is a process of redistributing the population whereby the proportion urban increases. It should be distinguished from urban growth. The latter can take place without urbanization, provided growth rates of both rural and urban population are the same. There is no limit to urban growth, which can proceed through natural increase, migration and the reclassification of rural populations as urban. Nor is there a limit to urban population redistribution, that is, changes in the urban hierarchical system that can continue forever through differential in natural increase and urban-to-urban migration. On the contrary, there is a clear limit to urbanization when no rural population remains.

As long ago established, fertility reduction is the main factor in the ageing of a closed population, with mortality reduction contributing, on the contrary, to the rejuvenation of the population in the initial stages of the transition (United Nations, 1956). As mortality reaches low levels - as in many present day industrialized countries - further declines in mortality will "produce even stronger ageing at the 'apex' on the age distribution" (Myers, 1981, p. 698).

---

\*Director, Centro de Estudios de Población, Buenos Aires, Argentina.

Most frequently, the urbanization and demographic transition processes interact. In today's developing countries mortality reductions have been generally induced by technological imports from developed countries and have clearly started in the cities. Fertility transition also starts in urban areas usually in very large cities, and then spreads to medium-sized cities and towns and finally to rural areas.<sup>2/</sup>

Urbanization takes place mainly through rural-to-urban migration (United Nations, 1980). But in-migration to urban areas does not have a homogeneous impact through the urban hierarchy, nor is rural-to-urban migration the only type of migration affecting urban areas. On the contrary, certain cities in a country's urban system are usually more developed and more attractive than others. These cities receive not only a major share of rural-to-urban migration but migration from other cities and international migration as well. For example, it has been demonstrated that net-migration is a much more important component of growth for large metropolitan areas than for the remaining urban population of developing countries (United Nations, 1985). International migration can be a very important component of population redistribution for the recipient (Recchini de Lattes, 1967, 1971 and 1973) as well as for the sending country (Lattes, 1984). As a society becomes highly urbanized, urban-to-urban migration will be the predominant pattern of migration and redistribution within the urban system may continue forever, as the attractiveness of cities can, and usually does, change through time (see the example of Argentina later on).

Since migration is age-selective, it produces differentiation between rural and urban age structures beginning with the very early stages of the urbanization process. Migration acts in two ways on the age structure of urban (and rural) population. Firstly, since migrants usually concentrate at young adult ages, they directly deplete the rural pyramid at those ages and inflate the urban. Several decades later migrants will reach the apex of the pyramid and will contribute to increasing the proportion of elderly population at destination areas (migration echo effect). At the same time old-age migrants could also be directly contributing to inflating the apex of the pyramid. Secondly, migration raises natural increase in urban areas, because the majority of migrants are in the highest fertility and lower mortality age groups. Raising the rate of natural increase rejuvenates the age structure. This effect is independent of the fertility level of migrants, who usually have lower fertility than their non-migrant rural counterparts. The momentum created by the combination of migration and rising natural increase in urban areas through the age structure of migrants would disappear soon after rural-to-urban migration ceases to have an impact on the urban population, as urbanization reaches high levels (and the earlier bulge in the pyramid smooths out).

Because of both the interaction between the demographic transition and urbanization and the age-selectivity of migration, typically, the proportion of children will be higher in rural than in urban areas. Similarly, children will be usually a smaller proportion in large urban agglomerations than in towns. At the apex of the pyramid, on the contrary, empirical results show that the proportion of the aged population can be higher either in urban or rural areas, as for Latin America (Pelaez and Argüello, 1982). No simple relationship between rural-urban differentials in the proportion aged and demographic factors could be formulated, since many factors act during a long period for this differentiation to occur: demographic transition, urbanization, and intensity, timing, and age selectivity of migration. Similarly, the proportion of the elderly population along the urban hierarchy is hard to predict in the absence of a firm knowledge of the demographic history, especially migration history, of each city over a long period. The position of a city in the urban hierarchy says something about the possible interplay of demographic factors of change, but only in very broad terms and for extreme city-sizes, like the largest or several largest cities on the one side, and small cities or towns on the other. But any

attempt to predict on the basis of size for individual cities will be, as in the example from Argentina, subject to serious mistakes.

Ageing in Argentinian cities: international migration,  
demographic transition and internal migration

General population features

International migration had a tremendous influence on Argentinian demographic, social, economic, political and cultural life. Demographically speaking, it left its mark in the country's population growth and redistribution - most notably urbanization - mortality and fertility levels and age and sex composition. From 1870 to 1914 direct contribution of international migration to total population growth was 49 per cent.<sup>3/</sup> After 1914, the direct contribution of international migration to total population growth diminished substantially, but still represented about a quarter of it during the late 1940s and the 1950s (Recchini de Lattes, 1967). Immigrants settled mainly in urban areas and contributed more to urban population growth (and to urbanization) than to national population growth.<sup>4/</sup> For example, in 1914 the proportion of foreign-born population in the country was 30 per cent, but reached 37 per cent for the urban population and 49 per cent for the largest city (Recchini de Lattes, 1973). More recently, not only international migration has continued to decline, but a new phenomenon emerged during the 1970s: the emigration of native-born Argentinians abroad (Lattes and Oteiza, 1986).

