

# Aging in Latin America and the Caribbean from the Perspective of National Transfer Accounts



**PAHO**



Decade  
of healthy  
aging  
in the Americas



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Decade of Healthy Aging in the Americas  
**situation and challenges**



# Aging in Latin America and the Caribbean from the Perspective of National Transfer Accounts

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## *Aging in Latin America and the Caribbean from the Perspective of National Transfer Accounts*

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The purpose of the series is to provide regular updates on the different areas of action of the Decade of Healthy Aging (2021-2030) in the Region, as well as on other related aspects.

We appreciate the collaboration of the experts from PAHO, the United Nations, the Inter-American System, and the academic world who participated in the initiative and formulated essential feedback and recommendations for the project to see the light.

## Abbreviations and Acronyms

ESR	economic support ratio
NTA	national transfer accounts
NTTA	national time transfer accounts

## Introduction

Changes in the age structure of the Region of the Americas – a consequence of demographic changes – directly affect the behavior of demographic dependency indicators, revealing the relationship between the potentially dependent population and the working-age population. These age-related population ratios, in turn, can directly affect the development process, increasing or decreasing the availability of people of working age and altering the proportion of the population that is effectively dependent on the working-age population (7).

Initially, as the countries of the Region move from young societies to young-adult and adult societies, the working-age population represents a larger proportion of the total population. The increased supply of labor provides opportunities to boost the economy during a period of demographic ‘dividend’ or ‘bonus’ (2–4). However, if appropriate education, employment, and healthcare policies (aimed primarily at providing access to a labor market with decent jobs) are not adopted during the first demographic dividend (which is favorable to socioeconomic development), demographics can become a problem when this contingent of the population reaches older age. Conversely, if this first dividend is properly leveraged, demographics will provide a second demographic bonus, in which older people can continue to contribute to economic growth (5, 6).

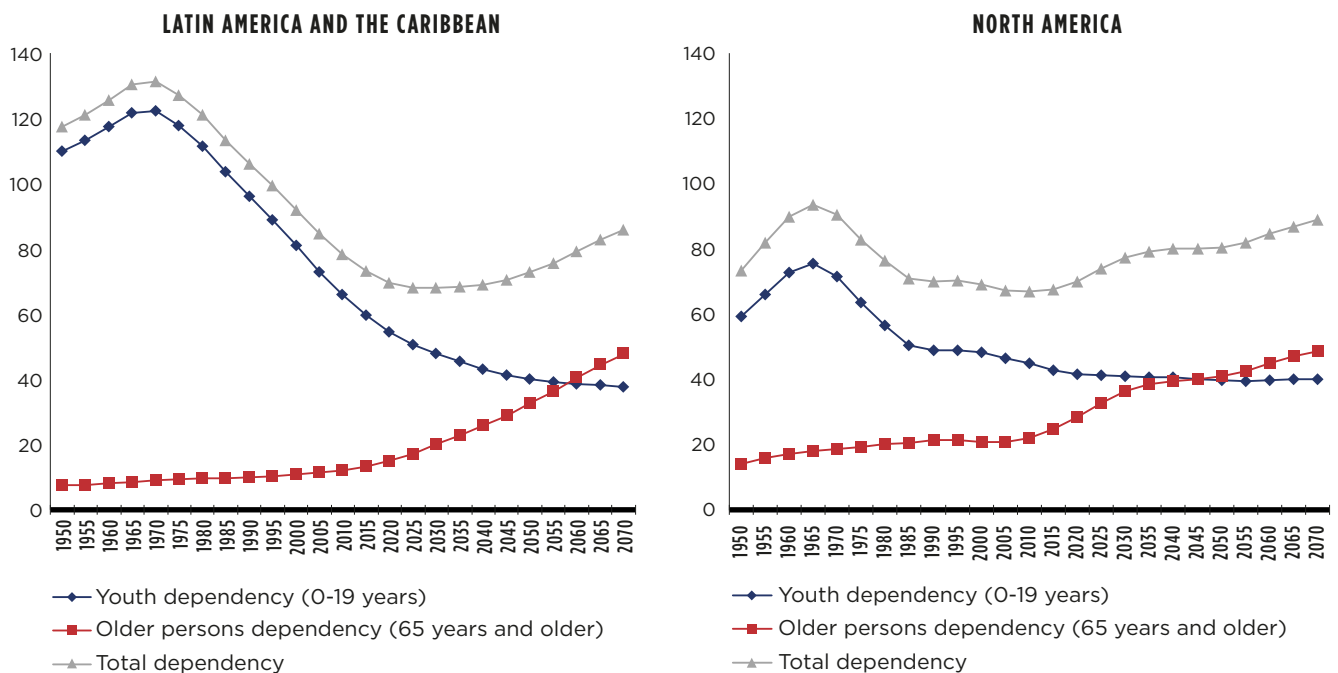
The Latin American and Caribbean subregion continues to age, although some countries are at more advanced stages than others. The following sections first present a brief overview of trends in demographic dependency indicators, followed by a detailed analysis of aging based on socio-economic profiles from the perspective of national transfer accounts, in order to understand the conditions that need to change in order to take better advantage of the second demographic bonus in the subregion.

## Brief overview of demographic dependency

Demographic dependency indicators can be broken into different age groups, depending on the age of employment and retirement age in different societies. Globally, the bracket for people under 20 can now be used as a potentially dependent young population, since a significant proportion of this age group are expected to be in tertiary education and have not yet entered the labor market. On average, retirement age tends to be above 64 years, so to make an

estimate of the labor force as accurately as possible, the range between 20 and 64 years is used here. Figure 1 shows the trajectories of the three indicators of demographic dependency: total, youth, and older persons, for the two large subregions of the Americas: Latin America and the Caribbean; and North America. Although much of the former is in a process of rapid and pronounced aging, it can still seize a demographic opportunity: its age structure is favorable, given that total dependency is at its lowest expected value, with 100 people of working age for every 70 potentially dependent people. In the case of North America, the lowest level of total demographic dependency was reached in 1985, and it began to grow between 2015 and 2020.

**Figure 1.** Demographic dependency ratio in Latin America and the Caribbean and North America (total, youth, and older persons), 1950–2070



Source: United Nations Department of Economic and Social Affairs, Population Division. World Population Prospects 2019, Rev. 1. New York: United Nations; 2019.

According to these trends, total demographic dependency in Latin America and the Caribbean will remain at its lowest level until at least 2045, when it is expected to begin to rise to return to figures similar to the beginning of the demographic transition, but with an inverse proportion of young and older people. Thus, it is important to bear in mind that while youth dependency is still much higher than that of older people, in the coming decades these indicators will be reversed, since there will be more older people than young people.

The subregion still has a few years to take advantage of its age structure's demographic advantage, but this structure alone does not change the economy or reduce inequality. It is important to remember that the present moment is still favorable to designing employment, health, and social security policies that guarantee that today's waves of young adults can be a productive asset to the economy during their working lives and that they can enjoy a healthier and more pleasant life when they reach old age.

The subregion's internal inequalities are revealed by comparing the demographic dependency indicators for each country. Figure 2 presents the distribution of the countries in Latin America and the Caribbean according to the dependency of youth and older people, both in relation to the population between 20 and 64 years old. The time variable is represented by different shapes and colors in the point markers. The dispersion of pre-transition data (1950) and projected data (2060) shows the evolution of the process: countries with low levels of dependency on older persons (less than 20 per 100 persons of working age) had high levels of dependency on young people (100 to 160 per 100 persons of working age). In the 1950s, countries such as Argentina and Uruguay already had lower youth dependency ratios, while in the countries lagging in the demographic transition, such as Guatemala, Paraguay, and the Dominican Republic, there were more than 150 young people for every 100 people between 20 and 64 years old.

Throughout the transition, it can be observed that the values of the dependency ratio of young and older people are reversed. This trend can be seen in Figure 2, which shows how quickly demographic dependency among older people reaches very high values, in particular from the 2020s and 2030s, while youth dependency is declining more slowly. The projected data for the 2030s and 2040s reaffirm the current decade's trend, as demographic dependency among older people increases even more.

In the 2010s, countries such as Argentina, Chile, Cuba, and Uruguay show an acceleration of the aging process and, therefore, an increase in dependency ratios among older people. At the other extreme is Guatemala, with low levels of dependency for older people and high dependency for young people. The outlook for the future shows an intensification of ongoing processes. In Cuba there will be about 60 older people for every 100 people between 20 and 64 years old in 2040; and in Chile and Uruguay, there will be around 40. By that date, even in Guatemala, a country lagging in the demographic transition,

the dependency of older people will have increased compared to the potentially active population.

**Figure 2.** Youth dependency ratio and demographic dependency of older people in Latin America and the Caribbean, 1950, 2000, 2010, 2020, 2030, 2040, 2060



*Note:* All rates are expressed as percentages. Youth demographic dependency ratio: Ratio between the population aged 0 to 19 years and the population aged 20 to 64 years multiplied by 100. Demographic dependency of older persons (ratio): Ratio between the population aged 65 and over and the population aged 15 to 64 multiplied by 100.

*Source:* United Nations Department of Economic and Social Affairs, Population Division. World Population Prospects 2019, Rev. 1. New York: United Nations; 2019.

