DOI: http://dx.doi.org/10.22185/24487147.2023.116.15

Dynamics and determinants of the demographic transition in Peru

Dinámicas y determinantes de la transición demográfica en Perú

Robin Cavagnoud

Pontificia Universidad Católica del Perú

Abstract

The demographic transition refers to the progressive reduction of fertility and mortality rates at different times between countries. The purpose of this paper is to highlight the timing of this process in Peru, pointing out its typification among the models identified in Latin America and characterizing its territorial heterogeneity. Based on information provided by CEPALSTAT, population censuses and DHS, we propose a temporal delimitation of the demographic transition and an analysis of the determinants of the fertility decline according to variables associated with "socio-cultural modernization" such as the expansion of education and greater access to family planning. Likewise, the territorial disaggregation of the results shows a time gap of two to three decades in the timing of the demographic transition between urban and rural areas of the country.

Key words: Demographic transition, mortality, natality, fertility, contraception, education, Peru.

Resumen

La transición demográfica designa la reducción progresiva de las tasas brutas de la natalidad y de la mortalidad según ritmos diferenciados entre los países. El objetivo del artículo es evidenciar la periodización de este proceso en Perú, mostrando su tipificación entre los modelos identificados en América latina y caracterizando su heterogeneidad territorial. A partir de la información brindada por CEPALSTAT, los censos de población y las ENDES, se propone una delimitación temporal de la transición demográfica y un análisis de los determinantes del descenso de la fecundidad en torno a variables asociadas con la "modernización sociocultural", como la expansión de la educación y el mayor acceso a la planificación familiar. Asimismo, la desagregación territorial de los resultados da cuenta de un desfase de dos a tres décadas en los ritmos de transición demográfica entre las áreas urbanas y rurales del país.

Palabras clave: Transición demográfica, mortalidad, natalidad, fecundidad, métodos anticonceptivos, educación, Perú.

Introduction

The concept of demographic transition, introduced by Thompson (1929) and Landry (1934), designates the socio-historical process characterized by a progressive and differentiated reduction in crude birth and death rates based on similar dynamics of modernization in different parts of the world. The theory associated with this change of demographic regime is founded on three paradigms: the principle of precedence in mortality decline; the two-stage model of reproductive transition (restriction of marriages and then of births); and the influence of economic growth on fertility decline (Chesnais, 1986). This theory also pays particular attention to the interrelations between demographic reproduction systems composed of death, births, fertility, and spatial mobility, as well as the economic, social, and cultural structures of societies. In this regard, "the demographic transition occurs when there is a change in the composition of [this] system of reproduction" (Zavala de Cosío, 1995: 31), and is the result of the "technological progress and modernization that accompanied the global process of industrialization and urbanization" (Patarra, 1973: 86).

Four stages characterize this process. The first (pre-transitional) presents high crude death and fertility rates of between 40 and 50‰; the second exhibits declining mortality and consistently high fertility with significant population growth and rejuvenation; the third marks the start of declining fertility and low population growth; and the fourth (post-translational) is characterized by low crude birth and death rates of below 15‰, combined with advanced population ageing. Each stage reflects a certain level of "modernization." The most advanced is characterized by the "inclusion of women in economic activity, universal literacy, the increase in levels of education […] and the extensive use of modern contraceptives" (Benítez Zenteno, 2004: 242). However, after several decades of observation, there is still no complete consensus around explanations of demographic transition. The model proposed by Bongaarts (1978), based on the prevalence of proximate determinants such as the availability and use of contraceptive methods vis-a-vis indirect determinants related to socioeconomic and cultural variables, proved central to interpreting the decrease in fertility and explaining the demographic transition in different regions of the world. More recently, Lutz (2021) underlined the pivotal role of education, and particularly improving levels among the female population, in the evolution of reproductive behaviors. The "cognitive empowerment"

and "abstraction skills" women acquire through education and their years of schooling contribute to understanding their choice to limit the number of births. Moreover, the predominant ideal of the small modern family as a determinant of the fertility transition prior to the evolution of socioeconomic conditions, along with the dissemination of modern contraceptive methods, manifested themselves from the 1980s (Cleland & Wilson, 1987).

In Peru, the demographic transition is a little studied population phenomenon but one that is fundamental to understanding current social challenges in society. Thus, the objective of the present article is to describe and put into perspective the demographic transition that Peru has undergone since the late 19th century. To this end, we seek to evidence the periodization of this process through the delimitation of different stages, express its typification within the models identified in Latin America, and characterized its territorial hegemony between urban and rural areas. The paper is organized as follows. The first section presents the theoretical and empirical background to the determinants and the diversity of demographic transitions in the Americas, as well as studies on the phenomenon in Peru. The methodological section details the set of demographic information sources used in this study. The third section proposes a periodization of Peru's demographic transition through three main stages, exploring in each one the evolution of other variables such as composition by age, internal and international migration, and fertility in a comparative perspective between urban and rural areas. The fourth section explores sociocultural modernization factors related to the evolution of education, female educational attainment, and the use of modern contraceptive methods at each stage of the demographic transition. Finally, the article concludes by dialoguing with the empirical precedents and proposing some hypotheses for exploration in future research.

Theoretical and empirical background on the demographic transition in Latin America

The determinants of the demographic transition in Latin America

The demographic transition experienced by Latin American countries can be considered one of the continent's most important social changes in recent decades. Mortality began to recede between the end of the 19th century and the first half of the 20th following the implementation of public health programs based on modern scientific discoveries, including campaigns centered on vaccination, prevention of infectious diseases, and eradication

of malaria. These policies contributed to a doubling of life expectancy between 1930 and 1960, and to many South American countries recording an average life expectancy of 60 years (Zavala de Cosío, 1995). Moreover, improvements in sanitary conditions for pregnancies and births, as well as the longer marriages and the less prevalent widowhood made possible by declining mortality, all contributed to a consistently high birth rate —and, in some countries, to its increase between 1950 and 1960 (Guzmán & Rodríguez, 1993). In addition, the rise in marriages witnessed in some countries in the region during the postwar years contributed to an upturn in fertility during the 1950s (Guzmán & Rodríguez, 1993). In that decade and the first half of the following, the total fertility rate on the content stood between 6 and 7.5 children per women.

The 1960s marked the beginning of a rapid and near universal slump in fertility throughout most of Latin America, which gradually gave way to a new demographic regime(Zavala de Cosío, 1992). This trend was first observed among female residents of urban areas with higher levels of education and access to the first available contraceptive methods, before expanding to other social sectors (CELADE, 1990; Chackiel & Schkolnik, 1992). The main factors behind the decrease in fertility and greater birth control concern the diminishing influence of the Catholic faith, advances in gender equality, expansion of the media, and the availability of and access to contraceptive methods (Guzmán, 1996). The expansion of education through enrollment of children in schools as well as the increased economic participation of women explain the acceleration of this trend during the 1970s and beyond (Juárez *et al*., 2015). One study shows that, in contexts as varied as Venezuela and Colombia, women with the same socioeconomic and educational characteristics have similar access to family planning services and legitimize the same contraceptive practices, regardless of the level of economic development of the respective countries (Parrado, 2000). The change in reproductive models had a short-term impact on the total number of births and a medium to long-term impact through population restructuring (Guzmán *et al*., 2006: 631-632) Over the last four decades, new reproductive practices and values based around the smaller family model gradually gained currency(Bravo, 1992).

Surveys on the prevalence of contraceptive methods conducted as part of the Fertility Survey Program for Latin America (PECFAL) in the 1960s started to yield evidence, of a fertility ideal below the level actually observed, especially in urban areas (CELADE, 1972). This trend was confirmed later, in the 1990s, through the Demographic and Family Health Surveys

(ENDES), which demonstrated an average desired number of children of close to two per women, and one that was below the generational replacement level in several countries on the continent(Hakkert, 2004). The preference for a smaller family is realizable thorough a combination of factors both political (such as family planning programs that enjoy extensive coverage and strong legitimacy) and cultural (such as the erosion of psychological barriers) related to the use of contraceptive measures) (Guzmán *et al*., 2006: 641-642). The weakening of ideological principles and patriarchal cultural norms based on patriarchal notions and the large family model also explain the increased uptake of contraceptives since the 1970s (Feyisetan & Casterline, 2000). On the other hand, periods of crisis in Latin America, such as the 1980s, engendered a "poverty Malthusianism," in that the women most affected by economic recession resorted en masse to contraceptive methods in order to adapt their living conditions (Cosio Zavala, 1999). Though there is little available evidence, it is likely that abortion was practiced by numerous women from the 1980s to limit the number of children they had (Krejka & Atkin, 1990).