The demographic transition in Argentina followed a path different from most Latin American countries (Pantelides, 1983). Both mortality and fertility decline started before the end of the nineteenth century, following a parallel trend. Fertility declined from a total fertility rate of about 6 (or 7, according to some estimations) in 1895 to 5.3 in 1914. The biggest decline occurred between 1914 and 1947, when it dropped to 3.3. It continued a gradual decline to a low 2.9 in 1970 and rose again to 3.4 in 1980 (table 1). Life expectancy at birth started to increase at the end of last century, reaching 48.5 for both sexes combined in 1914. It continued a rapid decline up to 1947, when the level (61.1) was relatively high in comparison with most developing countries at that time, and continued increasing, with oscillations, up to 69 years in 1980. The average annual rate of natural increase was never higher than 20 per thousand nor lower than 13 per thousand in the 75-year period from 1895 to 1970. By the beginning of the 1940s, when the populations of most Latin American countries were still growing at very high rates, the Argentinian rate of natural increase was only slightly over 13 per thousand. It stayed at that level up to 1970 and increased to about 15 per thousand during the 1970s.

Another feature of the population of Argentina is its urbanization process, which started very early in comparison with most developing countries. The proportion of the population living in urban areas was high in relation to the developing and even many developed countries since at least the end of the last century. In 1920 the proportion of population in agglomerations of 20 thousand plus (37 per cent) was higher than the average for more developed countries (30 per cent), similar to the proportion in countries like France, Canada and New Zealand, but somewhat lower than in the United States (United Nations, 1969, tables 12 and 45). By 1950 Argentina and Uruguay were the only developing countries with more than 65 per cent of their populations in urban areas. In 1980, Argentina was among the 15 most urbanized countries in the world with 83 per cent of its population living in urban areas.<sup>5/</sup>

Table 1. Several demographic dimensions of the population of Argentina, 1985-1980

Year	Population (thousands)	Growth rate (per cent)	Foreign born/ total population (percentage)	Urban population (percentage)	Urbani- zation rate (per cent)	Total fertility rate	Life expectancy at birth (years)
1895	4 124	3.6	25.4	37.4	1.4	6.0	40.0 <sup>a/</sup>
1914	8 162	2.0	29.9	52.7	0.6	5.3	48.5
1947	15 894	1.7	15.3	62.2	1.1	3.3	61.1
1960	20 014	1.5	13.0	72.0	1.0	3.0	66.4
1970	23 264	1.8	9.5	79.0	0.4	2.9	65.6
1980	27 950		6.8	83.0		3.4	69.0

Sources: Zulma L. Recchini de Lattes and Alfredo E. Lattes, La población de Argentina (Buenos Aires, Instituto Nacional de Estadísticas y Censos, 1975), tables 1.1, 2.15, 3.1 and 5.1; Alfredo Lattes and Sonia Mychaszula, Urbanization, Migration and Urban Deconcentration in Argentina (Buenos Aires, Centro de Estudios de Población (CENEP), n.d.); Government of Argentina, Censo Nacional de Población y Vivienda, 1980. Total del País, por Provincia, Departamento y Localidad, Serie D: Población (Buenos Aires); Edith Alejandra Pantelides, La transición demográfica Argentina: un modelo no ortodoxo, Cuaderno del CENEP, No. 29 (Buenos Aires, 1983).

<sup>a/</sup> Corresponds to period 1895-1914.

The population of Argentina is very concentrated, and the primacy of its urban system very high. Buenos Aires, Argentina's largest urban agglomeration, shared more than 40 per cent of the urban population since at least 1947 and over a third of the total population of the country since 1960. Although the share of Buenos Aires in the urban population started to reduce in the 1950s, in 1980 it was still 10 times the population size of the next city, and four times the combined population of the next three cities (Lattes and Mychaszula, n.d.). International and internal migration have been very important factors in the shaping of the urban hierarchy.

To summarize, four distinct stages can be singled out in the demographic development of Argentina, including demographic transition and urbanization processes, from the end of nineteenth century to the present.<sup>6/</sup>

1895 to 1914: declining fertility and mortality; big impact of European migration; rising urbanization; urban population becomes predominant; large concentration in Buenos Aires; probably very low rural-to-urban migration.

1914 to 1947: strong decline in mortality and fertility; declining international migration; rapid urbanization; net urban in-migration and rural out-migration.

1947 to 1970: declining fertility, oscillating mortality; last wave of European immigration and important Latin American immigration; very high urbanization levels, rural population decreases; net urban in-migration and rural out-migration, urban-urban migration.

1970 to 1980: rising fertility and declining mortality; emigration of Argentinians, declining immigration from Latin American countries; net urban in-migration and net rural out-migration; urban-urban migration.

#### Changes in national age structure

The population of Argentina was young up to 1914, the proportion of children 0-14 exceeded 38 per cent (table 2). At that time the adult age profile was already swollen at ages 20-34, especially among males, as a main consequence of international migration (Muller, 1981). Between 1914 and 1947, when the most dramatic changes in the dynamics of the Argentine population occurred (strong decline in fertility, mortality and international migration), the proportion of children was significantly reduced (figure I) while adults increased their share. From 1947 on, the proportion of children oscillated between 29 and 31 per cent, mimicking the trend in the natural increase rates (figures I and II).

The aged population shows a different process. The proportion of population aged 60 and over started to rise hesitantly between 1895 and 1914 (figure III), increased significantly to 1947 and from then on without interruption to the present. Oscillations in the rates of natural increase were not reflected in the proportion elderly, because they were counteracted by the ageing of migrant cohorts that arrived at young adult ages between the end of the nineteenth century and the beginning of the twentieth (migration echo effect) and were not replaced at similar rates in more recent years (figure II). Since mortality is relatively low in Argentina, in very recent years mortality decline could also be contributing to the increase in the proportion of elderly population.