This brief overview of demographic dependency clearly reveals the relationship between demography and the economy at the aggregate level, roughly marking the stage of the demographic bonus in which countries find themselves. However, despite the fact that demographic dependency is an indicator whose estimation is very simple, since it depends only on age distribution, it is not the best way to record economic dependency. This is due, firstly, to the fact that it only shows the ratio between ages and does not take into account the dynamics of the labor market or the economy in the different countries, which can present very important variations, for example, by not taking

into account people of working age who do not work, or those who are officially not “economically active” while still working. Secondly, it does not capture generational dynamics, and in particular, changes over time such as improvements in education and changes in labor market regulation (e.g., laws protecting against child and youth labor). On the other hand, the economy is affected by demographic dynamics itself, as changes in demographic indicators such as increased life expectancy can also lead to policy changes, such as raising the retirement age, with an impact on the economy.

Economic dependency indicators, which seek to measure the effects of changes in age structure on the economy, are more useful than demographic dependency indicators to understand the real impact of the demographic transition on countries’ economic contexts. Economic dependency indicators consider the fact that people do not have the same demands and capabilities throughout the life course. In this context, a detailed analysis of aging is provided in the following sections, based on socio-economic profiles from the perspective of national transfer account methodologies.

## **Socio-economic profiles from the perspective of national transfer accounts**

The national transfer accounts (NTA) system is an important analytical tool that helps to differentiate between the demographic and economic effects of the population aging process. In addition, it offers a set of comprehensive profiles of labor income and consumption by age and includes intergenerational profiles of health consumption and capacity to produce income, providing important information to assess how population aging may affect people’s lives in the future. Yet, we must keep in mind that this depends not only on changes in the population’s age structure, but also on the response of governments and societies to these changes and on the structure of the workforce and consumption at national level.

However, obtaining the necessary information to carry out this analysis is not simple, since it requires the calculation of effective producers and consumers in each country and at a given moment.

The NTA system is available for some countries in Latin America and the Caribbean. For the purposes of this chapter, 10 of them are included: Argentina, Bolivia (Plurinational State of), Brazil, Chile,

Colombia, Costa Rica, El Salvador, Mexico, Paraguay, and Peru. Given its complexity, the appendix provides a brief description of the NTA system and some of the concepts and indicators that are useful in providing an overview of population aging.

This section presents a detailed description of population aging based on the economic life cycle, based on information from the NTA project for Latin American and Caribbean countries.<sup>1</sup> The analysis focuses at all times on older population, including the dimension of health consumption, and presents subregional averages and aggregated data from the 10 countries where relevant.

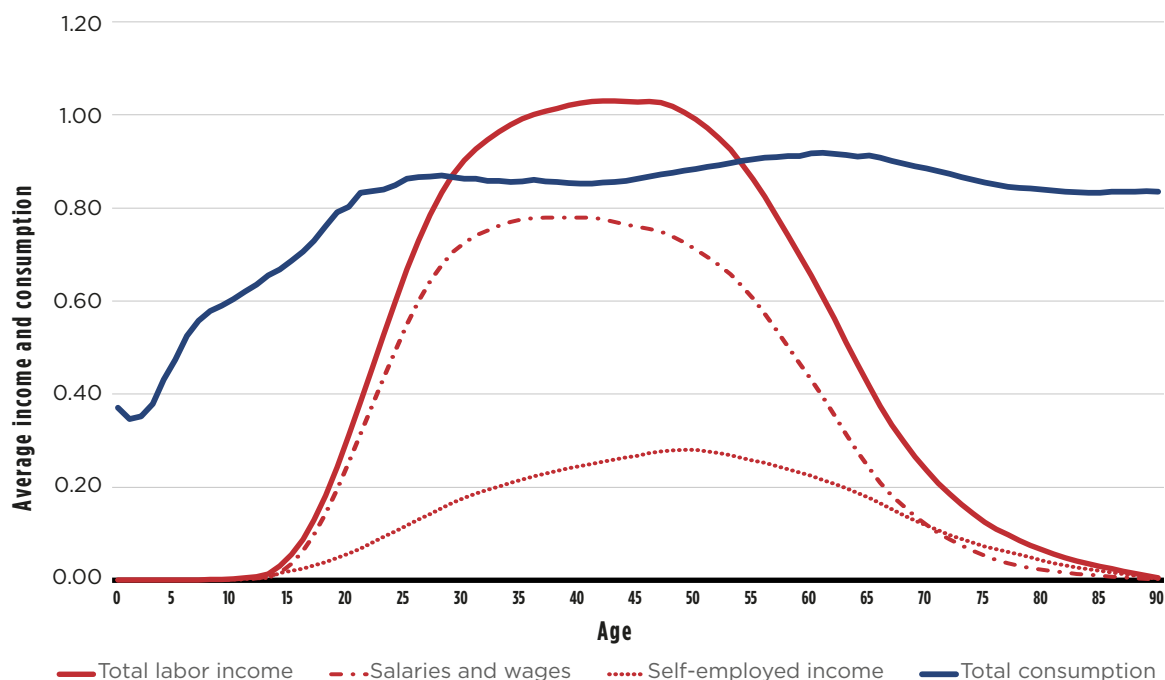
### **Age profiles of labor income and consumption in Latin America and the Caribbean**

People's economic dependency varies with age, as it depends on their ability to work, and their consumption needs throughout life. Age-standardized income and consumption profiles, calculated using the NTA system, make it possible to distinguish the stages in which people's consumption is higher than the income they generate with their own work (typically, childhood and old age) and those in which the income generated exceeds consumption needs (intermediate ages). Figure 3 shows these profiles, by age, for the Latin America and the Caribbean average, using per capita consumption and labor income, standardized with the respective averages for people between 30 and 49 years old—a bracket chosen by the authors of the methodology because it is the one with the highest level of employment in most countries. Labor income includes both the formal and informal sectors and distinguishes between two components: income from employment (or salaried) work, and income from self-employment, given their relative importance in older population.

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<sup>1</sup> The analysis provided in this section is based on estimates provided by countries to the ECLAC National Transfer Accounts database.

**Figure 3.** Consumption and per capita income in Latin America and the Caribbean, by age, 2000



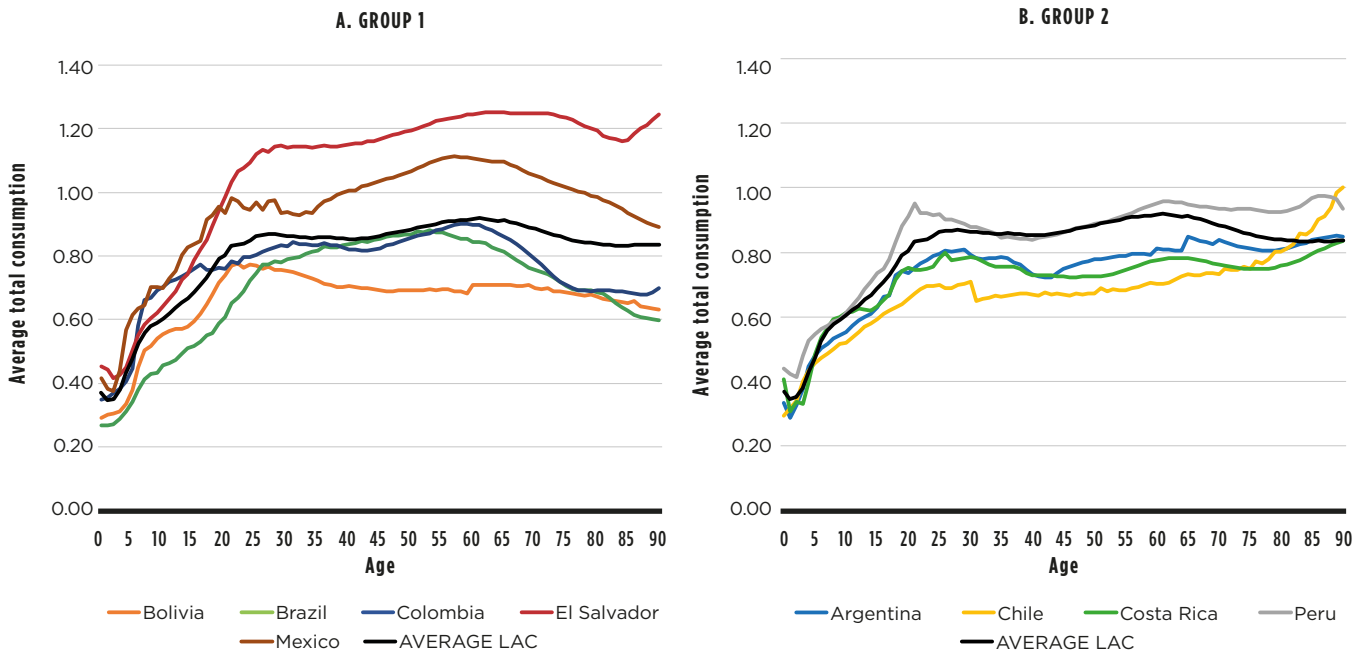
*Note:* The countries analyzed are: Argentina, Plurinational State of Bolivia, Brazil, Colombia, Costa Rica, El Salvador, Mexico, Paraguay, and Peru. Values standardized by the average income and consumption of people between 30 and 49 years of age in each country. The data correspond to various dates in the year 2000.

*Source:* The analysis provided in this section is based on estimates provided by countries to the ECLAC National Transfer Accounts database.