Today, most Latin American countries are at an "advanced" stage of demographic transition, characterized by a marked decline in fertility (sometimes below the generational replacement level), more widespread pre-marital cohabitation, and a decrease in the proportion of marriages with associated increases in the rates of divorce, extramarital births, and remarriage. In parallel, the decrease in fertility combined with improved healthcare and rising life expectancy catalyzed demographic ageing, especially in countries with highly educated populations, high levels of economic participation among women, and a wider supply of family planning services (Miró, 2003). However, across the continent there were also major disparities in fertility levels between different social sectors. Reconciling ideal and actual fertility remains a function of social status, educational attainment, and area of residence; women with less schooling who live in rural areas have less access to contraceptives with which to achieve their reproductive goals (Chackiel, 2004). Education has been analyzed as the main variable conditioning access to the information necessary to plan births and control fertility (Cleland, 2002; Schkolnik & Chackiel, 1998) —to a greater extent than the patterns of marriage (marriage postponement, increases in marital dissolution and consensual unions) that have not changed significantly in recent decades (Chackiel, 2004). In Brazil, differences in education levels between women bring about heterogeneous reproductive behaviors that translate, for some groups, into an aggregate

fertility rate below the replacement level, and for others a rate that remains in excess of five children per women (de Miranda-Ribeiro & Garcia, 2013). These disparities in the level of educational attainment among women of reproductive age are also reflected in the use of contraceptives, and in preferences for modern versus traditional methods.

Demographic transition models in Latin America

Unlike Europe and other parts of the world where demographic transition materialized over more than a century, the same process was faster in Latin America yet unfolded at different rhythms and temporalities in the countries of the region, with considerable heterogeneity within each one (Zavala de Cosío, 1995, 1992; Guzmán *et al*., 2006; Pérez Brignoli, 2022, 2010; Rodríguez Wong *et al*., 2000). Guzmán *et al*. (2006) Have shown that there is no single pattern of transition in Latin America but rather a falling-off of four models that correspond to different rates of declining mortality and natality. They first identified the "very advanced" transition model corresponding to the Southern Cone countries (Argentina and Uruguay), which were subject to early transitions driven by economic and social development, an advanced urbanization process, and a drop in fertility from the start of the 20th century, primarily due to the mass arrival of immigrants from Europe who presented weaker levels of fertility. They then point towards the opposite model of "incipient" or "moderate" transition that characterizes the poorest countries in Central America (Guatemala, Honduras, and Nicaragua), the Caribbean (Haiti) and the Andean region (Bolivia), all of which sustained very high fertility rates and very stable population growth until the 1980s, when a gradual decline in fertility and mortality began. They also cited the more "typical" or "majority" model of transition that encompasses the two most populous Latin American countries (Mexico[1] and Brazil) as well as several countries in the Andean (Peru, Ecuador, Colombia, and Venezuela) and Central American regions (Panama, Costa Rica, and El Salvador) that presented the highest fertility rates in the 1950s and 1960s before population growth began to slow from the 1970s. Finally, the authors presented an "intermediate" model pertaining to just two countries (Chile and Trinidad and Tobago) that underwent a similar process to the previous group, but on the basis of a weaker level of fertility at the outset.

[1] In Mexico, the fertility transition started in the second half of the 1960s and quickened the following decade due to the implementation of a national family planning policy in 1974 (Cosio Zavala, 1994).

For his part, Por su parte, Zavala de Cosío (1992) identified two chief demographic transition models corresponding to different temporalities in the evolution of the process. The first is related to "profound changes in patterns of reproduction, due to modifications of family structures, in urbanization, in schooling, in the labor market, and in the position of women" (p.29), crystallizing in a curtailment of births amid the use of both modern and traditional contraceptive methods. The second concerns women from rural and low-income urban areas, where fertility went into decline following the implementation of public- and private-sector family planning programs and the consequent distribution of modern contraceptives (pp.29-30). Finally, although the models presented do not take into account migration movements as possible retardants or accelerants of population change, the general trend that accompanied demographic transition in Latin America is that of significant internal migration from rural to urban areas and a sustained urbanization process, in line with the model in evidence at the international level por Dyson (2011).

Studies on the demographic transition in Peru

A study on several Latin American countries provides evidence of the start of demographic transition in Peru during the 1940s, alongside Colombia (Mexico and Brazil entered this process during the 1930s and Argentina did so in the late 19th century) as well as fertility transition from 1971 (1940 for Argentina, 1966 for Brazil, 1968 for Colombia, and 1974 for Mexico), when a 10 per cent decrease from the pre-transitional maximum was observed (Rodríguez Wong *et al*., 2000: 201). Moreover, this source does not indicate any correlation between the decrease in the aggregate fertility rate and the increase in the Human Development Index (HDI). Prior studies conducted in the 1980s showed that fertility in Peru had started to dwindle from the end of the 1960s in high- and middle-income sectors in the major cities, and then, more generally, from the late 1960s in lower-income urban sectors (Aramburú *et al*., 1987; Ferrando, 1986; Lésevic & Ortiz, 1987). This descent was characterized by considerable regional variations and was explained primarily by the dissemination of and access to the first modern contraceptive methods among married women, before public family planning services were introduced(Ferrando & Aramburú, 1992). In the 1970s and 1980s, the decline in fertility extended to urban and rural popular sectors as a result of the economic crisis, while the following decade the trend was reinforced amid women's access to public family planning programs and a government fertility reduction policy (Aramburú, 2005).

During the same period, the results of general fertility and health surveys conducted in Colombia, Peru, and Bolivia showed that steady gains in women's educational attainment over the five decades up to the 1990s had a direct bearing on the marriage rate, the upturn in contraceptive usage, and the drop in fertility (Heaton & Forste, 1998). However, the gaps between regions and areas of residence prove very significant. In addition to differences in fertility levels between urban and rural areas, a comparative study has found evidence of greater availability and uptake of modern contraceptives in Peruvian Amazonian populations in comparison with Andean ones, where the greater degree of "traditionalism" contributes to more restricted sexual behavior among women, greater control of fertility, and a dependence on traditional contraceptives (Fort, 1992).

Finally, some more recent studies have analyzed the changes in family planning policies between the second half of the 20th century and the start of the 21st. Since the International Conference on Population and Development held in Cairo (1994) and the Fourth World Conference on Women in Beijing (1995), and given the influence of NGO and feminist movements, sexual and reproductive health programs have centered on the promotion and protection of vulnerable women's sexual and reproductive rights through the distribution of contraceptives that allow them to choose the size and timing of their families (Necochea López, 2016). The evolution of family planning programs in Peru can be broken down into five periods: "The beginnings: 1964-1984" through the pioneering work of some NGOs; "the expansion: 1985-1995" through a first public family planning offer; "the vertical programs: 1996-2002" characterized by definitive methods (forced sterilizations imposed through the National Family Planning Program; "the conservative backlash: 2000-2005" characterized by the promotion of natural methods; and "stabilization: 2005-present day" marked by an increasing role of public services and the private business sector in the provision of contraceptives (Aramburú, 2014).

In sum, it is worth noting that no previous research has presented a detailed description of the demographic transition in Peru, a periodization of this process, or an analysis of its main determinants to set it in the context of "sociocultural modernization." Moreover, to our knowledge there are no studies, either for Peru or for other countries in the region, that focus on the territorial heterogeneity of the demographic transition between urban and rural areas of residence.

Materials and methods

The analysis of the demographic transition in Peru proposed in this article draws from various sources of demographic data. The main one is the Demographic and Social Statistics and Indicators section of the CEPALSTAT platform[2] administered by the Population Division of the UN Economic Commission for Latin America and the Caribbean (ECLAP) based on its own estimates and forecasts. In this database, the estimates given for the period 1950–2015 are obtained from national statistics institutes: in the case of Peru, the National Institute of Statistics and Informatics (INEI), whose data is systematized by the Population Divisions of ECLAC and the UN, which make the necessary adjustments to rectify possible defects related to the undercalculation and underreporting of vital occurrences. In Peru, the main statistical tools overseen by the INEI are the Population and Housing Censuses conducted between 1961 and 2017, as well as the National Household Surveys (ENAHO) collected quarterly since 1996.

More specifically, for estimates of the crude death rate (CDR), the crude birth rate (CBR), life expectancy (e_o), and the infant mortality rate (IMR), we have utilized the results of the General Census of 1876 and the National Population and Occupation Census of 1940, presented by Varillas Montenegro et al. (1990), and from 1950 onwards, the CEPALSTAT statistical data, which is organized into five-year periods from 1950/55 to 2030/35 (with estimations up to 2010/15 and projections between 2015/20 and 2030/35). We also employ the *Boletín de Análisis Demográfico* No. 35 published by INEI (2001) in order to present a disaggregation of these same indicators into urban and rural areas from 1970 until 2025, to show crude migration rates between Peru's urban and rural areas over this same interval, and to understand the proposed periodization of demographic transition in the context of migratory movements between these areas. For the results on international migration rates by five-yearly periods between 1970 and 2025, we use CEPELSTAT data.

To chart the evolution of fertility, we utilize the data presented on the CEPALSTAT platform for the period 1950–70, the data from the INEI (2001) *Boletín de Análisis Demográfico No. 35* for 1970–2000 as well as data disaggregated between urban and rural areas from the 1972 Population Census, the 1976 National Retrospective Demographic Survey (RETRO-EDEN), the 1977–78 National Fertility Survey (ENAF), the 1981 National Survey on the Prevalence of Contraceptive Use (ENPA), the 1981

[2] See https://statistics.cepal.org/portal/cepalstat/dashboard.html?theme=1&lang=es

and 1993 Population Censuses, and the 1996 and 2021 National Demographic and Family Health Surveys (ENDES) which have been conducted annually since 2007–08 (ENDES Continua). These sources have allowed us to reconstruct more than seven decades of data on the evolution of fertility in Peru (and more than five decades of data disaggregated between rural and urban areas).