Table 2. Indicators of age structure, urban and rural population: Argentina, 1895-1980

Year	Large cities			Small cities	Rural	Total urban	Total country
	Buenos Aires	Rosario and Cordoba	Other large cities				
<u>Proportion 0-14 (percentage)</u>							
1895	33.4	..	..	..	43.5	38.9	40.2
1914	30.1	..	..	..	..	..	38.4
1947	21.2	26.4	28.1	31.6	38.8	25.8	30.9
1960	23.8	27.0	28.9	33.3	39.0	27.9	30.8
1970	24.4	..	..	..	34.9	27.8	29.2
1980	26.6	28.0	29.4	32.1	36.4	29.1	30.4
<u>Proportion 60+ (percentage)</u>							
1895	3.3	..	..	..	3.5	3.3	3.6
1914	4.1	..	..	..	..	..	4.0
1947	8.1	7.1	6.6	6.8	5.2	7.4	6.6
1960	10.9	9.4	8.9	8.4	6.8	9.7	8.9
1970	12.6	..	..	..	9.0	11.3	10.8
1980	13.7	12.4	11.5	10.8	9.7	12.2	11.8

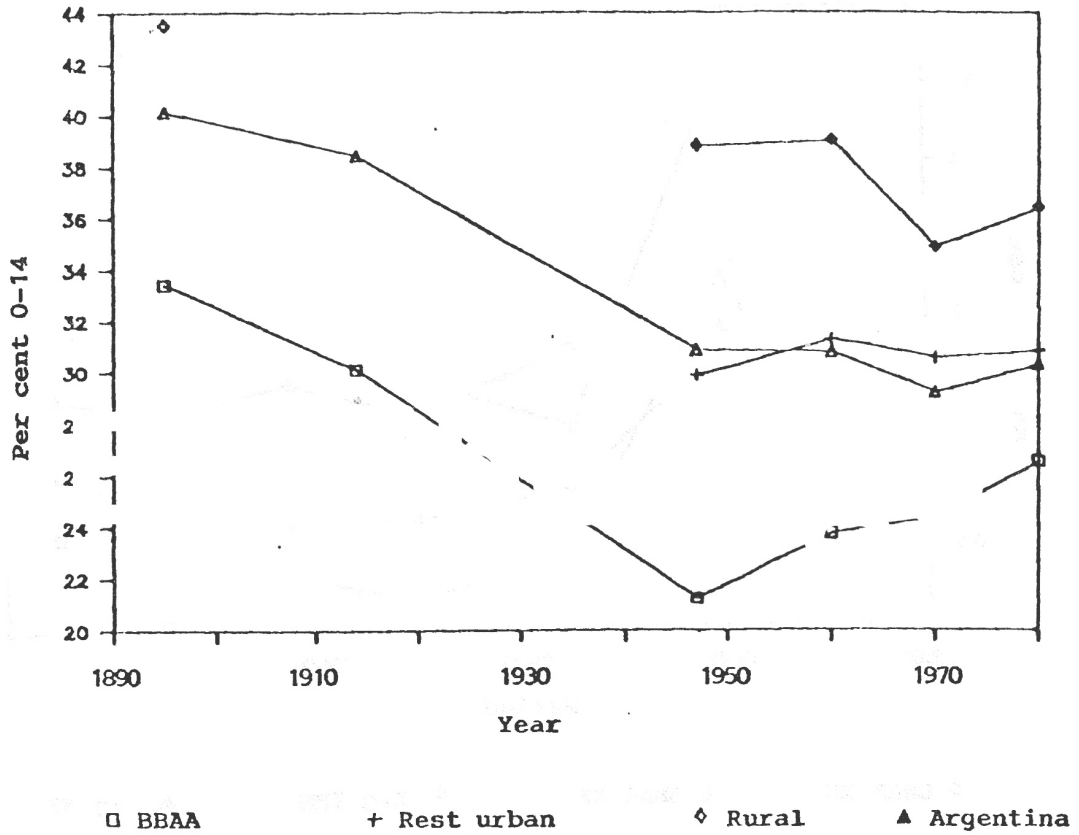
Source: Publications of the Centro de Investigaciones Sociales/Instituto Torcuato Di Tella/Centro Latinoamericano de Demografía/Editorial del Instituto, Buenos Aires: Zulma Recchini de Lattes (1973), Aspectos Demográficos de la Urbanización en la Argentina, 1869-1960, tables A.1, A.3 and A.4; (1971) La Población de Buenos Aires: Componentes Demográficos del Crecimiento entre 1855 y 1960, table A.1; Z. Recchini de Lattes and Alfredo E. Lattes (1969), Migraciones en la Argentina: Estudio de las Migraciones Internas e Internacionales Basado en Datos Censales, 1869-1960, table A.1.

Publications of the Instituto Nacional de Estadísticas y Censos, Buenos Aires: Government of Argentina, Censo Nacional de Población, 1960, vol.I, Buenos Aires; Censo Nacional de Población, Familias y Viviendas, 1970: Resultados Provisionales; Censo Nacional de Población y Vivienda, 1980, Serie B: Características Generales.