Regarding the age profile of per capita consumption for the average of the countries of Latin America and the Caribbean, Figure 3 shows that it remains relatively stable from 20 to 25 years, with a modest increase around 45 and a slight decrease after 65. However, the average consumption of people over 64 represents about 85% of the average labor income between 30 and 49 years of age.

The decrease in consumption in older persons for the subregional average marks a difference with high-income countries, where consumption increases in old age (7). However, this behavior differs between countries. The drop in consumption after the age of 65 is led mainly by Brazil, Colombia, and Mexico (Figure 4); in contrast, this figure increases after the age of 65 in Chile, and after the age of 70 in Costa Rica and Argentina (Figure 4b).

**Figure 4.** Total consumption per capita in Latin America and the Caribbean, by age, 2000



*Note:* Values standardized by the average consumption for people between 30 and 49 years of age in each country. The data correspond to various dates in the year 2000.

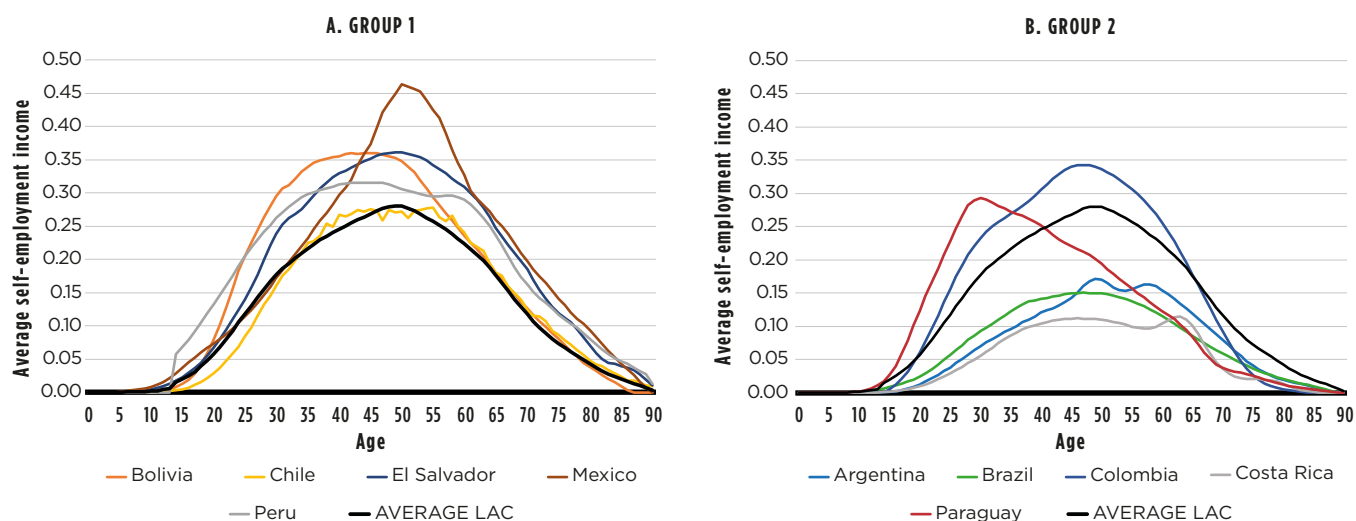
LAC: Latin America and the Caribbean.

*Source:* The analysis provided in this section is based on estimates provided by countries to the ECLAC National Transfer Accounts database.

As for the age profile of per capita labor income (Figure 3), although this figure decreases from the age of 55 on average, it maintains positive values until very old ages, in response to what seems to be a strategy of the countries of the subregion to contribute to maintaining consumption levels. Given the features of labor markets in Latin America and the Caribbean, it is possible that continuity of work, both salaried and from self-employment, may be associated with informal or precarious employment, as well as the persistence of significant problems related to the adequacy of pension system benefits.

In the case of the components of labor income in these countries, it is interesting to note that Mexico, Peru, and El Salvador are those with the highest self-employment income after age 64 (Figure 5). In contrast, Argentina, Brazil, Costa Rica, and Paraguay (Figure 5b) are below the subregional average (the top three, for all ages). Colombia is also in this group from age 65.

**Figure 5.** Self-employment income, per capita, in Latin America and the Caribbean, by age, 2000



Note: Values standardized by average consumption between 30 and 49 years. The data correspond to various dates in the year 2000.

LAC: Latin America and the Caribbean.

Source: The analysis provided in this section is based on estimates provided by countries to the ECLAC National Transfer Accounts database.

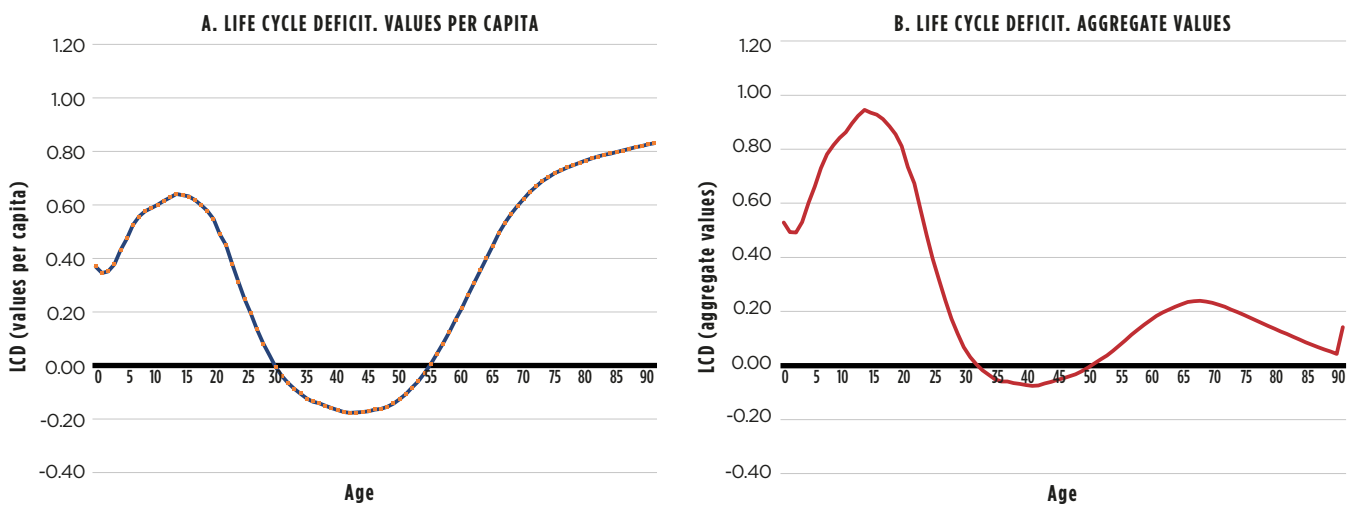
## Life cycle deficit and funding the system for older people

The difference between consumption and total income by age is called the *life cycle deficit* (LCD), which can be calculated both per capita and in aggregate.<sup>2</sup> Figure 6 shows (on average, for the countries considered) a surplus in LCD per capita between 29 and 53 years of age. The deficit in old age is greater than in childhood (up to 80% and 64%, respectively) in relation to the average labor income between 30 and 49 years. In these countries, the population aged 60 and over is in the deficit stage of the life cycle. In aggregate values (i.e., considering the total number of persons for each age group) (Figure 6b), the deficit is greater in childhood than in old age, which reflects the subregion’s age structure of the population, which was still relatively young between 2000 and 2010.

2 There is a difference between the terms life course and life cycle. The term life cycle refers to the continuous sequences of changes that organisms undergo as they develop over time, with reproduction as a key feature. The concept of life cycle has also been used in sociology and economics, where it refers to a series of stages that are socially constructed and describe the course of an individual or social or economic structure’s existence. The life course offers a unique and in-depth perspective on the trajectories of life, considering the changes of individuals and populations in relation to their changing environments, and evaluating their implications for development. that is, it offers a broader and more appropriate definition for use in public health. For more information, please see: <https://iris.paho.org/handle/10665.2/53409>.

Observing the two graphs together reveals the effect of demographics, indicating the impact that population aging can have on the resources needed to finance the future demands of older people, if these profiles are maintained as the age structure changes.

**Figure 6.** Life cycle deficit per capita and aggregate in Latin America and the Caribbean, by age, 2000



*Note:* The countries analyzed are: Argentina, Brazil, Colombia, Costa Rica, El Salvador, Mexico, Paraguay, and Peru. Values standardized by average labor income between 30 and 49 years in each country. The data correspond to various dates in the year 2000.

*LCD:* life cycle deficit.