With regard to the explanations for the demographic transition in Peru, we have operationalized the concept of "sociocultural modernization" through two primary dimensions: education (of the female population in particular) and contraceptives. For access to education, estimates of literacy rates among the population aged 15 years and over are taken from the National Population Censuses of 1961, 1972, 1981 and 1993, as well as from 2001–2020 CEPALSTAT data based on the ENAHOs. The latter source also allowed us to estimate the number of years of education of the population aged 15 years and over, by sex and geographical area, in Peru between 2001 and 2020. For contraceptive access, data on the proportion of women aged 15–49 who practice family planning using modern methods, by level of education and area of residence, are drawn from the ENDES carried out between 1991–92 and 2021.

On the differences between urban and rural areas, the INEI uses the same definition in the population censuses, the ENAHOs, and the ENDESs: an urban area is any settlement with 2,000 or more inhabitants, while a rural area is any settlement with fewer than 2000 inhabitants (INEI, 2018: 15). It is worth noting that we have only taken into account projections up to 2035 because projected figures beyond that point can prove highly random given the probability of crises (economic, health, or other) that would alter the evolution of these projections.

The abovementioned data allow us to propose a periodization of demographic transition in Peru based on the delimitation of different stages based on the evolution of the different indicators employed. Thus, Stages 1, 2, and of Peru's demographic transition over the past century and a half, and the data pertaining to each, are presented in chronological order in each graph.

Analysis of results

Demographic transition in Peru: periodization and characterization of each stage

The CDR and CBR estimates allow us to graphically represent the demographic transition process that Peru has been undergoing since the end of the 19th century. The oldest General Census and National Population and Occupation Census data, from 1876 and 1940, respectively, reveal a CDR of 32.5‰ in 1876 and of 26.1‰ in 1940, and a CBR of 44‰ in 1876 and of 48.2‰ in 1940. These data are presented along with those for 1950/55 to 2030/35 in Graph 1, covering more than 150 years of population history in the country. The trends depicted in the evolution of the CBR and CDR attest to the different stages that have characterized Peru's demographic dynamics in recent decades. Two five-year periods are worth highlighting as reference points in the country's population evolution: 1965/70, which marks the beginning of a sustained decline in the birth rate, and 2000/05, during which the birth rate stabilized at a moderate level. These periods can serve as milestones in a proposed periodization of demographic transition in Peru and a classification of each stage that structures this process, taking into account life expectancy at birth (e0), for both sexes and by sex, and IMR as representative indicators of the evolution of health conditions. Considering the 1876 General Census as representative of the 1875/80 period, we perform several estimations to describe the variation in the indicators at each stage of the process between 1876 and 2035. It should be noted that the pre-transitional stage is not shown in the graph and cannot be dated accurately due to a lack of demographic data for the period, though we know it is characterized by very high (between 45 and 50‰)) and fluctuating death and birth rates, resulting in weak population growth.

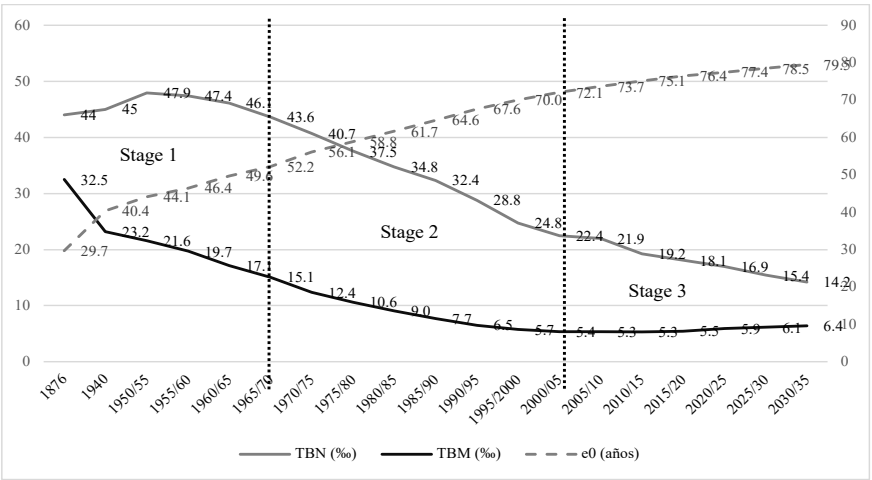
This stage prior to the start of demographic transition corresponds to a period predating 1876, though it cannot be precisely periodized.

Table 1: Total population of Peru during key demographic transition dates, percentage population growth, and average growth rate between each date

Year	Population	Population growth (%)	Annual population growth rate (‰)
1876	2,699,106	/	/
1965	11,711,392	333.9	14.1
2000	26,459,944	125.9	5.5
2035	37,387,960	41.3	2.4

Sources: Population Census (1876) and CEPALSTAT/Population Division of ECLAC (1965, 2000, and 2035).

Graph 1: Gross birth rate (GBR), gross death rate (GDR), and life expectancy at birth (e_0) in Peru between 1876 and 1940, by five-year periods between 1950 and 2035 and stages of demographic transition



Sources: Population Censuses (1876 and 1940) and CEPALSTAT/Population Division of ECLAC (1950/55 – 2025/35).

The estimates show that the first stage corresponding *stricto sensu* to the demographic transition was already underway by 1876, given the difference of more than 10 points between the CDR and the CBR. This stage extended to 1960/65 and was characterized by a sustained decrease in the country's birth rate. During this interval, the CDR fell by 47.9 per cent overall (from 32.5 to 17.1‰), at an average rate of −0.9‰ per five-year period. This evolution is correlated with the IMR of 50.8 per cent (from 270 to 132.9‰) over the same interval, at an average rate of −7.6‰ per five-year

period. The simultaneous decrease in these two indicators is reflected in the significant increase of e_0 by 67.1 per cent between 1876 and 1960/65 (from 29.7 to 49.6 years), which was more notable for women (+70.9 per cent) than for men (+64.1 per cent). Another important characteristic of the first stage of demographic transition is the stability of the CBR at a very high level —above 45‰— throughout this period. A notable rise in this indicator was recorded in the 1950s as a result of the increase in e_0 among women (the female population added 10 to their life expectancy between 1940 and 1960/65, from 41.3 to 51.3 years), and the greater reproductive potential of the Peruvian population. The difference between the CBR and the CDR went from 11.5 points per mille in 1876 to 29 points per mille in 1960/65, which largely explains the 333.9 per cent increase in the Peruvian population between 1876 and 1965 (and an average annual growth rate of 14.1‰ between the two years).

Peru's second stage of demographic transition began in the 1965/70 period when the CBR lost 9 per cent of its maximum level. The rate then underwent a pronounced and sustained decrease over the decades that followed, until 2000/05 when it began to stabilize. During this period, the CBR experienced a total decline of 43.2 per cent and an average decline of 2.7‰ per five-year period between 1965/70 and 1995/2000. Concurrently, the CDR sustained the decrease that started in the late 19th century (−62.1 per cent), albeit, at a rate of 1.3‰ per five-year period, to a lesser degree than the birth rate. Another notable evolution during this second stage is the 70.1 per cent fall in the IMR (from 120.9 to 36.2‰ at an average rate of −12.1‰ per five-year period), contributing significantly to the decrease in the overall mortality rate. These trends are reflected in the 34.1 per cent decrease in the e_0 for both sexes during this period, at an average rate of 2.5 additional years per five-year period between 1965/70 and 1995/2000. This progression was similar for both sexes, but the average life expectancy gap between men and women was accentuated between 1965/70 (3.3 years) and 1995/2000 (4.4 years). Likewise, the continued significant difference between birth and death rates brought about a sustained increase in population growth of 125.9 per cent during the period, with an annual growth rate of 5.5‰—that is, at a much lower rate than that observed during the first stage. (14.1‰).

The third stage in the Peruvian demographic transition began in 2000/05 and is still ongoing.[3] This stage is characterized by a progressive stabili-

[3] To obtain comparisons with a period of similar duration to the second stage (35 years, between 1965/70 and 1995/2000), the third stage includes estimations from 2000/05 to 2015/20 and projections from 2020/25 to 2030/35.

zation of the CBR below 20‰, with a more moderate decrease of −1.2‰ per five-year period between 2000/05 and 2030/35 (and a decrease of 36.7 per cent during this interval). Meanwhile, mortality exhibited virtually no change during this period, remaining at low levels of between 5 and 6‰. The most stark trend during this stage is the 68.7 per cent decrease in the mortality rate between 2000/05 and 2030/35 (from 24.9 a 7.8‰), reflecting improved access to child health services during birth and the first year of life.[4] The e_0 continues its progression during this stage, with a 10.3 per cent increase (from 72.1 to 79.5 years) and an average rate of 1.1 years of additional life in each five-year period, distributed almost identically between the sexes. However, women are extending their life-expectancy advantage over men, and this is projected to reach 4.8 years by 2030/35 (81.9 years *vs*. 77.1 years). Finally, the convergence of the CBR and the CDR has translated into lower population growth during this period (+41.3 per cent) and an average growth rate of just 2.4‰.