1970 Urban and Rural: Estimate of the Centro de Estudios de Población (CENEP).

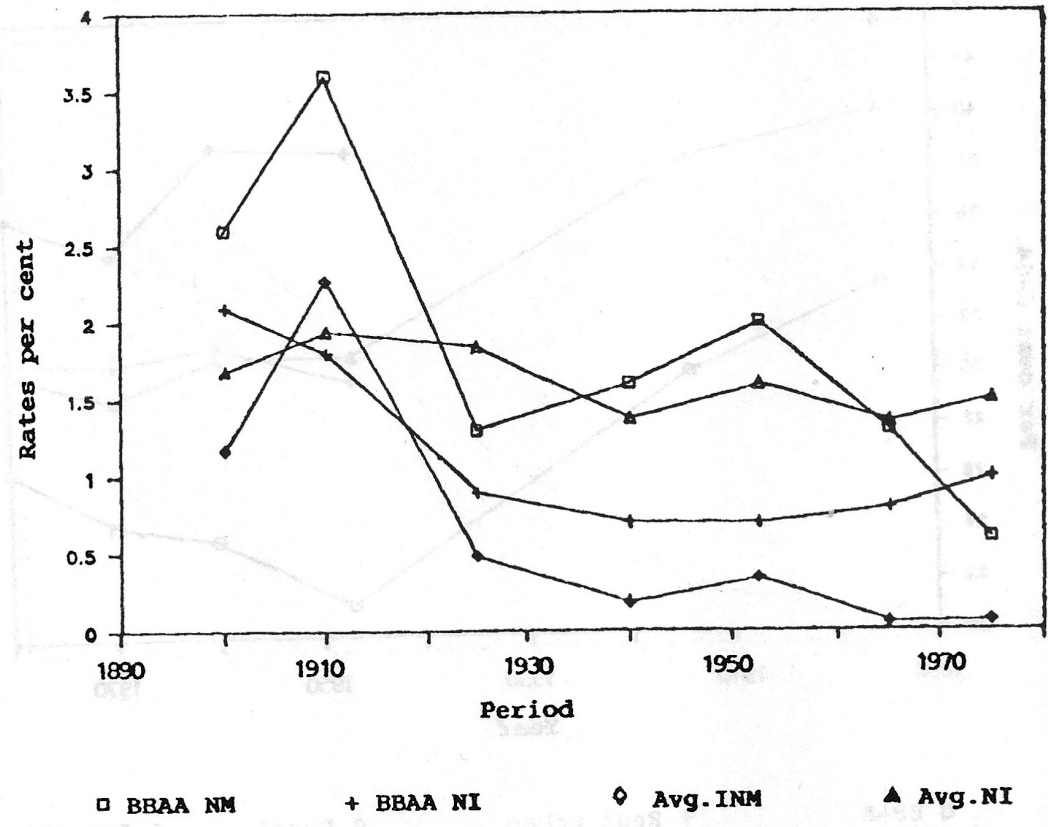
a/ Greater Mendoza, Greater La Plata, Greater Tucuman, Mar del Plata, Greater San Juan, Salta and Bahía Blanca.

Figure I. Children aged 0-14 as percentage of total population: Argentina, Buenos Aires (BBAA), rest of urban and rural, 1985-1980



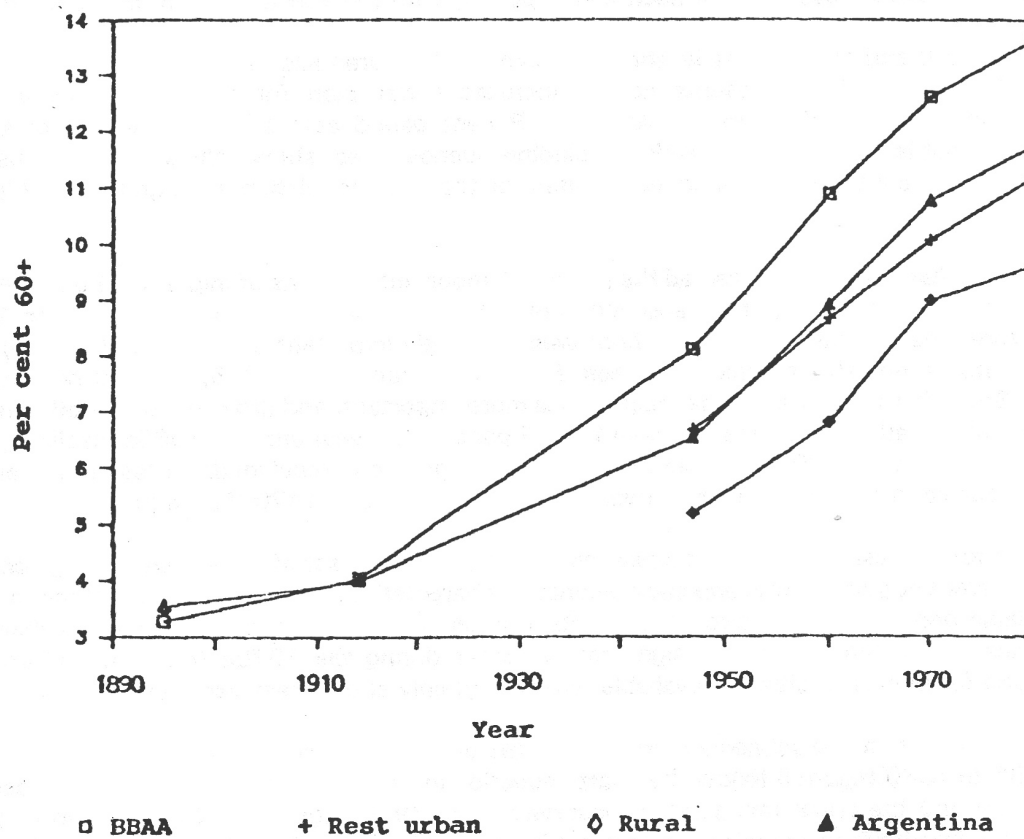
Source: Table 2 and own calculations.

Figure II. Natural increase (NI) and net migration (NM) rates: Argentina and Buenos Aires (BBA), 1885-1905 to 1970-1980



Source: Table 3.

Figure III. Population aged 60+ as percentage of total population: Argentina, Buenos Aires (BBAA), rest of urban, and rural, 1895-1980



Source: Table 2 and own calculations.