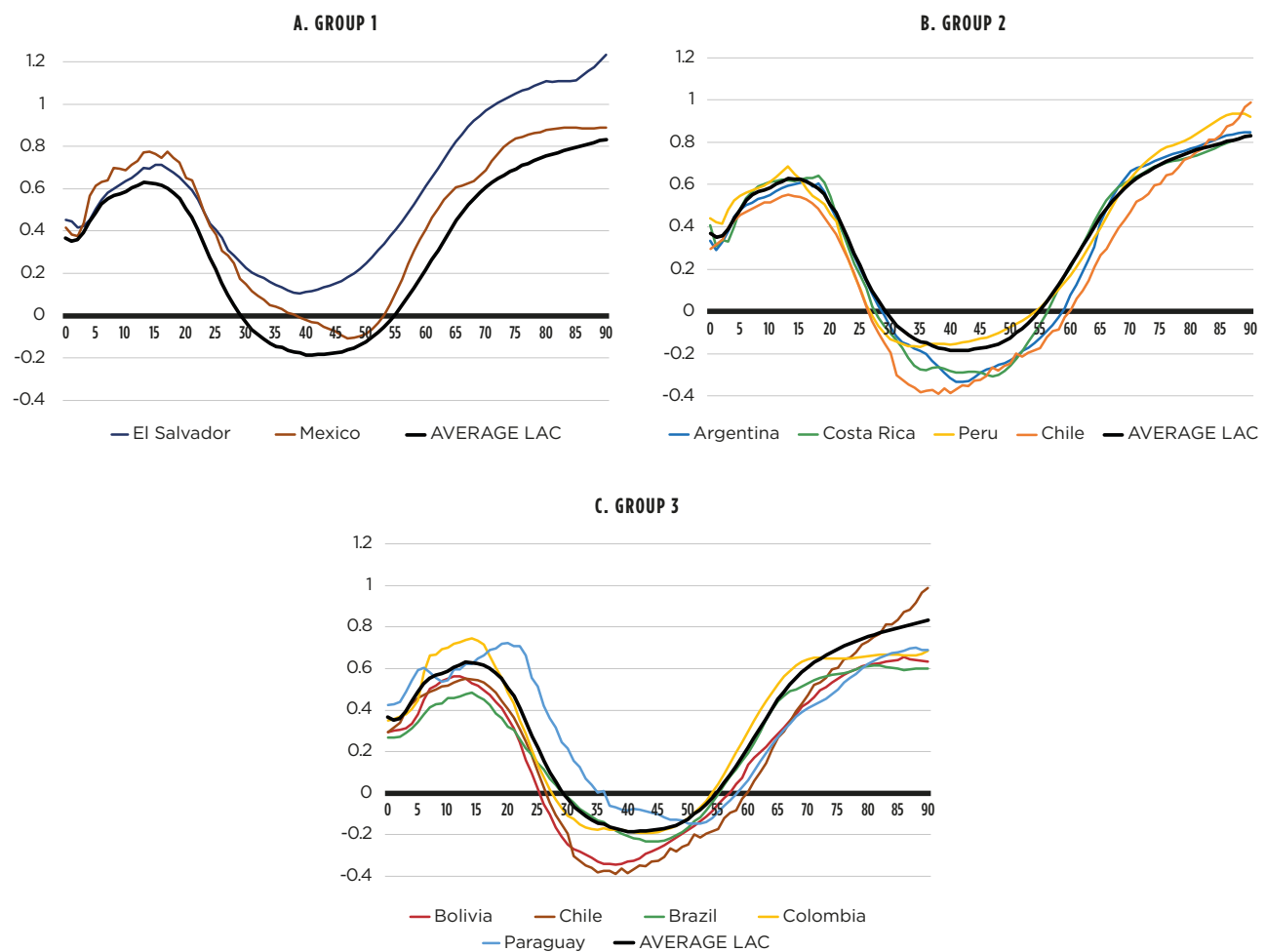
*Source:* The analysis provided in this section is based on estimates provided by countries to the ECLAC National Transfer Accounts database.

This subregional average LCD conceals some differences between countries in terms of the duration of the surplus stage and the scope of the LCD for people over 64 years of age. Figure 7 presents the LCD by country groups compared to the average LCD of the 10 countries considered in the analysis. El Salvador and Mexico have the highest LCDs for all ages (Figure 7) and the lowest surplus stages. El Salvador is an extreme case since it does not present a surplus stage due to the importance of remittances. These two countries undoubtedly raise the average value of the LCD for the subregion. The countries grouped in Figure 7b (Argentina, Chile, Costa Rica, and Peru) have steadily increasing levels of LCDs for people over 64 years of age, who represent between 60 and 85% of the average income of the population aged 30 to 49. Finally, the countries of group 3 (Figure 7c) have lower levels of LCD for the population over 64 years of age than the previous groups. In this group, LCDs increase from the age of 55 and then maintain a relative stability of around 60% of the average labor income from 30 to 49 years, without reaching 70%. Brazil and

Colombia stand out from the rest as they present faster LCD growth between the ages of 55 and 65. Although Chile presents a low LCD at age 60, this figure grows consistently until reaching 80% for people over 85 years of age.

The national scenarios known based on LCDs are important because the NTA system distinguishes three channels of resource reallocation from the surplus stage to the deficit stages: public transfers, private transfers, and asset reallocation. On average, people over 64 base their financing on public transfers (65% of the LCD) and asset reallocation (50%). In turn, they are net subjects of private transfers (-15%), that is, they make greater transfers than those they receive through private channels.

**Figure 7.** Life cycle deficit per capita in Latin America and the Caribbean, by age, 2000



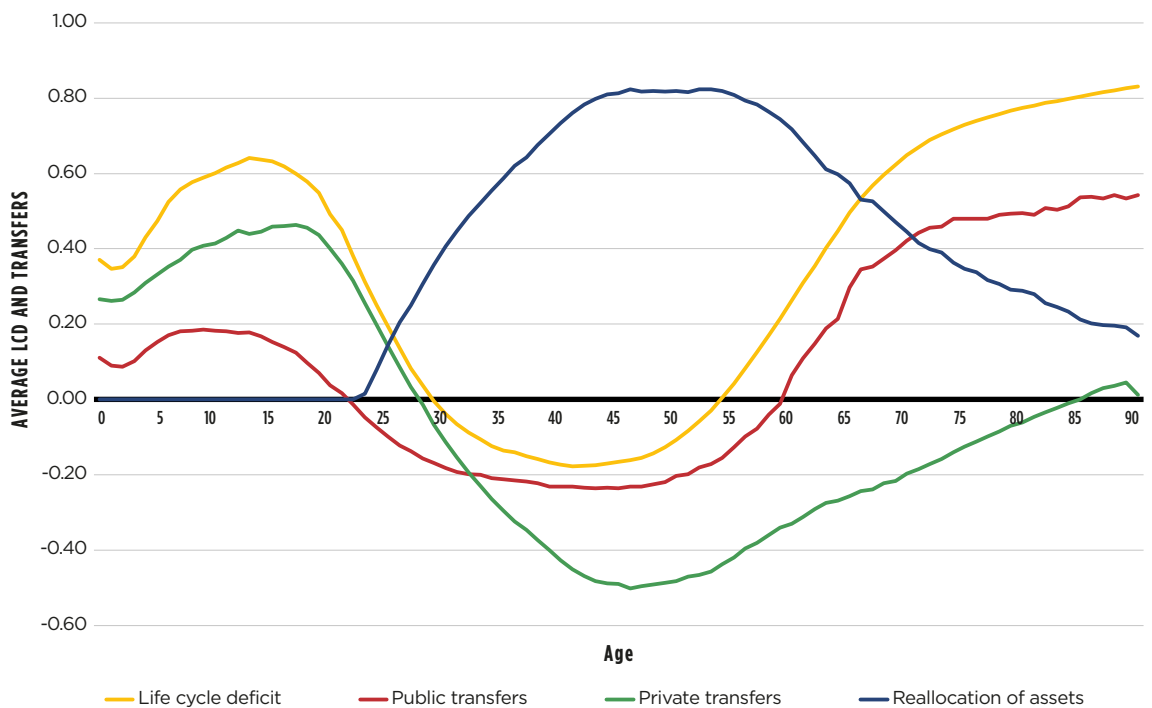
*Note:* Values standardized by average labor income between 30 and 49 years in each country. The data correspond to various dates in the year 2000.

LAC: Latin America and the Caribbean.

*Source:* The analysis provided in this section is based on estimates provided by countries to the ECLAC National Transfer Accounts database.

The net age profiles of the accounts by type of transfer (Figure 8) show that, on average in the subregion, net public transfers are positive from the age of 60 (individuals receive more than they contribute through public channels) and increase with age. The reallocation of assets, which also plays an important role in financing the population over 64 years of age, shows a decrease, with assets and savings accumulated during adulthood being used to finance old age. Finally, people over 64 years of age are net contributors of private transfers up to age 85. It is interesting to note the flow of resources between ages in which this group participates: they receive resources through public channels and channel them through private transfers, thus contributing to the financing of individuals of other ages (in particular, adult children or grandchildren).