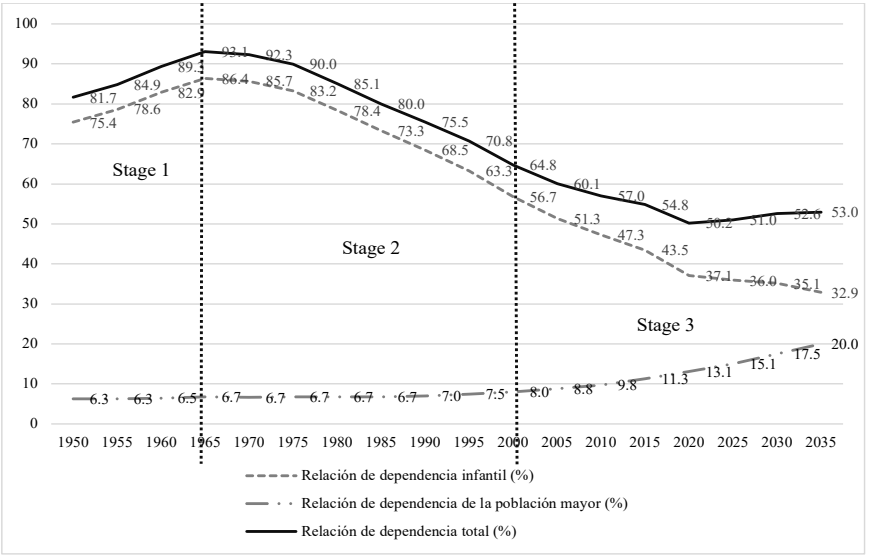
Evolution of the structure by age and dependency relations

The evolution of the CBR and CDR observed in each stage of demographic transition has direct implications for the structure by population age groups. In the first stage, which extends to 1965/70, the available data (from 1950) shows that the combined effect of the reduction in mortality and the continuation of natality at a very high level (above 45‰) brought about a significant increase in the youth dependency ratio, which peaked in 1965 (at 86.4 per cent—that is, 86.4 children aged 0–14 for every 100 people between 15 and 64). Despite the decrease in mortality over previous decades, the average life expectancy that same year (less than 50 years of age) is insufficient to modify the old-age dependency ratio, which remains at a minimum level of below 7 per cent (that is, an average of 7 people aged 65 and over per 100 people aged 15 to 64) during the first and second stages of the demographic transition. The frequently low level of this indicator shows that total dependency encompassed more than 90 per cent of the population between 1950 and 1995. During the second stage of the demographic transition, (1965–2000), the youth dependency ratio dropped by 29.9 per cent in parallel to the decline in the CBR. The significant fall in the birth rate during this period engendered a lower dependency ratio among the child population (0–14 years) than for the adult population (15–64 years). The third stage of demographic transition attest to a conti-

[4] Likewise, the maternal mortality rate fell by 64.9 per cent between 1990/96 and 2004/2010 (ENDES 2021: 292).

nued decline in the youth dependency ratio to levels below 40 per cent in 2020. This stage was characterized by a progressive and sustained increase in the dependency ratio among the elderly population, increasing by an average of 14 per cent every five years over the 2000–2035 period. This trend, combined —according to projections— with a continued decrease in the youth dependency ratio starting in the 2020s, is revealing of a convergence between the two indicators and an unprecedented demographic evolution in which the total dependency ratio will achieve an increasingly balanced distribution between the population under 15 years of age and the population over 65 years of age. The proportionately greater elderly population starting from that decade will bring about a slight increase in the total dependency ratio above 50 per cent. The confirmation of these trends in the coming decades could give rise to a new stage in the demographic transition in which the child population and the elderly population begin to balance out.

Graph 2: Youth dependency ratio, old-age dependency ratio, and total dependency ratio (%) in Peru between 1950 and 2035 and by stage of demographic transition



Source: CEPALSTAT/Population Division of ECLAC.

Different rates of demographic transition between urban and rural areas

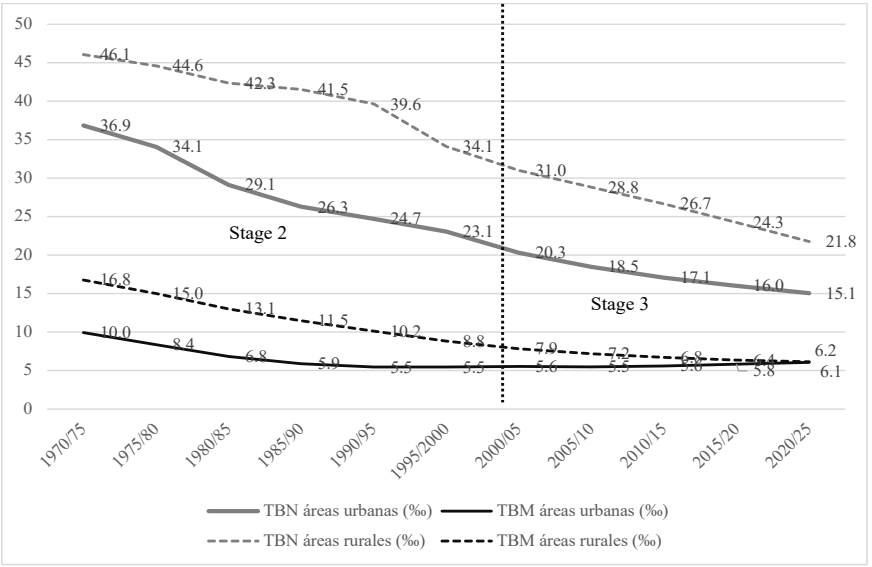
A comparison of the CDR and the CBR between Peru's urban and rural areas is only possible from 1970/75, when reliable estimations and projections by INEI (2001) first became available. This temporal circumscription thus allows a description of these indicators only in Stages 2 and 3 of the proposed periodization of the demographic transition in Peru. It is important to clarify that in 1970 the rural population accounted for 42.7 per cent of Peru's total population (64.8 per cent in 1950) and that this proportion is projected to dwindle to 18.1 per cent by 2025 (source: CEPALSTAT). Conversely, a 3.8-fold increase in the urban population is projected between 1970 and 2025 (10.6-fold between 1950 and 2025), from 7,647,889 (57.3 per cent of the total population) to 28,764,230 (81.9 per cent of the total population).

One observes, first, that the death rate follows a somewhat similar pattern in both urban and rural areas over this period. The difference of 6.8 points per mille observed in 1970/75 has gradually shrunk over the decades to the point where the rates are similar in the 2020/25 period. On the other hand, the birth rates in the two areas of residence continued to evolve in different ways over these decades. In the urban areas of the country, the birth rate was already on a downward trend from 1970 and throughout the 1970/75–1990/95 period (−12.1‰), while in rural areas the same rate remained at levels above 40‰. The decrease in the birth rate in rural parts of the country can be observed in the most recent period of 1990/95 to 2020/25 (−17.9‰). In other words, the rural birth rate in 2015/20 (24.3‰) is equal to that observed in urban areas in 1990/95 (24.7‰). These results evidence a gap between the decreasing birth rates as well as temporal differences in the demographic dynamics between urban and rural areas from the late 20th century to the early 21st. Over the last 20 years, the urban population has been situated at Stage 3 of the demographic transition (stabilization of rates at a low level), while the rural population has remained at Stage 2 (with a superior birth rate somewhere between 20 and 30‰).

With regard to the net migration rate in urban and rural areas during the 1970s, 1980s, and 1990s, the following graph displays profound differences. The rate was broadly positive in urban areas over the period (immigration exceeded emigration by 7.5‰ on average), while it remained slightly below 0 in rural areas (emigrations exceeded immigrations by 19.3‰ on average) during the same period. This rural exodus explains the sustained increase in the country's urban population from the mid-20th century and

during the first stages of the demographic transition. The flows were driven by a range of factors related to the pursuit of better economic opportunities and escaping political violence. Notably, during the third stage of the demographic transition, which began around 2000, the difference in net migration rates between urban and rural areas have stabilized (at an average level of 14.5‰), indicating a constant dynamic of emigration from rural areas and immigration to urban areas.