### Urban population ageing

Factors acting on national ageing were also in force for ageing of the urban population, with the following qualifications and additions. First, there was a difference in the timing of the demographic transition between urban and rural areas, and between large and small urban agglomerations. Secondly, besides international migration, several types of internal migration were part of urban population dynamics, such as rural-urban, urban-rural, and urban-urban. But information on the demographic transition and migration for either the urban population as a whole or for individual cities is not so readily available for such a long period, with the sole exception of Buenos Aires.<sup>2/</sup>

Figure II and table 3 clearly show the expected differentials in natural increase rates: since 1905-1915 Buenos Aires presents natural increase lower than for the country as a whole (a combination of rural and urban populations). Recent period estimates for the rest of the urban population (that is, the urban population excluding Buenos Aires) show values similar to the national figures. On the contrary, natural increase rates for the rural population are significantly higher than the national average.

The urban population received the impact of important amounts of migration, both international and internal, varying in magnitude and importance through the long period from 1895 to 1980. In Buenos Aires, net migration of foreign born was extremely important until the 1930s (table 3), with mean net migration rates reaching between 2 and 3 per cent up to 1915, and 0.9 per cent during 1915-1935. After that time internal migration is more important, and growth due to both internal and international migration fluctuates between 1 and 2 per cent per year until the 1960s, declining to lower levels only during the 1970s, in an always increasing population (Recchini de Lattes, 1971; and Lattes and Mychaszula, n.d.), predominating over natural increase up to 1970 (figure II).

As for the rest of the urban population - a heterogeneous set of more than 600 agglomerations of very different population size and socio-economic characteristics - estimations of net migration rates are available only for the last two periods. Rest-urban net migration rates were lower than Buenos Aires rates during the 1960s but significantly higher during the 1970s (table 3). More detailed information for individual cities, if available, would certainly show great variation in rates.

The reduction and subsequent increase in the proportion of children observed for Buenos Aires from 1895 to 1980 (figure I) follow the sharp reduction in natural increase during the first decades of this century and the weak recuperation observed since 1960 (figure II). Net addition of both the foreign-born (predominantly males) up to the 1920s and the native-born (predominantly females), at first increased the adult ages of the pyramid at time of arrival (with the above-mentioned consequences in natural increase). Several decades later, the same persons became part of the aged population.<sup>8/</sup> The proportion of elderly increased slowly first and then at an accelerated speed from 4.1 per cent in 1914 to 8.1 in 1947. From then on the proportion continued to rise sharply, reaching 13.8 per cent in 1980. Since natural increase rose during the 1960s and 1970s, the increase in the proportion of the elderly population in the past 20 years is mainly a reflection of the ageing process of several migrant cohorts that have not been replaced at equivalent rates in recent periods. Two more factors could also be operating: (a) migration of the elderly,<sup>9/</sup> and (b) the reduction in adult mortality.<sup>10/</sup>

Age structure information for cities other than Buenos Aires is also less abundant. Table 4 presents data for 1947, 1960 and 1980 for Rosario and Cordoba - the two cities next to Buenos Aires in population size -, other large cities (more than 200,000) in 1980, small cities and towns, and the rural population. The picture is very clear. They all present a trend similar to Buenos Aires, with small oscillations for categories "small cities and towns" and rural. The proportion of children and of the

Table 3. Natural increase and net migration rates: Argentina, Buenos Aires, rest of urban, and rural populations, 1895-1980

(per cent)

Intercensal periods	Buenos Aires				Rest urban <sup>a/</sup>		Rural		Argentina	
	Natural increase	Net migration			Natural increase	Net migration	Natural increase	Net migration	Natural increase	Net <sup>b/</sup> migration
		Natives	For.born	Total						
1895-1905	2.1	0.5	2.0	2.6	..	..	..	..	1.7	1.2
1905-1915	1.8	0.3	3.3	3.6	..	..	..	..	1.9	2.3
1915-1935	0.9	0.4	0.9	1.3	..	..	..	..	1.8	0.5
1935-1945	0.7	1.1	0.4	1.6	..	..	..	..	1.4	0.2
1945-1960	0.7	1.2	0.8	2.0	..	..	..	..	1.6	0.3
1960-1970	0.8	1.1	0.2	1.3	1.3	0.9	2.3	-2.6	1.4	0.1
1970-1980	1.0	0.4	0.2	0.6	1.5	0.9	2.3	-1.9	1.5	0.1

Sources: Zulma Recchini de Lattes, La población de Buenos Aires: Componentes Demográficos del Crecimiento entre 1855 y 1960 (Buenos Aires, Centro de Investigaciones Sociales, Instituto Torcuato Di Tella, Centro Latinoamericano de Demografía; Editorial del Instituto, 1971), table 5.3; Alfredo E. Lattes, "Redistribución espacial y migraciones". in Zulma Recchini de Lattes and Alfredo E. Lattes, La Población de Argentina (Buenos Aires, Instituto Nacional de Estadísticas, 1975); Alfredo E. Lattes and Sonia Mychaszula, Urbanization, Migration and Urban Deconcentration in Argentina (Buenos Aires, Centro de Estudios de Población (CENEP), n.d.); and CENEP estimation.

Notes:

<sup>a/</sup> Urban population less Buenos Aires.

<sup>b/</sup> International.

.. Information not available.

elderly both increased from 1947 to 1980. At any given time, a rural-urban continuum is also observed. Buenos Aires has the oldest age structure and the rural population the youngest, reflecting different trends in fertility and mortality transition and varying degrees of migration impact. But from this observation about the rural-urban continuum in the age structure it cannot be generalized that there is a linear relationship between city size and the proportion of elderly population whereby the largest cities would have the largest proportion elderly and the towns the smallest.