**Figure 8.** Life cycle deficit per capita in Latin America and the Caribbean, by age and type of transfer, 2000



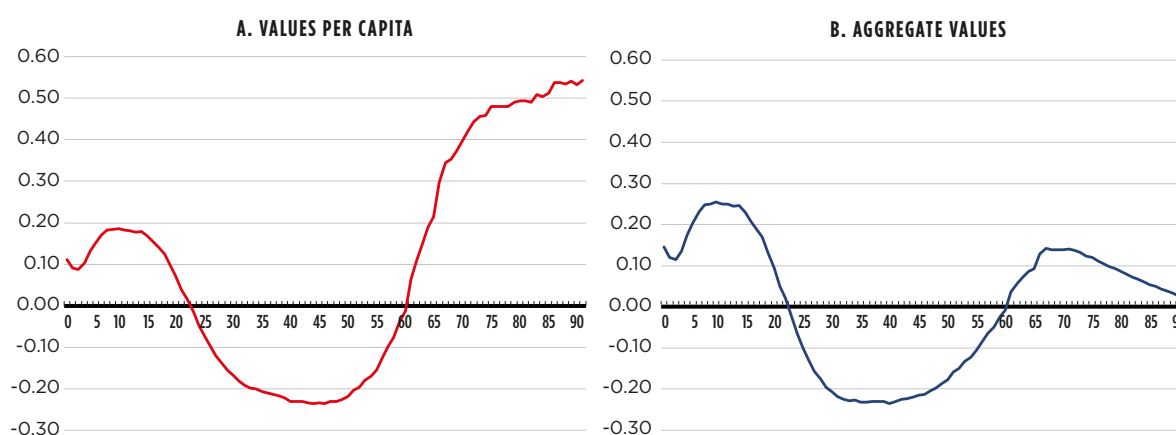
*Note:* The countries analyzed are: Argentina, Brazil, Colombia, Costa Rica, El Salvador, Mexico, and Peru. The data represent the simple average for these countries. Values standardized by average labor income between 30 and 49 years in each country. The data correspond to various dates in the year 2000.

*Source:* The analysis provided in this section is based on estimates provided by countries to the ECLAC National Transfer Accounts database.

The per capita profile by age of net public transfers (Figure 9) shows that transfers to older people are almost triple the net transfers to minors. As for the productive efforts of those in intermediate ages, public transfers to the population over 64 years of age represent about 50% of the average labor income between 30 and 40 years of age in these countries. Even so, in aggregate terms, the largest volume is directed towards people under 20 years of age, due to their share of the total population (Figure 9b).

Given the importance of public transfers in the financing of people over 64 years of age and taking into account that pensions are a fundamental component of such transfers, the process of population aging will have a considerable impact on the fiscal sustainability of public accounts and pension systems.<sup>3</sup>

**Figure 9.** Net public transfers per capita in Latin America and the Caribbean, by age, 2000



*Note:* The countries analyzed are: Argentina, Brazil, Colombia, Costa Rica, El Salvador, Mexico, and Peru. Values standardized by average labor income between 30 and 49 years in each country. The data correspond to various dates in the year 2000.

*Source:* The analysis provided in this section is based on estimates provided by countries to the ECLAC National Transfer Accounts database.

Although net public transfers are positive from age 60 for the average in the countries considered, there are some differences between them.<sup>4</sup> A first group, comprised of Argentina, Brazil, Costa Rica,

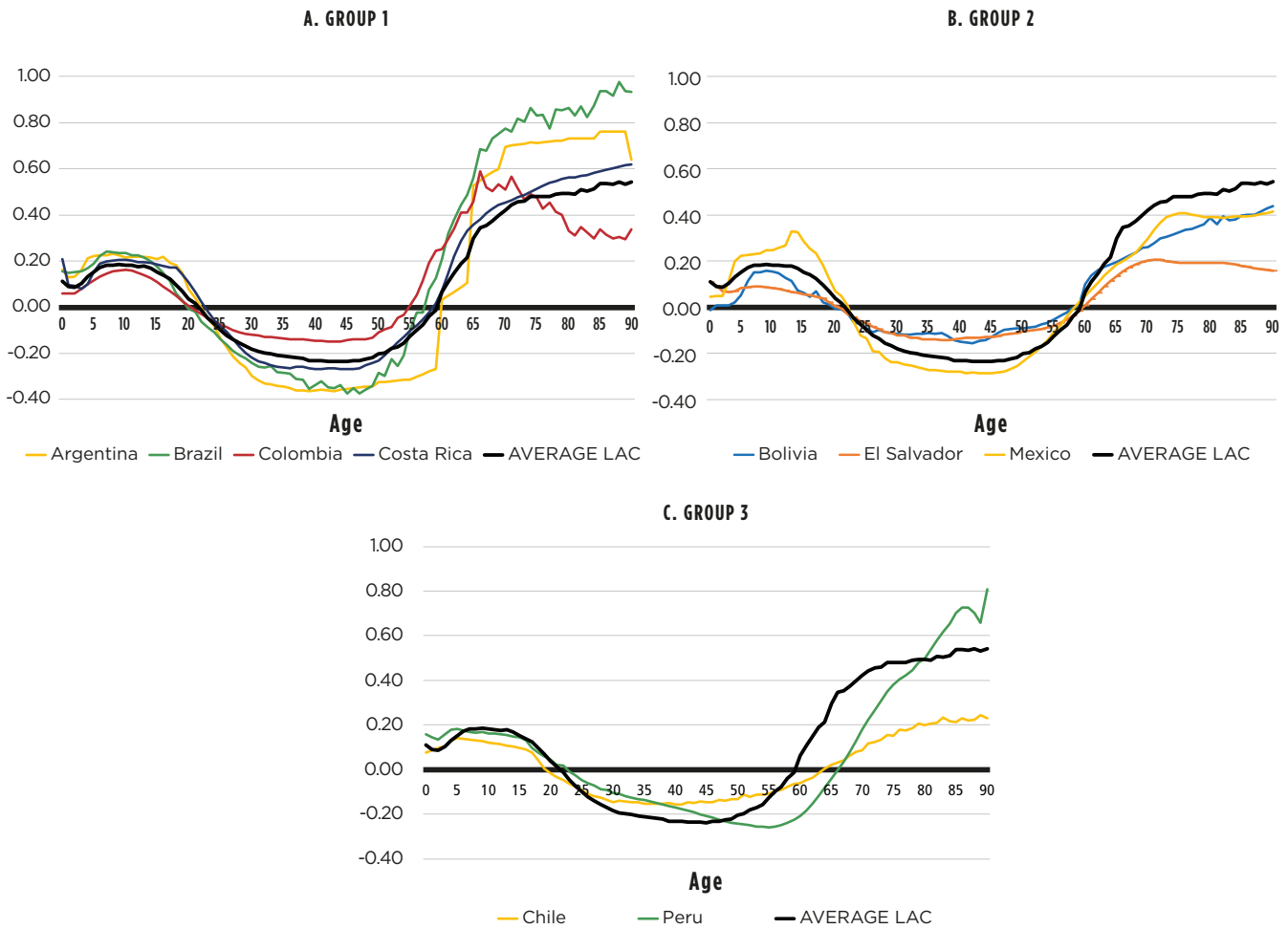
<sup>3</sup> The available data for Argentina, Brazil, Colombia, Costa Rica, and El Salvador show that pensions are the main component of public transfers to people over age 64. Up to age 73, they exceed the value of net transfers and, between 74 and 90, they represent, on average, 92% of this figure. Health transfers represent 11%.

<sup>4</sup> Paraguay is not included due to lack of data.

and Colombia, begin to be net recipients before age 60; at the extreme is Colombia, where this begins at age 54 (Figure 10a). These countries receive greater transfers than the rest of those analyzed, with the exception of Colombia, where they begin to decrease after the age of 70. Brazil receives the largest transfers, followed by Argentina, particularly after the age of 66. The countries that make up the second group – Bolivia (Plurinational State of), El Salvador, and Mexico – begin to be net recipients around the age of 59 and receive fewer transfers than the first group (Figure 10b). Finally, a third group formed by Chile and Peru (Figure 10c) includes the only countries that begin to be net recipients after the age of 60 (at 63 and 66 years, respectively). Peru stands out due to its rapid growth of transfers with age.

It is interesting to link the different groupings of countries based on the analysis of net public transfers and income from self-employment (Figure 5). In this regard, two different situations stand out in the subregion in terms of financing for persons over 64 years of age. On the one hand, a group of countries consisting of Argentina, Brazil, Costa Rica and, to a lesser extent, Colombia, have both higher levels of net public transfers and lower levels of self-employment income than other countries in Latin America and the Caribbean. In contrast, the Plurinational State of Bolivia, El Salvador, and Mexico belong to the group that receives the lowest net public transfers while presenting the highest levels of self-employment income.

**Figure 10.** Net public transfers per capita in Latin America and the Caribbean, by age, 2000



*Note:* Values standardized by average labor income between 30 and 49 years in each country. The data correspond to various dates in the year 2000.

LAC: Latin America and the Caribbean.

*Source:* The analysis provided in this section is based on estimates provided by countries to the ECLAC National Transfer Accounts database.