Graph 3: Crude death and birth rates (‰) in urban and rural areas of Peru by five-year periods between 1970 and 2025 and stages of demographic transition



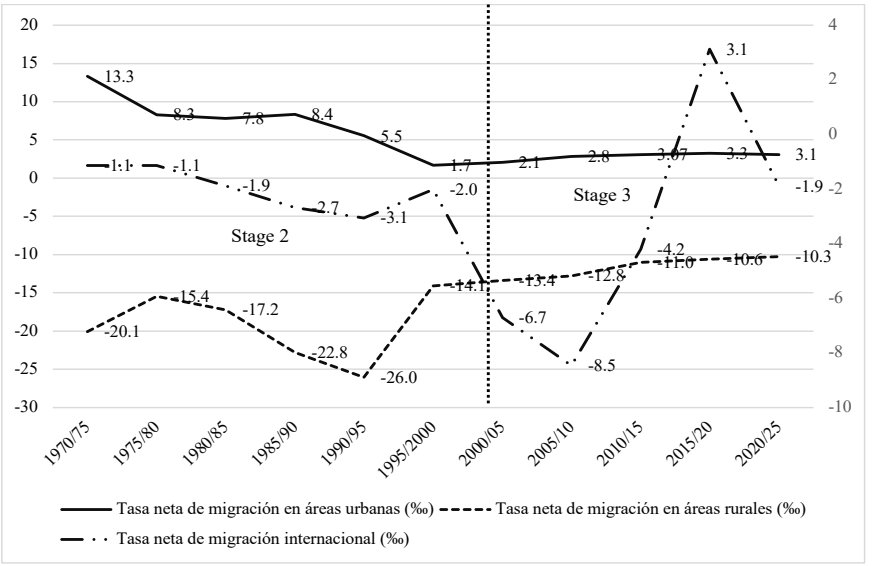
Source: INEI, 2001. ("Peru: Estimaciones y Proyecciones de Población, 1950–2005. Urbana – Rural 1970 – 2025" in *Boletín de Análisis Demográfico No. 35*)

Meanwhile, Graph 4 presents the net international migration rate during the period 1970/75–2020/25. This indicator displayed a moderate and sustained negative level during the 1980s and 1990s (-2.4‰ on average), and a significant acceleration of departures from 2000. The third stage of demographic transition has been accompanied by a high rate of emigration from the country that was counteracted in the 2015/2020 period by Venezuelan immigration.[5] According to INEI (2020), during 1990–2018 Peru recorded an emigration rate of 3,165,894 distributed between North America (33.3 per cent), South America (32.1 per cent), and Europe (28.8

[5] In December 2021, it was estimated that 1,339,527 Venezuelan migrants were living in Peru (source: https://www.r4v.info/es/peru).

per cent).[6] This figure is equivalent to almost 10 per cent of the national population recorded in the 2017 Population Census. Over this period, 70.8 per cent of Peruvian emigrants were between 15 and 49 years of age at the time of migration, the vast majority (62.1 per cent) stated they were single, and women, on average, accounted for 51.6 per cent of the total. It is difficult to estimate the weight of emigration in the overall process of demographic transition. However, the departure of women of reproductive age can only have compounded the decline in fertility observed in the first decades of the 21st century.

Graph 4: Net migration rate (‰) in urban and rural areas of Peru, net international migration rate (‰), by five-year periods between 1970 and 2025 and stages of demographic transition (for net migration rates in urban and rural areas); and CEPALSTAT/Population Division of ECLAC (for the net international migration rate).



Source: INEI, 2001 ("Perú: Estimaciones y Proyecciones de Población, 1950–2005. Urbana–Rural 1970 – 2025" in *Boletín de Análisis Demográfico* No. 35).

The evolution of fertility at the national level and in urban and rural areas

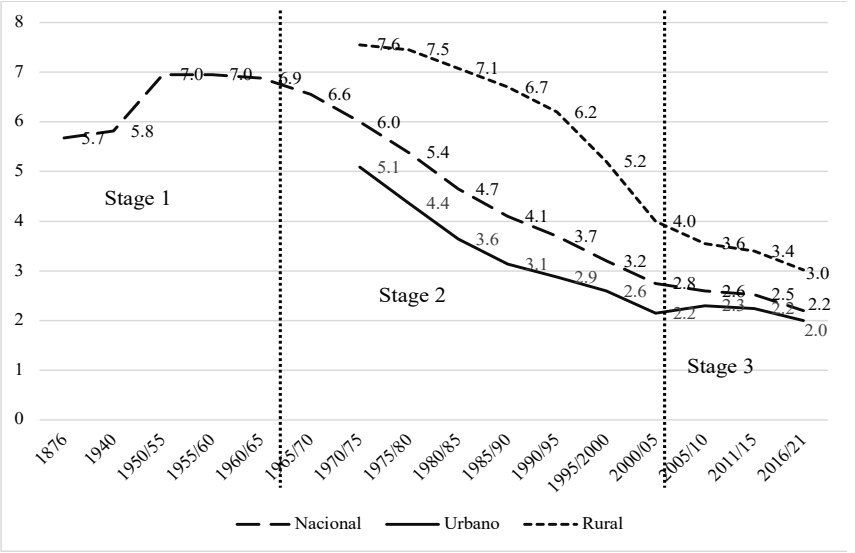
The oldest available data, from the 1876 General Census and the 1940 National Population and Occupation Census, show that fertility in Peru

[6] A total of 84.9 per cent of Peruvian emigrants went to the United States (30.8 per cent), Argentina (14.5 per cent), Spain (14.4 per cent), Chile (11.3 per cent), Italy (10 per cent), and Japan (3.9 per cent).

fluctuated little from the level of 5.8 children per women between the end of the 19th century and the first decades of the 20th. Subsequently, fertility started to rise from approximately one child per woman in the 1940s, due to the reduction in mortality and the greater reproductive potential of the population, before stabilizing around seven children during the 1950/55–1960/65 period. Fertility then entered into a nationwide decline from 1965/70 until 1995/2000, during which it fell by a total of 53.5 per cent. This national-level trend coincided with the evolution of birth observed in Graph 2 and confirms the aforementioned temporal delimitation of the demographic transition in Peru. However, the decline in fertility presents key differences when it is disaggregated between urban and rural areas. The first data that allow for a comparison between the fertility declines in the two areas of residence correspond to the 1970/75 period. During a period that extended to 1995/2000, fertility fell by 48.9 per cent in urban areas (from 5.1 to 2.6 children per women) and 31.1 per cent in rural areas (7.6 to 5.2 children per women). As with the gap in the rates of birth decline between the two areas of residence, women's fertility in rural areas in 1995/2000 (5.2) was still higher than that of their urban counterparts in 1970/75 (5.1), 25 years earlier. Although the variation in the overall fertility rate reveals major gaps between urban and rural areas, these have tended to narrow from the 2000/05 period, when fertility declined in the latter (from 5.2 to 4 children per woman). Between 2000/05 and 2016/21, the differences diminished significantly: fertility dropped by 24.5 per cent in rural areas (from 4 to 3 children per women) and by 7 per cent in urban parts of the country (from 2.2 to 2 children per women).

In 2021, the total fertility rate was 1.7 children per women in Peru's coastal departments, 2.2 in the Andean departments, and 2.5 in those in Amazonia (ENDES, 2021). Women who have not completed primary school were found to have a fertility rate of 2.8, while the level for those who have finished primary was 2.8, those with complete secondary, 2.1, and those with a higher-level qualification, 1.6. The greater the level of education, the lower the level of fertility. Beyond this negative correlation, a causal relationship can be noted whereby education is one of the major components of the phenomenon of "sociocultural modernization," the reduction in fertility in Peru, and the acceleration of the demographic transition.

Graph 5: Total fertility rate in Peru from 1950 to 2020, in urban and rural areas between 1970 and 2020, by stages of demographic transition



Sources: CEPALSTAT/Population Division of ECLAC (for 1950–1970), INEI, 2001 ("Peru: Estimaciones y Proyecciones de Población 1950–2050" in *Boletín de Análisis Demográfico No. 35*) (for 1950–2000), and ENDES (for 2000–2021).

"Sociocultural modernization": expansion of education and access to contraceptive methods

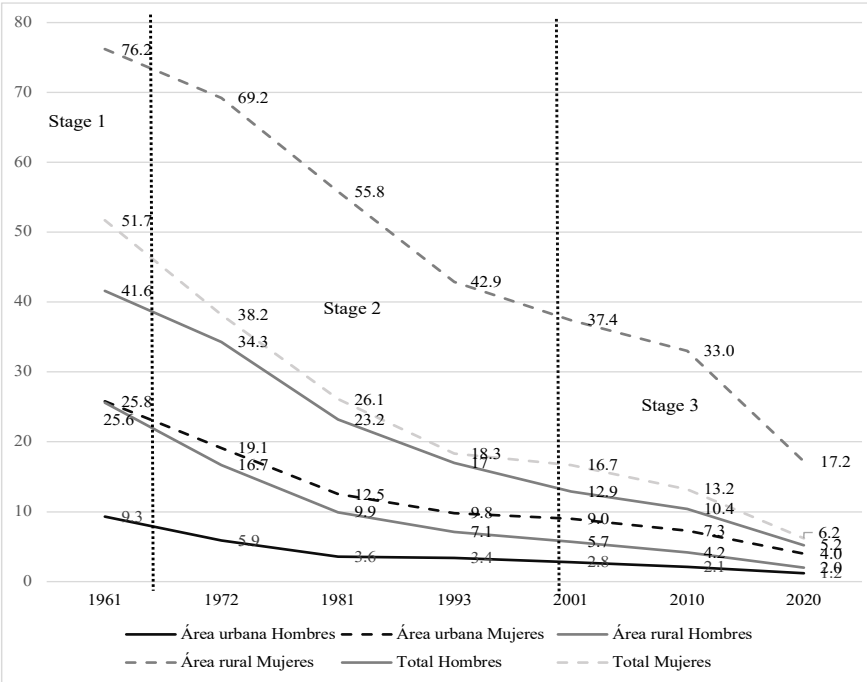
The demographic transition, driven primarily by the reduction in fertility and new reproductive models, can be viewed in the context of different processes related to the sociocultural modernization that Peruvian society has undergone in recent decades The first key factor involves access to education and the considerable decrease in illiteracy since the mid-20th century. According to the 1876 General Census, 79.7 per cent of men and 89.4 per cent of women could not read or write. In 1940, this phenomenon still affected 45 per cent of men and 69.3 per cent of women. The data available starting from the 1961 census allows us to describe the reduction of illiteracy for both sexes from a comparative perspective between urban and rural areas. During the first stage of the demographic transition, (prior to 1965/70), illiteracy affected 76.2 per cent of women in rural areas —three times greater than the proportion in urban areas (25.8 per cent). During that same period, illiteracy affected 2.8 times as many women than it did men (versus 25.8 per cent versus 9.3 per cent), and 1.8 more women than men