Detailed information for cities included in both the "Rosario and Cordoba" and "other large cities" categories is available for 1980 (table 4). Both groups conceal a large amount of variation within each category. On the one hand, Cordoba and Rosario, both very close to 1 million population in 1980, are very different in age structure. Rosario is much more aged than Cordoba, even more so than Buenos Aires. On the other hand, the category grouping the other large cities in table 2, showing a combined proportion of aged population of 11.5 per cent, is a mixture of very different situations. The proportion of the population aged 60 and over varies from a high of 14.2 for Greater La Plata - the second most advanced city in the ageing process in Argentina after Rosario - to a low 7.3 per cent for Salta.

The 10 cities (including Buenos Aires) have been grouped into two categories in table 4: (a) those having an aged population of around 14 per cent (and less than 28 per cent children), and (b) those having aged population between 7 and 11 per cent (and 29.5 per cent or more children). Population size categories are very mixed in these two groups. The first grouping includes Buenos Aires and Rosario, the largest and third largest city in population size and, in the other extreme, Bahia Blanca, the smallest. What do these cities have in common besides being the most similarly aged? They are all located in the two most developed provinces of Argentina, Buenos Aires province and Santa Fe. These two provinces, together with Buenos Aires city, have concentrated around 90 per cent of internal net in-migration during this century (Recchini de Lattes and Lattes, 1969; Elizalde, n.d.; and Lattes and Mychaszula, n.d.).<sup>12/</sup> Since migration is directed mainly to urban areas, it means these cities were, most probably, the main recipients of internal migration during this century. Fertility transition started earlier in these provinces than in the provinces where the other cities are located.<sup>12/</sup> This is still a very rough approximation to the history of population dynamics of each city. Deeper knowledge is necessary, since other than the processes already pointed out could have been taking place. For example, common knowledge (not supported by scientific measurement so far to the author's knowledge) points to Mar del Plata as a city attractive for retired people, especially retired couples from Buenos Aires who would move after retirement.<sup>13/</sup> The notably high sex ratio for Mar del Plata's elderly population - highest among all cities included in table 4 - would support this hypothesis. It is also possible that old widows and widowers migrate to Buenos Aires and other large cities to be close to children who migrated in previous years.

#### Women in the ageing process

In a closed population, women are expected to predominate at old ages as a consequence of differential mortality favouring females, and empirical information usually confirms this hypothesis. In Argentina, where the predominantly male international migration produced a very important impact in population growth during a long period in the past, the aged population is predominantly female only since 1960. In the urban population, also receiving the impact of international migration, but adding to it the impact of internal migration since approximately the 1930s, females predominate among the aged at least since 1947 (table 5). Buenos Aires has consistently lower sex ratios than other large cities and the rest of the urban population, as a consequence not only of differential mortality favouring females, but because of a history of predominantly female internal migration.<sup>14/</sup> The counterpart of this

Table 4. Indicators of age and sex structure of Argentinian large cities,<sup>a/</sup> ranked by the proportion 60+, 1980

City	Population (thousands)	Percentage of population		Sex ratio (men per 100 women)	
		0-14	60 +	Total	60 +
Rosario	938	26.4	14.6	92.6	71.7
Greater La Plata	585	25.8	14.2	95.9	72.2
Buenos Aires	9766	26.6	13.7	92.6	70.4
Mar del Plata	434	26.0	13.6	95.3	81.0
Bahia Blanca	234	27.3	13.5	93.4	74.9
Greater Mendoza	564	30.0	11.0	91.5	74.9
Cordoba	993	29.5	10.3	93.0	69.2
Greater Tucuman	423	31.7	9.1	90.2	73.9
Greater San Juan	275	33.6	9.1	89.9	80.3
Salta	266	35.9	7.3	89.9	77.8

Source: Government of Argentina, Censo Nacional de Población y Vivienda, 1980; Total del País, por Provincia, Departamento y Localidad, Serie D, Población (Buenos Aires, Instituto Nacional de Estadísticas y Censos, n.d.).

a/ Statistical approximation of given urban agglomerations by addition of information of small administrative units.



Table 5. Sex ratio of elderly population, urban and rural: Argentina, 1895-1980

Year	Large cities			Small cities	Rural	Total urban	Total country
	Buenos Aires	Rosario and Cordoba	Other large cities(a)				
1895	100.1	..	..	..	114.5	83.7	99.7
1914	98.5	..	..	..	..	..	107.1
1947	89.8	95.4	96.4	91.7	136.3	91.8	103.1
1960	81.8	89.1	90.5	96.2	131.5	87.3	94.7
1970	75.5	..	..	..	128.6	80.2	87.2
1980	70.4	70.6	75.7	80.4	120.3	74.2	79.5

Source: Publications of the Centro de Investigaciones Sociales/Instituto Torcuato Di Tella/Centro Latinoamericano de Demografía/Editorial del Instituto, Buenos Aires: Zulma Recchini de Lattes (1973), Aspectos Demográficos de la Urbanización en la Argentina, 1869-1960, tables A.1, A.3 and A.4; (1971) La Población de Buenos Aires: Componentes Demográficos del Crecimiento entre 1855 y 1960, table A.1; Z. Recchini de Lattes and Alfredo E. Lattes (1969), Migraciones en la Argentina: Estudio de las Migraciones Internas e Internacionales Basado en Datos Censales, 1869-1960, table A.1.