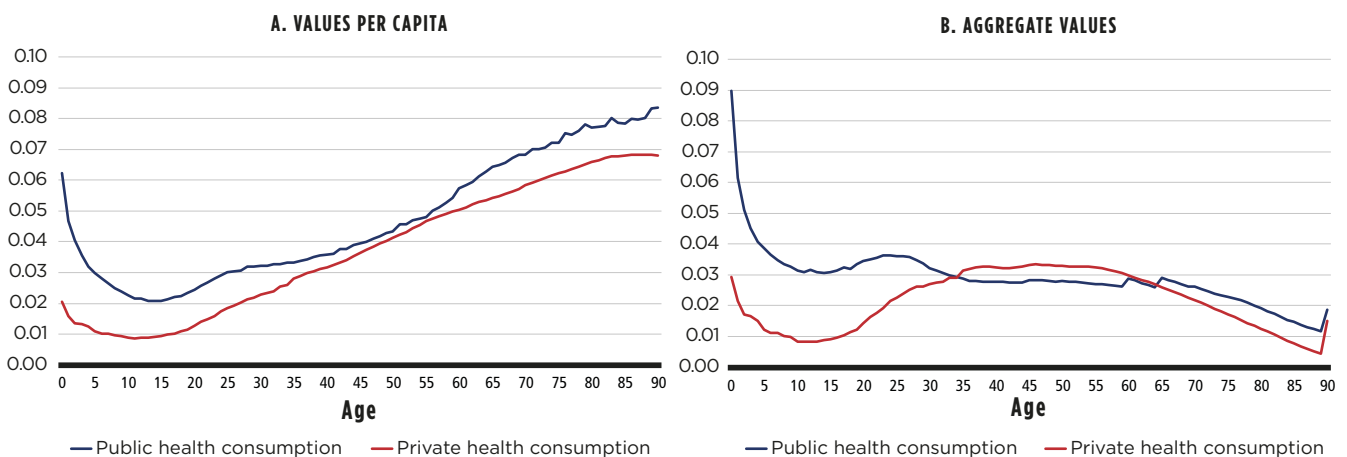
## Consumption of health products and services in the context of population aging

The total consumption profile of Latin American and Caribbean countries is different from that of developed countries, where there is an increase in consumption in old age, mainly associated with higher health expenditures (7). However, for the countries of the subregion, Figure 11a shows that the per capita profile of consumption of both public and private health products and services presents the classic “U” shape, with a pronounced and uninterrupted growth in users from the age of 15. The consumption of public products and services is higher than that of private products and services, particularly from age 60. Despite this, the consumption of health products and services

would not affect total consumption; in particular, it would not generate the increase seen in other countries for older people. One possible explanation is that, on average, health consumption represents 16% of total consumption for people over 64, well below the values seen in developed countries. In terms of productive effort, consumption of public health products and services in high-income countries (Europe and the United States of America) is more than double that of countries in the subregion, accounting for about 15% and 7%, respectively, of average incomes between 30 and 49 years of age. There are no major differences in consumption of private health products and services.

Figure 11b presents the aggregate values of consumption of public and private health products and services, which do not yet show the impact of aging. This consumption, particularly in the public sector, must be taken into account when considering the effect that the increase in the proportion of people over age 64 may have on public policies and public spending, given that it will lead to an increase in diseases associated with longevity (noncommunicable diseases) and, consequently, a greater demand for health products and services, which will also increase in cost.

**Figure 11.** Consumption of public and private health products and services per capita and aggregate in Latin America and the Caribbean, by age, 2000

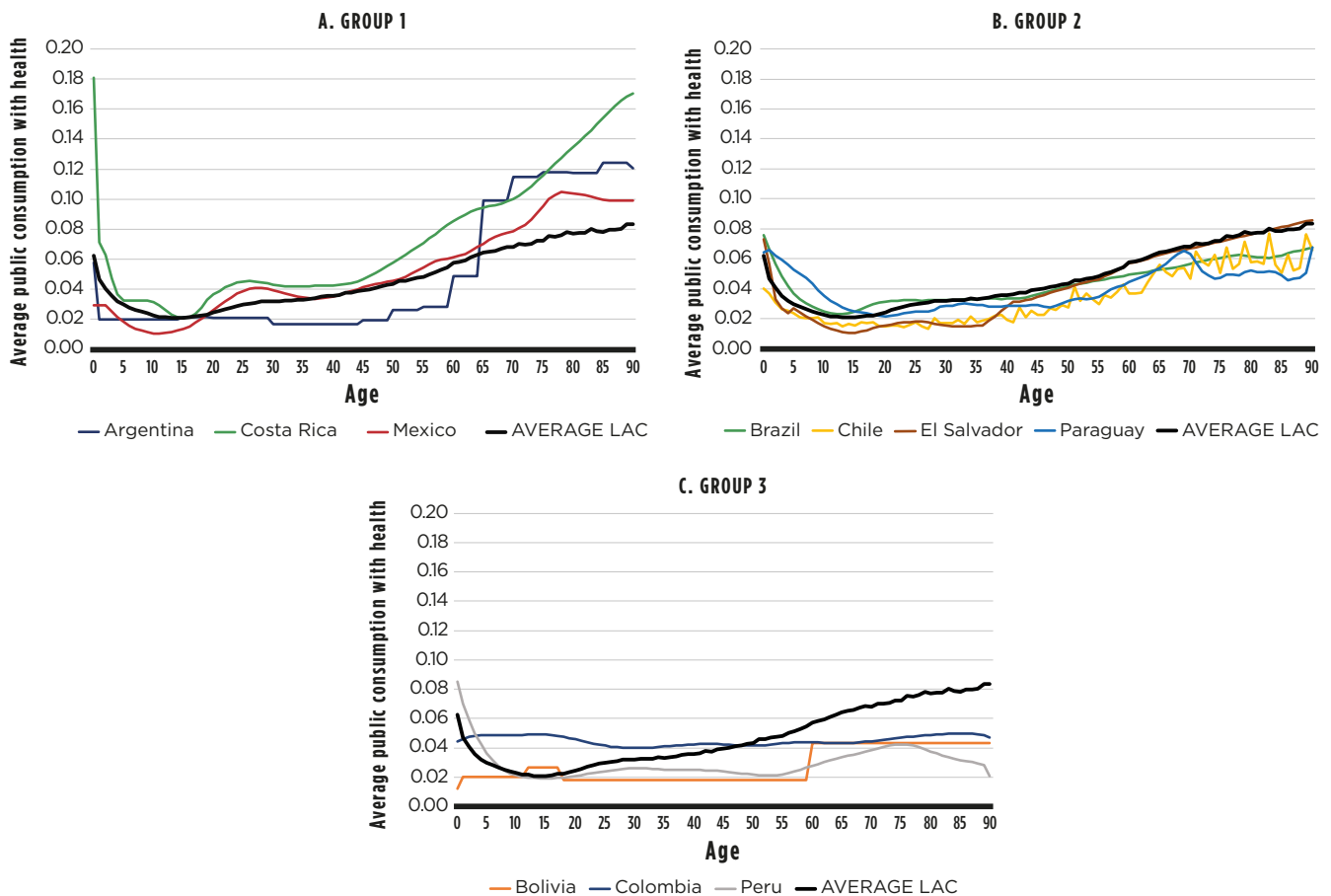


*Note:* The countries analyzed are: Argentina, the Plurinational State of Bolivia, Brazil, Colombia, Costa Rica, El Salvador, Mexico, Paraguay, and Peru. Values standardized by average labor income between 30 and 49 years. The data correspond to various dates in the year 2000.

*Source:* The analysis provided in this section is based on estimates provided by countries to the ECLAC National Transfer Accounts database.

The profile of average public health products and services consumption contains some differences by country that are worth highlighting.<sup>5</sup> First, there is a group of countries that are above the subregional average, where consumption increases from age 65: Argentina, Costa Rica, and Mexico (Figure 12a). In a second group of countries, consumption is slightly below average and the increase from the age of 65 is less pronounced: Brazil, Chile, El Salvador, and Paraguay (Figure 12b). Finally, in a third group, consumption of public health products and services is the lowest in the subregion and the increase from age 65 is modest: the Plurinational State of Bolivia, Colombia, and Peru (Figure 12c).

**Figure 12.** Consumption of public and private health products and services per capita in Latin America and the Caribbean, by age, 2000



*Note:* Values standardized by average labor income between 30 and 49 years in each country. The data correspond to various dates in the year 2000.

LAC: Latin America and the Caribbean.

*Source:* The analysis provided in this section is based on estimates provided by countries to the ECLAC National Transfer Accounts database.

<sup>5</sup> Some consumption curves show stronger variations for methodological reasons since data from household surveys and aggregate expenditures have been used. The researcher has chosen to slightly round the age profiles to reflect the discontinuities observed in some types of consumption.

## Life cycle deficit by population subgroups

The NTA system allows accounts to be disaggregated. For some of the selected countries, data disaggregated by sex or socio-economic status are available. Although they do not provide complete information, it is important to note some features of these breakdowns to provide a brief overview of the situation of the older population.

With respect to the socioeconomic level of the over-65 population, in Argentina the lowest income group is the one with the greatest life cycle deficit at the aggregate level, since it is the group with the largest concentration of individuals of that age. This deficit is supported by public transfers: the pension system is the main channel for transferring resources, financing 97% of this group's deficit, and the health system is the second, financing 17%. In the highest income group, we can identify two relevant issues: on the one hand, this group receives higher per capita pensions (commensurate with contributions to the system) and, on the other hand, it is the only group that makes public transfers in net terms (contributing more to the public sector than it receives). Of the total transfers received by children and older persons of all socio-economic groups, the 15–64 age group with the highest incomes finances two-thirds of these transfers, while the adult population of the middle- and lower-income groups contributes 26% and 7%, respectively (8).

With regard to differences by age and sex, in addition to the NTAs, information can also be found on estimates of national time transfer accounts (NTTAs). NTTAs record life cycle deficits based on time transfers made and received by people within households. These time transfers are linked to household production, i.e., unremunerated household activities. In some countries, sex-disaggregated information is provided for both accounts. For example, in El Salvador, according to the NTAs: 1) women's LCD is positive throughout this period and is higher than men's; 2) men have an LCD between 34 and 49 years, 3) at all other ages, the consumption curve exceeds the labor income curve. According to the NTTAs, in El Salvador: 1) women's LCD is negative from the age of 14 and remains so throughout their life cycle until the age of 85, when it becomes positive again, while men always have a deficit; and 2) there are differences by socioeconomic level, which can be explained by the greater ability to hire third parties to perform household chores when household income is higher. This is illustrated by the fact that women in the first decile devote on average 1.2 hours per day to care activities, while women in the tenth decile devote less than 0.4 hours.