in rural areas (76.2 per cent versus 41.6 per cent). Over the second stage of the demographic transition (1965/70–1995/2000), illiteracy fell to a considerable degree, especially in the 1970s and 1980s. Between 1961 and 2001, this proportion dropped by an average of 1.6 per cent each decade for men in urban areas, 4.2 per cent for women in urban areas, 7.2 per cent for men in urban areas, and 9.7 per cent for women in rural areas. At the start of the 21st century, 4.2 more women in rural areas were affected by literacy than were those living in rural parts of the country (37.4 per cent versus 9 per cent). The difference reached the same quotient in the case of urban versus rural populations (25 per cent *versus* 6 per cent). The fall in illiteracy was sustained in the third stage of the demographic transition, especially in the 2010s. In 2020, the phenomenon affected 2 per cent of the urban population and 11 per cent of the rural population. That year, women in rural areas still presented a far higher level of illiteracy than the rest of the population as a whole (17.2 per cent versus 4.1 per cent). This decline in illiteracy, a product of education policies promoted by the public sector and non-governmental organizations, is part of a historical process that was ushered in profound change in Peruvian society but failed to eliminate the gaps between the sexes and between areas of residence.

On the other hand, analysis focused on the years of education attained by men and women in urban and rural areas during the third stage of the demographic transition (since 2000) provides evidence of both progression and persistent limits on access to education among the female population. Between 2001 and 2020, the proportion of women with fewer than five years of schooling ("incomplete primary") fell from 37.1 per cent to 25.1 per cent, but by the end of this period very large gaps between rural (47.8 per cent) and urban areas (19.7 per cent) remained. Although the proportion of women in rural areas who had completed at least 13 years of education (including either higher technical or university education) increased from 4 per cent in 2001 to 7.8 per cent in 2020 (+3.8 per cent), this rise is far below that observed for women in urban areas: 23.8 per cent to 33.2 per cent (+9.4 per cent) between the two periods. Overall, the years of education indicator reveals the presence of deeper and more persistent inequalities in access to education between women in urban areas and those in rural areas than is the case between the male and female populations at the national level. In other words, territorial inequalities in educational access and retention are more significant than inequalities between the sexes. Gender gaps in education have been reduced in the first two decades of

the 21st century at a faster rate than the territorial gaps between women in urban and rural areas.

Graph 6: Rates of illiteracy among the population aged 15 years and over, by sex and area of residence, in Peru between 1961 and 2020 and by stages of demographic transition



Sources: National Population Censuses (1961–1993) and CEPALSTAT/Population Division of ECLAC (2001–2020).

Table 2: Population aged 15 years and over according to years of education, by sex and geographical area, in Peru between 2001 and 2020

Years	Years of schooling	Men			Women			Both sexes		
		Urban	Rural	National	Urban	Rural	National	Urban	Rural	National
2001	0 to 5 years	17.4	48.5	26.5	27.0	64.0	37.1	22.4	56.2	32.0
	6 to 9 years	19.5	28.8	22.2	18.1	22.1	19.2	18.8	25.5	20.7
	10 to 12 years	35.6	17.2	30.2	31.0	9.9	25.3	33.2	13.6	27.7
	13 years and over	27.6	5.5	21.1	23.8	4.0	18.4	25.6	4.7	19.7
2010	0 to 5 years	14.5	41.9	21.2	23.1	58.5	31.2	19.0	50.1	26.4
	6 to 9 years	14.8	27.0	17.8	15.3	22.4	16.9	15.1	24.7	17.4
	10 to 12 years	35.4	23.3	32.4	29.9	13.9	26.3	32.5	18.6	29.2
	13 years and over	35.4	7.7	28.6	31.7	5.2	25.6	33.4	6.5	27.1
2020	0 to 5 years	12.1	33.5	16.4	19.7	47.8	25.1	16.1	40.7	20.9
	6 to 9 years	14.9	27.0	17.3	15.5	24.9	17.3	15.2	25.9	17.3
	10 to 12 years	38.6	29.3	36.8	31.7	19.5	29.3	35.0	24.4	32.9
	13 years and over	34.4	10.2	29.5	33.2	7.8	28.3	33.7	9.0	28.9

Source: CEPALSTAT/Population Division of ECLAC.

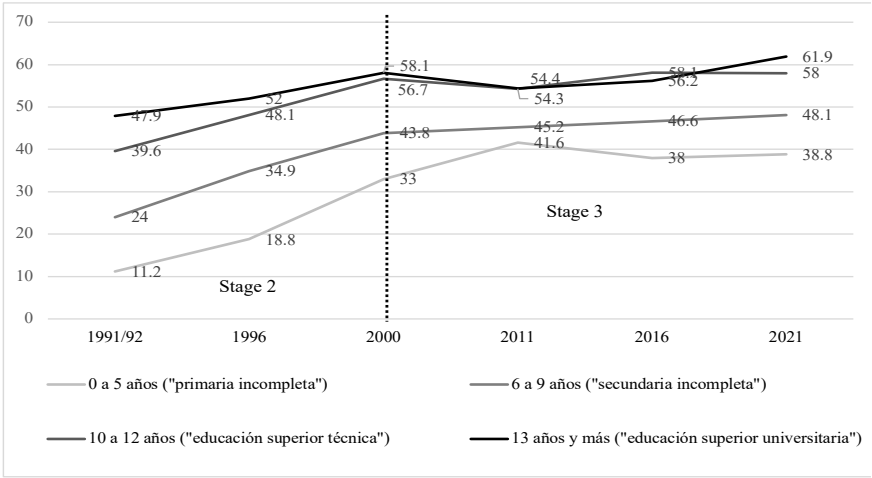
The cumulative years of education among the female population over 15 years of age and the inequalities revealed by this indicator condition the different levels of use of modern contraceptives among women of reproductive age. The following graph shows the correlation between level of education and use of family planning based on modern contraceptive methods. The available data is taken from the ENDES surveys carried out between 1991 and 2021. Since the early 1990s, differences in the use of modern contraceptive methods among the female population of reproductive age have been very closely associated with level of educational attainment. Just 11.2 per cent of women with fewer than five years of education used modern contraceptive methods, versus 47.9 per cent of those with more than 13 years of education. During the 1990s, the use of modern contraceptive methods increased among all groups of women, especially those with 0 a 5 years of education (+21.8 per cent) and those with 6 to 9 years of education (+19.8 per cent). The gap within the female population of reproductive age gradually reduced during the 1990s, with two distinct groups remaining; those who had completed schooling and accessed higher education (more than 50 per cent of whom used modern contraceptives) and those with incomplete primary and/or secondary (fewer than 50 per cent of whom used modern contraceptives). During the period 2000–2020, there was a slight increase in the use of modern contraceptives for all women of reproductive age, though the gaps by educational level persisted. For most women with incomplete primary and/or secondary (0 to 9 years of schooling), traditional contraceptive methods (based on abstinence or withdrawal) remain the most used, while women with higher levels of education opt for family planning based on modern methods. Stages 2 and 3 of the demographic transition thus display different tendencies when it comes to the use of modern contraceptives: net and constant progression until 2000[7] and stabilization and slight growth between 2000 and 2020.

According to ENDES, in 2016 the injection was the most used contraceptive method among women (24.9 per cent *versus* 2.8 per cent in 1986), followed by the male condom (17.8 per cent, *versus* 1.5 per cent on 1986), the pill (11.3 per cent *versus* 14.2 per cent in 1986), sterilization (11.3 per cent *versus* 14.2 per cent in 1986), and the intrauterine device (3.1 per cent *versus* 16.2 per cent in 2016). It is worth noting that the injection is administered primarily by the public sector (at health centers operated by

[7] Overall, 35.7 per cent of married women aged 15 to 49 who used contraceptives in 1977/78 chose modern methods (ENAF 1977/78). This proportion doubles in less than 40 years, to reach 71.3 per cent in 2016 (ENDES). During the same interval, the proportion of married women aged 15 to 49 years who used contraceptives increased from 41.2 per cent a 76.2 per cent.

the Ministry of Health and Social Security), while the condom is obtained largely through the private sector (pharmacies). During this 40-year period (1986–2016), periodic abstinence as a form of birth control plummeted (from 38.6 per cent to 16.9 per cent), while use of the withdrawal method increased slightly (from 7.9 per cent to 10.6 per cent).