Publications of the Instituto Nacional de Estadísticas y Censos, Buenos Aires: Government of Argentina, Censo Nacional de Población, 1960, vol.I, Buenos Aires; Censo Nacional de Población, Familias y Viviendas, 1970: Resultados Provisionales; Censo Nacional de Población y Vivienda, 1980, Serie B: Características Generales.

1970 Urban and Rural: Estimate of the Centro de Estudios de Población (CENEP).

a/ Greater Mendoza, Greater La Plata, Greater Tucuman, Mar del Plata, Greater San Juan, Salta and Bahía Blanca.

phenomenon is the predominance of males in rural areas. Even if the sex differential in mortality has the same direction as for urban areas, since out-migration is predominantly female -- at young and probably at old ages -- this selectivity counteracts the effect of mortality.

### Conclusion

It is a very well known fact that the demographic transition causes, among other things, the ageing of a closed population. On the other hand, migration - the main factor of urbanization - causes the increase in the proportion of the aged population several decades after the impact of young adult migration. As the timing of demographic transition varies through the urban hierarchy, and cities - reflecting socio-economomic inequalities - receive varying impacts of migration through the urban system and through time, the ageing process may differ widely among cities in a country. This fact poses tremendous challenges to researchers since the knowledge of specific situations is indispensable for the formulation of effective policies, and the degree of ageing and the distribution of the aged population in the urban system should guide the distribution of resources to take care of needs. In developing countries, where there is a recent trend in decentralizing policy decisions at the local level, the diagnostic and projection of the ageing process for individual cities is most necessary.

The analysis of ageing through the urban hierarchy in Argentina faced tremendous limitations of available theory, empirical data and research. These limitations are by no means limited to this case study but, unfortunately, general for developing countries (see, for example, the paper by Hugo in this volume), or even for developed countries (as in the case of theory and research). The analysis attempted to show differentiation in the ageing process through the urban hierarchy. As expected, the proportion of the elderly population was the largest in the largest cities and smallest in towns and rural areas. But this general relationship could not be interpreted as a rule for individual cities. Empirical information showed many deviations from it, and deductive analysis indicated a combination of forces or a timing impossible to specify with the estimations at hand for the long period needed for some demographic processes to reach the apex of the pyramid. More research is clearly needed, in developing and developed countries, to make further progress in this subject.

### Notes

1/ In this paper "demographic transition" implies exclusively the transition of vital rates.

2/ Rural-urban differentials in fertility can vary widely from country to country. As observed in some African countries, fertility can be even higher in urban than rural areas as a consequence of better health conditions in urban areas, but as soon as fertility starts to decline it does so in urban areas first.

3/ A crude estimation of its total contribution (direct and indirect) would raise that figure to around 59 per cent (Recchini de Lattes, 1967, table 2).

4/ The contribution of international migration to the growth of Buenos Aires, the largest city of Argentina, representing a sizeable proportion of the urban population was more than 45 per cent of total growth from mid-nineteenth century up to 1935, and exceeded 70 per cent during the periods 1855-1870, 1870-1885 and 1905-1915.

5/ Taking into consideration only countries with 300,000 inhabitants or more (see United Nations, 1987).

6/ The stages have been established taking into account mainly information at national population census dates, as provided in table 1. More detailed information would establish slightly different dates to define the stages.

7/ Buenos Aires was simply Buenos Aires city at the end of the last century. The city grew rapidly and annex areas, called "Gran Buenos Aires", formed a continuum with the city. In recent decades the whole urban agglomeration started to be called "Buenos Aires metropolitan area". In this paper it is referred to simply as Buenos Aires for any period.

8/ For example, the survivors of migrants who arrived at young adult ages (say 20-29) at the beginning of this century (say, in 1910) would be 60-69 in 1950 and 80-89 in 1970. Those who arrived at the same ages between 1945 and 1960 would be between 40 and 64 in 1980. Those who arrived either prior to 1945 or older than 29 would be, of course, older in 1980.

9/ There is no available data on elderly migration to cities. The proportion of population migrating between provinces for the period 1965-1970 was 3.8 per cent for age group 60-64 and 3.4 per cent for those 60 and over in 1970 (Abdala and Elizalde, n.d., annex table 1). The proportions were smaller for the period 1975-1980: 2.3 and 2.2 per cent (Elizalde, n.d., table 6).

10/ Life expectancy for age 50 (both sexes) increased from 24.3 in 1969-1971 to 26.3 in 1980-1981, and for age 60 from 16.7 to 18.3 (Muller, 1978, table 2.a; and Somoza and Muller, 1988, table 2.a).

11/ Buenos Aires city, a part of Buenos Aires metropolitan area, constitutes an administrative unit separated from the province of the same name. The rest of Buenos Aires metropolitan area administratively belongs to Buenos Aires province.

12/ In 1947 birth rates were less than 22 per thousand in the provinces where the most aged cities are located, and between 28 and 41 per thousand in the provinces where the other cities are located. In 1980 the gap was considerably narrowed: around 22 per thousand in the most aged provinces, and between 24 and 36 per thousand in the others (Pantelides, 1987, table 31).

13/ There are several hypothesis for the attractiveness of Mar del Plata for retired people: cheaper cost of living than Buenos Aires, good health services for old people, more relaxed way of life than in Buenos Aires.

14/ The pattern of predominantly female migration to urban areas is common in Latin America, where cities offer better opportunities for women than do rural areas.

References

Abdala, Felix, and Diva Elizalde (1989). Migración Interna en la Argentina 1965-1970. Buenos Aires: Instituto Nacional de Estadísticas y Censos.

Argentina, Government of (n.d.a). Censo Nacional de Población y vivienda, 1980: Total del País, por Provincia, Departamento y Localidad. Serie D, Población. Buenos Aires: Instituto Nacional de Estadísticas y Censos.