In relation to NTAs in Mexico, LCDs are identified in women in all age ranges (explained in part by lower female labor participation), and there is a considerable increase in the surplus generated by men in productive ages. Men in Mexico finance both their own consumption and that of women. With regard to the NTTAs, the situation is reversed. Women's contribution to unpaid domestic and care work is substantially higher than that of men: over the life course, for women it varies between 20% and 60% of maximum labor income, and between 20 and 70 years of age, it is always greater than 40%. By contrast, the maximum contribution by men is between 30 and 80 years of age, and is equivalent to no more than 20% of maximum income from labor.

Colombia presents information on NTAs disaggregated by sex and educational level. Regarding labor income, by the age of 30, men already earn double the income earned by women, a pattern that is maintained until the most advanced ages. Women have a very small surplus in their life cycle, with a very short duration (only between age 25 and 55); for men, this surplus occurs between age 22 and 67, with levels that double those of women. This means that by the end of their lives, they have accumulated higher incomes. In addition, data disaggregated by socioeconomic level show that households in which heads of household have a higher level of education, regardless of sex, have higher income, consumption, and surplus through the life cycle. Specifically, only those who have completed tertiary education have a life cycle surplus; for the other socioeconomic categories there is a deficit in all age groups. If this data is broken down by gender, female heads of households always have lower levels than men. This means that female heads of household with low educational levels are the most vulnerable group.

Peru also provides information disaggregated by sex, which identifies gender gaps in labor income. These gaps increase with age and largely explain the differences in both life cycle deficits: on average, men's per capita wage labor income is 145% higher than that of women. In the case of self-employed income, this figure is 50% higher than that of women (10).

## **Economic support ratio**

In addition to income and consumption profiles, the NTA system makes it possible to visualize the effects of demographic changes on the relationship between consumers and producers based on the economic support ratio (ESR) (5, 7). Since this is a measurement over time, long-term estimates show which demographic periods favor

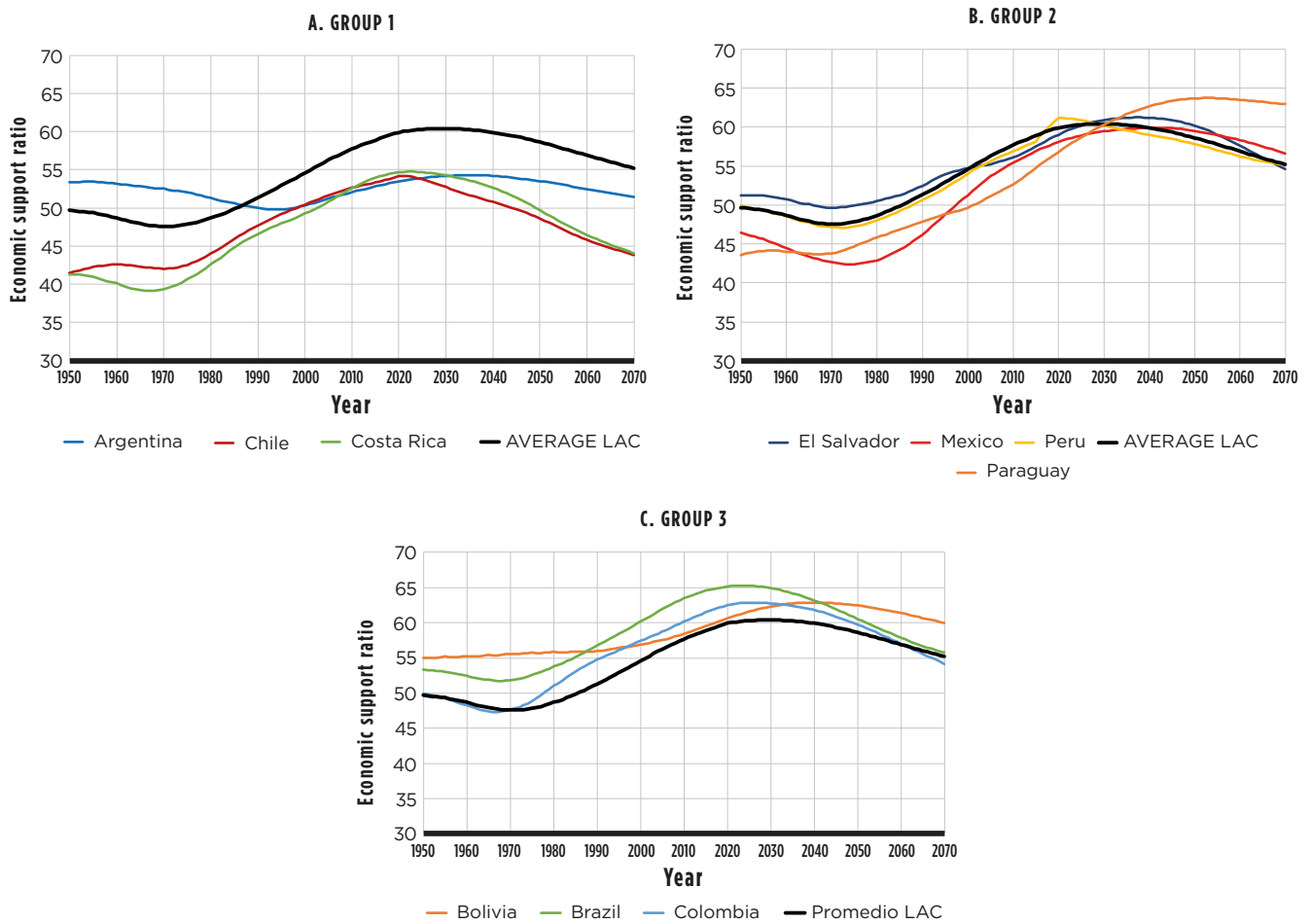
economic growth.<sup>6</sup> The main idea behind this indicator is that the balance between the number of workers and consumers is impacted by the ratio of young people, adults, and older people in the population. Thus, a country with many young people or with many older people will have more consumers than workers. However, during the demographic transition, countries go through a period in which the ratio of workers to consumers increases, providing opportunities for increased production and development. This period is known as the *first demographic dividend*. After this stage, the number of workers begins to decrease again, a phase known as the *second demographic dividend*, which occurs when older people is relatively large although they may not be only consumers.

Figure 13 shows the ESR estimated on the basis of NTA project data for workers and effective consumers from 1950 to 2070; that is, the number of workers per 100 consumers in each year, differentiating three groups of countries. Group 1 shows the countries that are below the subregional average in terms of the ESR and that have already passed the period with the best worker to consumer ratio: Argentina, Chile and Costa Rica. Group 2 comprises countries that are below the subregional average or close to it, but still have a few more years to take advantage of the first demographic dividend, such as El Salvador, Mexico, Peru, and Paraguay. In the last group (group 3), there are countries whose ESR is above the regional average – Brazil, Colombia, and Bolivia – and which still have at least a decade to take advantage of the first bond and contribute to economic growth. It is estimated that the Plurinational State of Bolivia will not reach its maximum value for this ratio until 2040.

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6 According to Lee et al., “the values are projected keeping the age profiles of consumption and labor income constant, but allowing the age structure of the population to vary.” See Lee R, Mason A, editors. *Population Aging and the Generational Economy: A Global Perspective*. Cheltenham: Edward Elgar Publishing Limited; 2011. Available from: <https://idl-bnc-idrc.dspacedirect.org/bitstream/handle/10625/47092/IDL-47092.pdf?sequence=1&isAllowed=y>.

**Figure 13.** Economic support ratio in Latin America and the Caribbean, by country group, 1950–2070



Note: LAC: Latin America and the Caribbean.

Source: National Transfer Accounts, Time Series Indicators. Berkeley, Honolulu: NTA; [date unknown] [Accessed on: 10 March 2022]. Available from: <https://ntaccounts.org/web/nta/show/Time%20Series%20Indicators>.

As mentioned above, given its features, the first demographic dividend is inevitably transitory. Countries may seek to prolong it by increasing the economically active population (e.g., by bringing women into the workforce, attracting working-age immigrants, or raising the retirement age). Also, if countries manage to increase the productivity of their future workforce, the second demographic dividend can continue over time. The policies recommended by the NTA project to achieve this aim are based on increased investment in countries' physical and human capital, particularly children and young people, in order to achieve higher productivity in the future.

## Guidelines for drafting public policies related to transfers to older people

NTAs allow different scenarios to be simulated in two dimensions: 1) demographic changes in population structure and size; and 2) expenditures associated with different ages throughout the life course. Based on this, indicators emerge to form a summary, such as the demographic dividend or bonus, the fiscal dividend, or the gender dividend. All of these provide useful information to analyze future situations. National reports on this topic are complemented by analyses to address the challenges of aging and take advantage of the demographic dividend, and, in some cases, estimate other types of dividends (8-11).