Graph 7: Proportion of women aged 15 to 49 years who practice family planning using modern methods, by level of education and stages of demographic transition, between 1991/92 and 2021



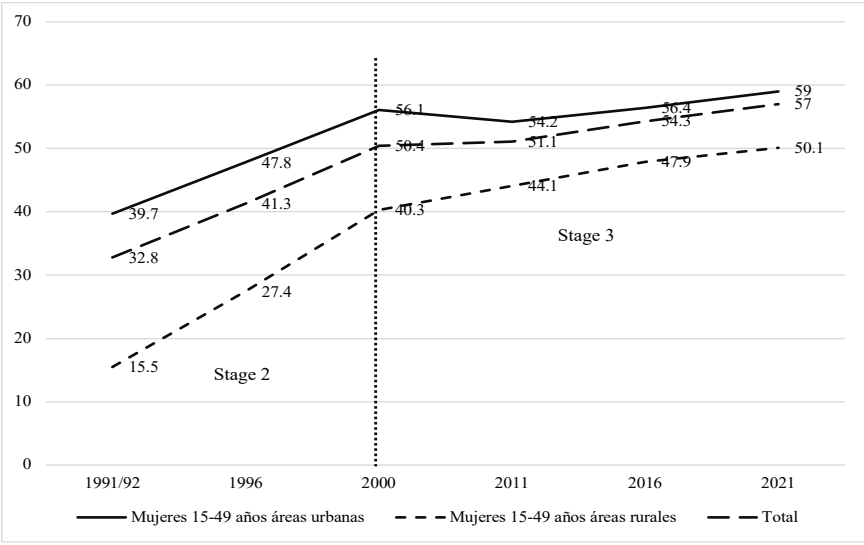
Source: ENDES, 2021 (p.297).

Finally, differences across geographical areas in family planning based on modern contraceptive methods decreased between the second and third stages of the demographic transition. In 1991, more than twice as many married women of reproductive age living in urban areas used modern methods (39.7 per cent *versus* 15.5 per cent for their rural counterparts). Female populations in both areas increased their use of modern contraceptives significantly during the 1990s and, to a lesser extent, between 2000 and 2021. The gap between the two areas of residence is actually less than 10 per cent, attesting to somewhat widespread use of modern methods throughout the country.

The greater use of modern contraceptives among women of reproductive age did not significantly alter the average age at the birth of the first child over the course of the demographic transition. According to the results of the population censuses, this indicator went from 20.5 years in 1961 (20.8 years in urban areas and 20.4 years in rural areas) to 22.4 years

in 2017 (23.1 years in urban areas and 20.1 years in rural areas). The results of the ENDES surveys carried out between 2009 and 2021 reveal the regularity of this indicator in both areas of residence (between 21.9 and 22.4 years in urban areas and between 20 and 20.1 years in rural areas). The same sources show that the age at first union precedes the birth of the first child in the two areas of residence (by between 0.2 and 0.4 years at the national level from 2009 to 2021, with minimal differences between urban and rural areas). This observation shows the extent to which women's age at first union coincides by a few months with the birth of the first child as well as the persistence of a very regular first-birth interval across the different generations of women who enter reproductive age.

Graph 8. Proportion of women aged 15 to 49 years who practice family planning using modern methods, by area of residence and stages of demographic transition, between 1991/92 and 2021



Source: ENDES, 2021 (p.296).

Finally, some other phenomena, such as the increasing presence of women in the labor market, are also behind the process of sociocultural modernization. Between 1980 and 2020, women's economic participation increased from 36.2 per cent on 1980 to 63.8 per cent in 2020 (source: CEPALSTAT), while the rate for the male population remained largely stable, going up from 79.1 per cent to 82.4 per cent over the same period. The

significant increase in women's participation in the labor market must be interpreted taking into account the greater educational attainment of women in Peru. Indeed, the higher number of years of education has created further possibilities for leaving the domestic sphere and assuming training for a range of occupations. The evolution of this indicator since the 1980s can also be seen as a response by numerous women to the social and economic crises that marked this decade, as well as to the need to meet family needs. In this context of economic limitations, control of reproductive behavior through the use of modern contraceptive methods and recourse to adoption acted as a key determinant in the prolonged decline in fertility since the 1960s.

Discussion and conclusion

A periodization of the demographic transition in Peru has allowed us to delimit three stages based on the evolution of crude birth and death rates between 1876 and the 2020s. The two key periods in this delimitation are 1965/70, when fertility started to decline, and 2000/05, when this decline began to slow. These population changes can be explained to a large extent by a reduced rate of premature mortality, which is due to advances in the sphere of public health as well as the evolution of economic, social, and cultural structures that is reflected, among other things, in greater educational attainment among women and greater access to contraceptives. However, the disaggregation of the results observed at the national level reveal a measure of heterogeneity in the rates of demographic transition, as well as a decades-long gap between urban and rural areas. In addition to urban–rural area of residence, other variables such as socioeconomic level and geographical area of residence (coast, Andes, or, Amazonia) would open up finer-grained levels of observation beyond the national level and thus help illustrate the heterogeneity of the process and the plurality of demographic transitions within the country. Moreover, the demographic transition in Peru was accompanied by a profound population redistribution between urban and rural areas amid a sustained urbanization process characterized by mass internal migration from the countryside to the city. This corresponds to the general model in evidence internationally (Dyson, 2011).

The data available from the General Census of 1876 and the National Population and Occupation Census of 1940, presented by Varillas Montenegro *et al*. (1990), attest to the start of a decline in mortality and the first stage of demographic transition in Peru from the 19th century, in common

with other countries in the region such as Argentina Rodríguez Wong *et al*. (2000). On the other hand, the findings confirm the typification of Peru into the "typical" or "majority" model of demographic transition, along with other Latin American countries such as Mexico, Brazil, Ecuador, Colombia, and Venezuela, characterized by higher fertility rates in the 1950s and 1960s before a drop in both this indicator and population growth from the 1970s (Guzmán et al., 2006). The findings also reveal a parallel "incipient" transition model in rural parts of the country —grouping together the poorest population groups— in which fertility underwent a significant decline in the 1995/2005 period (from 6.2 to 4 children per woman). The trends observed in the ENDES conducted during the 2000s and 2010s regarding the prevalence of modern contraceptives and the decrease in fertility by education level of women of reproductive age corroborate the analyses of Heaton & Forste (1998) based on the earliest ENDES surveys in the 1990s. Finally, gaps between regions and urban–rural areas of residence when it comes to the use of modern contraceptives have decreased but remain significant, which tends to reflect the prevalence of cultural factors related to fertility control and the sexual behavior of women with low levels of education. This trend is in keeping with the observations of Fort (1992) concerning differences in levels of fertility between urban and rural areas and between the Andes and Amazonia.

The drop in fertility in Peru is part of a "sociocultural modernization" process (Zavala de Cosío, 1992) expressed by a major decrease in illiteracy throughout the 20th century, mass dissemination of education, and greater access to family planning services for women. This began in urban areas from the end of the 1950s through traditional methods and throughout the 1960s with access to contraceptives (especially the pill) available on the market. The fertility of women living in rural areas took longer to fall and depended to a greater extent on access to government family planning programs (Aramburú, 2014). This social and cultural change gave way to a progressive transformation of life chances and greater economic participation for Peruvian women. Family planning based on the use of modern contraceptive methods, allowing control of family size and timing, plays a key role in the realization of their aspirations. Studying the demographic transition requires consideration of questions of gender and its evolution over the decades. It also highlights the need to understand the causal link between education and use of modern contraceptive methods. On this, the study by Lutz (2021), which identifies education and the increase in women's schooling as "nodal points" in the evolution of reproductive beha-

viors, has much empirical validity in the choice of women to limit the number of births based on mechanisms of "cognitive empowerment." It is also notable that this trend predates the improvement in socioeconomic conditions and the economic development that Peru underwent from the start of the 2000s.

With regard to sociocultural modernization, other factors related to the family, such as the new value assigned to children, the importance attributed to their education and personal development, and the decision to have a small "modern" family, require analysis from a comparative perspective between different generations of women. Future research could also seek to understand whether, in the different stages of demographic transition, fertility choices arose from the dissemination of a reproductive model and the introduction of new norms of fertility behavior motivated by the opportunity to access modern contraceptive methods, or whether, on the contrary, these choices were a function of the social and economic crises that shook the country in the 1970s and 1980s.

Moreover, in the context of the COVID-19 pandemic, the impact of the health crisis on the evolution of demographic regimes and family systems must be taken into consideration. In particular, it is necessary to observe the effect of the excess deaths recorded in 2020 and 2021 on life expectancy and the probable decrease thereof, as one recent study has noted (Heuveline, 2022). Likewise, issues related to climate change raise the need to consider how ecological and environmental factors will affect future demographic evolution in terms of the ongoing decline in fertility, deteriorating health conditions and access to healthcare systems, and mobility choices linked to increasingly widespread environmental degradation.

References

Aramburú, C.E., 2005, "Politics and reproductive health: a dangerous connection", in Lerner, S., Vilquin, É. (Eds.), *Reproductive Health, Unmet Needs and Poverty Issues of Access and Quality of Services*. Paris, pp. 449–472.