\_\_\_\_\_. (n.d.b.). Censo Nacional de Población, 1960, vol. I. Buenos Aires. Buenos Aires: Instituto Nacional de Estadísticas y Censos.

\_\_\_\_\_. (n.d.c.). Censo Nacional de Población, Familias y Viviendas, 1970: Resultados Provisionales. Buenos Aires: Instituto Nacional de Estadísticas y Censos.

\_\_\_\_\_. (n.d.d.). Censo Nacional de Población y Vivienda, 1980. Serie B, Características Generales. Buenos Aires: Instituto Nacional de Estadísticas y Censos.

De Vries, Jan (1986). Problems in the measurement, description, and analysis of historical urbanization. International Union for the Scientific Study of Population, Committee on Historical Demography. Paper presented to the Seminar on Urbanization and Population Dynamics in History, Kelo University, Tokyo, 22-25 January.

Elizalde, Diva (n.d.). La Migración Interna en la Argentina 1960/70, Serie Investigaciones Demográficas 5. Buenos Aires: Instituto Nacional de Estadísticas y Censos.

\_\_\_\_\_. (n.d.b.). La migración interna en la Argentina periodo 1975-80 (manuscript). Buenos Aires: Instituto Nacional de Estadísticas y Censos.

Lattes, Alfredo (1975). Redistribución espacial y migraciones. In La población de Argentina. Buenos Aires: Instituto Nacional de Estadísticas y Censos.

\_\_\_\_\_. (1984). Territorial mobility and redistribution of the population: recent developments. In Population Distribution, Migration and Development: Proceedings of the Expert Group on Population Distribution, Migration and Development, Hammamet (Tunisia), 21-25 March 1983. Sales No. E.83.XIII.3.

\_\_\_\_\_, and Sonia Mychaszula (n.d.a). Urbanization, migration and urban deconcentration in Argentina, (manuscript). Buenos Aires: Centro de Estudios de Población (CENEP).

\_\_\_\_\_. (n.d.b). Migraciones recientes en la Argentina (manuscript). Buenos Aires: Centro de Estudios de Población (CENEP).

\_\_\_\_\_, and Enrique Oteiza (1987). The Dynamics of Argentine Migration (1955-1984): Democracy and the Return of Expatriates. Geneva: United Nations Research Institute for Social Development.

Muller, María S. (1978). La Mortalidad en la Argentina. Santiago: Centro de Estudios de Población/Centro Latinoamericano de Demografía (CENEP/CELADE).

\_\_\_\_\_ (1981). La población anciana de la Argentina: tendencia secular y características recientes. Cuaderno del CENEP No. 20. Buenos Aires.

Pantelides, Edith Alejandra (1983). La transición demográfica Argentina: un modelo no ortodoxo. Cuaderno del CENEP No. 29. Buenos Aires.

\_\_\_\_\_ (1987). Evolución reciente de la fecundidad en la Argentina (manuscript). Buenos Aires.

Peláez, César A., and Omar Argüello (1982). El envejecimiento de la población en América Latina: tendencias demográficas y situación socio-económica. In Notas de Población, vol. X, No. 30 (diciembre), pp. 9-95. San José: Centro Latinoamericano de Demografía (CELADE).

Recchini de Lattes, Zulma L. (1967). Demographic consequences of international migratory movements in the Argentine Republic, 1870-1960. In World Population Conference, vol. IV. New York: United Nations, pp. 211-215.

\_\_\_\_\_ (1971). La Población de Buenos Aires: Componentes Demográficos del Crecimiento entre 1855 y 1960. Buenos Aires: Centro de Investigaciones Sociales, Instituto Torcuato Di Tella, Centro Latinoamericano de Demografía, Editorial del Instituto.

\_\_\_\_\_ (1973). Aspectos Demográficos de la Urbanización en la Argentina, 1869-1960. Buenos Aires: Centro de Investigaciones Sociales, Instituto Torcuato Di Tella, Centro Latinoamericano de Demografía, Editorial del Instituto.

\_\_\_\_\_, and Alfredo E. Lattes (1969). Migraciones en la Argentina: Estudio de las Migraciones Internas e Internacionales Basado en Datos Censales, 1869-1960. Buenos Aires: Centro de Investigaciones Sociales, Instituto Torcuato Di Tella, Editorial del Instituto.

\_\_\_\_\_ (1975). La población de Argentina. Buenos Aires: Instituto Nacional de Estadísticas y Censos.

Somoza, Jorge L., and María S. Muller (1988). Tablas de Mortalidad, 1980-1981: Total y Jurisdicciones. Buenos Aires: Instituto Nacional de Estadísticas y Censos.

United Nations (1956). The Aging of Populations and its Economic and Social Implications. Sales No. 1958.XIII.2.

United Nations (1969). Growth of the World's Urban and Rural Population, 1920-2000. Sales No. E.69.XIII.3.

\_\_\_\_\_ (1980). Patterns of Urban and Rural Population Growth. Sales No. E.79.XIII.9.

\_\_\_\_\_ (1985). Migration, Population Growth and Employment in Metropolitan Areas of Selected Developing Countries. ST/ESA/SER.R/57.

\_\_\_\_\_ (1987). The Prospects of World Urbanization, Revised as of 1984-1985. Sales No. E.87.XIII.3.

Weiss-Altaner, Eric R.(1983). Implications of the imbalance in age and sex composition of sub-areas as a consequence of migration: the case of a developed nation, Quebec, in Canada, 1666-1671. International Population Conference, Manila, 1981: Proceedings and Selected Papers, vol.5. Liège: International Union for the Scientific Study of Population.