Aramburú, C.E., 2014, "Idas y vueltas: los programas de planificación familiar en el Perú", en *Revista Latinoamericana de Población* 8, 81–103. https://doi.org/10.31406/relap2014.v8.i1.n14.4

Aramburú, C.E., Ferrando, D., Lésevic, B., Mostajo, P., 1987, *Estudio diferenciado de la fecundidad a nivel distrital*, Mimeo. ed. Lima.

Benítez Zenteno, R., 2004, "Transición demográfica en América Latina, tendencias y consecuencias sociales", en *Revista Mexicana de* Sociología 66, 239–254. https://doi.org/10.2307/3541452

Bongaarts, J., 1978, "A framework for analyzing the proximate determinants of fertility", in *Population and Development Review* 105–132.

Bravo, J.H., 1992, "Visiones teóricas de la transición de la fecundidad en América Latina. ¿Qué relevancia tiene el enfoque difusionista?", en *Notas de Poblac*ión 56, 33–55.

CELADE, 1972, *Fertility and Family Planning in Metropolitan Latin America*. University of Chicago Press, Chicago.

CELADE, 1990, *América Latina: transición de la fecundidad en el período 1950-1990*. Serie A - CELADE No. 200.

Chackiel, J., 2004, "La transición de la fecundidad en América Latina 1950-2000", en *Papeles de Población* 10, 9–58.

Chackiel, J., Schkolnik, S., 1992, "La transición de la fecundidad en América Latina", en *Notas Población* 20, 161–192.

Chesnais, J.-C., 1986, "La transition démographique: étapes, formes, implications économiques. Etude de séries temporelles (1720-1984) relatives à 67 pays", en *Population* 41, 1059–1070. https://doi.org/10.2307/1532931

Cleland, J., 2002, "Education and future fertility trends, with special reference to mid-transitional countries", in *Population Bulletin of the United Nations,* 183-194.

Cleland, J., Wilson, C., 1987, "Demand Theories of the Fertility Transition: An iconoclastic view", in *Population Studies* 5–30.

Cosio Zavala, M.E., 1994, *Changements de fécondité au Mexique et politiques de population*. L'Harmattan, Paris.

Cosio Zavala, M.E., 1999, "Demographic Transition and Social Development in Low-incomes Countries", in *Population Growth and Demographic Structure*, UN,ST/ESA/SER.R/132. New York, pp. 91–98.

de Miranda-Ribeiro, A., Garcia, R.A., 2013, "Transition or transitions? Analyzing the fertility decline in Brazil in the light of educational levels", in *Revista Latinoamericana de Población* 7.

Dyson, T., 2011, "The Role of the Demographic Transition in the Process of Urbanization", in *Popul. Dev. Rev*. 37, 34–54. https://doi.org/10.1111/j.1728-4457.2011.00377.x

Ferrando, D., 1986, *Tendencias regionales de la fecundidad: 1969-1977*. Lima.

Ferrando, D., Aramburú, C.E., 1992, "La transición de la fecundidad en Perú", en *Notas de Población* 173–2020.

Feyisetan, B., Casterline, C., 2000, "Fertility preferences and contraceptive change in developing countries", in *International Family Planning Perspectives* 26, 100–109.

Fort, A.L., 1992. "Fecundidad y comportamiento reproductivo en la sierra y selva del Perú", en *Estudios Demográficos y Urbanos* 7, 327–357.

Guzmán, J.M., 1996, "Social change and fertility decline in Latin America", in *The Fertility Transition in Latin America*. Oxford University Press, Oxford.

Guzmán, J.M., Rodríguez, J., 1993, "La fecundidad pre-transicional en América Latina: un capítulo olvidado", en *Notas de Población* 21, 217–246.

Guzmán, J.M., Rodríguez, J., Martínez, J., Contreras, J.M., González, D., 2006, "La démographie de l'Amérique latine et de la Caraïbe depuis 1950", in *Population* 61, 623–733. https://doi.org/10.3917/popu.605.0623

Hakkert, R., 2004, "Fecundidad deseada y no deseada en América Latina, con particular referencia a algunos aspectos de género", en *La Fecundidad En América Latina: ¿transición o Revolución?*, Serie Seminarios y Conferencias. CEPAL, Santiago de Chile, pp. 267–288.

Heaton, T.B., Forste, R., 1998, "Education as policy: The impact of education on marriage, contraception, and fertility in Colombia, Peru, and Bolivia", in *Social Biology* 45, 194–213. https://doi.org/10.1080/19485565.1998.9988973

Heuveline, P., 2022, "Global and National Declines in Life Expectancy: An Endof 2021 Assessment", in *Population and Development Review* 48, 31–50. https://doi.org/10.1111/padr.12477

INEI, 2001, "Perú: Estimaciones y Proyecciones de Población, 1950 – 2005. Urbana – Rural 1970 – 2025", en *Boletín de Análisis Demográfico* 35. Lima.

INEI, 2018, *Perú: perfil sociodemográfico. Informe nacional*. Censos nacionales 2017: XII de población, VII de vivienda y III de comunidades indígenas. Instituto Nacional de Estadística e Informática (INEI), Lima.

INEI, 2020, *Perú: Estadísticas de la emigración internacional de peruanos e inmigración de extranjeros, 1990 – 2018*, Instituto Nacional de Estadística e Informática (INEI). ed. Lima.

Juárez, F., Gayet, C., Wright, J.D., 2015, "Fertility Transition: Latin America and the Caribbean", in *International Encyclopedia of the Social & Behavioral Sciences*. Elsevier, University of Central Florida, Orlando, FL, USA, pp. 68–72.

Krejka, T., Atkin, L.C., 1990, "El papel del aborto inducido en la transición de la fecundidad de América Latina", en *Salud Pública México* 32, 276–287.

Landry, A., 1934, *La révolution démographique. Études et essais sur les problèmes de la population*, Recueil Sirey. ed.

Lésevic, B., Ortiz, J., 1987, *Dos estudios de fecundidad*, Centro de Investigaciones Sociológicas, Económicas, Políticas y Antropológicas (Cisepa). ed. Lima.

Lutz, W., 2021, *Advanced Introduction to Demography*. Edward Elgar Publishing.

Miró, C.A., 2003, "Transición demográfica y envejecimiento demográfico", en *Papeles de Población* 9, 9–28.

Necochea López, R., 2016, *La planificación familiar en el Perú del siglo XX*, Instituto de Estudios Peruanos (IEP), Fondo de Población de las Naciones Unidas (UNFPA). ed. Universidad del Pacífico, Lima.

Parrado, E.A., 2000, "Social Change, Population Policies, and Fertility Decline in Colombia and Venezuela", in *Population Research and Policy Review* 19, 421–457.

Patarra, N.L., 1973, "Transición demográfica: ¿resumen histórico o teoría de población?", en *Demografía y Economía* 7, 86–95.

Pérez Brignoli, H., 2010, "América Latina en la transición demográfica, 1800-1980", en *Población y Salud en Mesoamérica* 7.

Pérez Brignoli, H., 2022, *América Latina en la transición demográfica (1800-2050)*. Teseo, Ciudad Autónoma de Buenos Aires.

Rodríguez Wong, L., de Carvalho, J.A.M., Aguirre, A., 2000, "Duración de la transición demográfica en América Latina y su relación con el desarrollo humano", en *Estudios Demográficos y Urbanos* 15, 185–207.

Schkolnik, S., Chackiel, J., 1998, "América Latina: la transición demográfica en los países rezagados", en *Notas de Población* 67–68, 7–53.

Thompson, W., 1929, "Population", Am. J. Sociol. 34, 959–975.

Varillas Montenegro, A., Mostajo de Muente, P., Cotlear, D., Fernández, H., Ferrando, D., Flores, R., González-Vigil, J., León, J., Pease, F., Petrera, M., 1990, "La situación poblacional peruana: balance y perspectivas", in *La Situación Poblacional Peruana: Balance y Perspectivas*. pp. 524–524.

Zavala de Cosío, M.E., 1995, "Dos modelos de transición demográfica en América Latina", en *Perfiles Latinoamericanos*, 29-47.

Zavala de Cosío, M.E., 1992, "La transición demográfica en América Latina y Europa", en *Notas de Población*, 11-32-

AUTHOR'S RESUME

Robin Cavagnoud

Doctor in *Studies of Latin American Societies* (sociology and demography) from the Institute of Higher Studies in Latin America (IHEAL, Paris III University), he is a senior professor in the Department of Social Sciences at the Pontifical Catholic University of Peru (PUCP), as well as as director of the Master's Degree in Sociology and coordinator of the *Ages of Life and Education* (EVE) group of the same university. His research focuses on family demographic transformations in Latin America, articulating quantitative and qualitative methodologies of population studies. Based on demographic surveys, censuses, as well as individual and multigenerational biographies, it analyzes in particular the evolution of fertility, household structures, patterns of formation and dissolution of unions, and the media. life of families, according to their subsistence, adaptation and mobility

strategies, gender relations, care practices, education and the participation of each generation.
Email: rcavagnoud@pucp.pe
Record ORCID: https://orcid.org/0000-0002-0584-8620

Article received on August 4, 2023 and accepted on September 4, 2023