Although the analyzed countries present varied information, in all of them aging is a growing phenomenon that will generate bigger future expenses for the health and pension systems. This can translate into fiscal deficits that make transfer systems unsustainable. At the same time, possible reforms to address this unsustainability must also take into account the redistributive nature of systems, i.e., between generations and socio-economic groups.

Some countries in the subregion are at a more advanced stage in the demographic transition and therefore have very few years to continue enjoying the first demographic dividend. According to estimates based on NTA project data, in Argentina, Costa Rica, and Peru, the first demographic dividend will end in 2030, 2025, and 2023, respectively. This poses the challenge of leveraging the second demographic dividend, requiring institutions that facilitate savings and asset accumulation, and that channel these resources towards improvements in productivity, both through greater physical infrastructure and investment in human capital. An increase in capital per worker could contribute to national output and productivity, thus increasing resources to finance consumption in old age.

In other countries, the first demographic dividend will last longer, for example in the Plurinational State of Bolivia (until 2044), El Salvador (2032-2033), and Paraguay (2054). Given that they are at an earlier stage of aging, these countries have a greater demographic window, along with a fiscal dividend (where the capacity to generate tax revenues is greater than the transfers received by the beneficiaries). For this group of countries, there is an urgent need to address two issues: 1) the high levels of informal labor, which reduces the social security contributions that will be necessary in the future to meet

the higher expected expenses in contributory pension systems; and 2) intergenerational inequalities, which are the product of substantially higher public transfers to older people, in relation to early childhood.

Regardless of when the first demographic dividend reaches its end, this will eventually happen in all the countries of the subregion, due to changes in the age structure of the population. The increase in the population aged 65 and over and the decrease in the population aged 0–15 have a direct impact on the dependency ratios of older people and children. In order for countries to be prepared to face the challenges of population aging, public policies aligned with the Sustainable Development Goals need to be implemented in time. This involves expanding social security coverage, promoting decent work, investing in education, and improving health conditions (12). Another strategy may be to take advantage of the *gender dividend*, which consists of increasing the female labor supply in its productive stage. This would allow countries to increase their workforce, thereby increasing household incomes and savings, while responding to some of the life-cycle gender inequities in public and private (inter- and intra-household) transfers. Among the main policies aimed at achieving this goal, those related to care stand out, in line with Sustainable Development Goal 5, which pursues gender equality, the empowerment of women, and respecting and valuing care work and domestic work.

In this sense, studies conducted in Mexico demonstrate that the domestic work is undervalued on the market. One option to remedy this is the expansion of formal markets (public or private) for care and domestic work, along with a more equitable gender division of labor. A concrete experience in this area is the implementation of the care system in Uruguay in 2015. Although Uruguay is not part of this study, it is interesting to highlight its experience, which includes the creation of a system of co-responsibility between the government, families, the market, and communities, to provide assistance to people living in situations of dependency.

In countries where there is no free and universal access to health services, increases in older population and their demands for health care can put pressure on the system. Latin American and Caribbean countries have various experiences with specific health policies for older people that seek to respond to these challenges. For example, in Argentina, the public health system includes the Comprehensive Medical Care Program (PAMI), administered by the National Institute of Social Services for Retirees and Pensioners, which is aimed primarily at

retirees and pensioners. In the Plurinational State of Bolivia, free public health insurance was introduced for the population over 59 years of age, called Health Insurance for Older People [Seguro de Salud Para el Adulto Mayor (SSPAM)]. In 2016, the Solidarity Fund for Health (FOSALUD) was created in El Salvador, with the aim of increasing health coverage, and the community family health teams (ECOS) were expanded. Finally, in Paraguay, measures have been implemented since 2008 to increase the coverage of pension programs for older people and to ensure universal access to healthcare and education.

## Future challenges

In summary, the NTA system and its various accounts show that older people continue to work and receive income, to varying degrees, until a very advanced age, with a slight decrease in consumption levels; and that health consumption increases after age 65, both in the private and public sectors, with some differences between countries.

In the countries of the subregion, financing the older population fundamentally depends on public transfers and on the assets accumulated during the surplus phase. This population group helps to finance people in other age groups, through private transfers.

Dependency on the pension system to finance older people calls into question the financing and sustainability of public systems in the face of aging across the subregion. Informal and precarious employment (which have repercussions on the low rates of social security contributions), along with the impact of non-contributory programs, exacerbate the problem and compromise the use of any potential benefits of the demographic dividend. In this sense, the younger population's high levels of dependency on private financing compromises investment in human capital for large sectors of the population that depend on public spending for children's education and health. There will be conflict over resources intended to fund a growing older people population.

Finally, it is essential to adopt policies aimed at improving public education and health care in order to strengthen the human capital of children and young people, especially those in the most disadvantaged conditions. It is essential to incorporate these sectors into the process of increasing productivity. As can be seen in countries where NTAs have been estimated by socioeconomic level, the groups at the lowest levels would otherwise not generate sufficient resources to sustain themselves.

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## Appendix NTA system: brief description of concepts

The national transfer accounts (NTAs) system seeks to measure how people obtain and use economic resources at each stage of life, or throughout their economic life cycle. In particular, it makes it possible to measure the transfers of resources between individuals of different ages. The methodology was developed by Ronald Lee and Andy Mason and is available on the project website ([www.ntaccounts.org](http://www.ntaccounts.org)) and in the UN NTC handbook.<sup>7</sup> The NTA methodology consists of calculating profiles of the transfers made and received at the individual level by age, considering the different expenditure demands at each age. Based on individual transfers, a sensitization process is carried out so that the transfers coincide with the official values of the national accounts, which are the sum of the production, consumption, and savings flows of the entire population of a country or region. These resource reallocations, based on the NTA methodology, make it possible to visualize how people obtain and use economic resources at different stages of the life cycle.

This methodology makes it possible to distinguish the stages in which people's consumption is higher than the income they generate through their own work (typically in childhood and old age), and others in which income generated exceeds their consumption needs (intermediate ages).

The life cycle deficit (LCD) is defined as the difference between consumption and average labor income for each age. At ages when the LCD is negative, income is greater than consumption, making these surplus stages; conversely, when the LCD is positive, consumption exceeds income, indicating a deficit stage in the life cycle--a difference that will need to be financed through other channels. While deficit stages are associated with childhood and old age, the specific ages at which they begin and end will vary between societies and countries. The relative size of these age groups in childhood and old age and their degree of economic dependency determines the level of support they will require from the population in a surplus stage.

To a greater or lesser extent, societies have generated mechanisms to redistribute resources from surplus ages to deficit ages. Based on these mechanisms, the NTA methodology distinguishes three channels through which individuals give and receive resources: 1) public transfers, 2) private transfers, and 3) asset-based reallocation. Public transfers are those made

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7 See: United Nations. Manual de Cuentas Nacionales de Transferencia: Medición y Análisis de la Economía Generacional New York: DESA; 2013. Available from: [https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/files/documents/2022/Mar/undesa\\_pd\\_2022\\_manual\\_de\\_cuentas\\_nacionales\\_de\\_transferencia.pdf](https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/files/documents/2022/Mar/undesa_pd_2022_manual_de_cuentas_nacionales_de_transferencia.pdf).

or received by individuals through the public sector and can be monetary or in kind. Public transfer channels include categories such as education and health, retirements and pensions, all public assistance programs, and taxes and contributions paid. Private transfers include various categories of private transfers intended to cover expenses in education, health, food, etc., made between persons in the same household (e.g., fathers, mothers, and children) or other households. Finally, asset-based reallocation encompasses the intertemporal exchanges associated with the accumulation and deaccumulation of financial or real assets, both private and public. This includes categories such as income from private assets (capital and property), private savings (or dissaving), and income from public assets and savings.

The *economic support ratio* (ESR) measures the number of effective producers for each effective consumer. This indicator is similar to the demographic dependency ratio, although it does not consider each person to be a worker or a consumer: it takes into account not only the potential age of work or dependency but also provides an estimate of how much is produced and consumed. The number of effective producers is calculated as the sum (by age) of the product of the average labor income (by age) and the number of persons of that age. Similarly, the number of effective consumers is calculated as the sum (by age) of the product of the average consumption (by age) and the number of people of that age. Therefore, ESR varies over time, not only with changes in population size and structure, but also by the effect of changes in the proportion of people at relatively more productive ages, when considering variations by age in income and consumption.

A declining ESR indicates that the number of effective consumers is growing faster than the number of effective producers, as is the case in aging societies, with a possible negative impact on economic growth. On the contrary, if the number of producers grows at a faster rate than the number of consumers, as occurs during the demographic transition stage, this has a positive impact on economic growth--the *demographic dividend*.

This report is the result of collaboration between the Pan American Health Organization (PAHO) and the Economic Commission for Latin America and the Caribbean (ECLAC). It describes aging based on the socioeconomic profiles of older people in the subregion, from the perspective of national transfer accounts.

The report analyzes the profiles of labor income and consumption; the life cycle deficit; financing the system for older people; the interactions between consumption, health, and population aging; the economic support ratio; and public policies that provide transfers to older people. It also explains how public transfers and accumulated assets are the main sources of financing for older people, and how older people often help to finance other groups of people through private transfers.

This publication provides evidence that draws attention to the importance of pension systems for the income of older people, and to the low rates of social security contributions resulting from informal and precarious labor conditions, as well as the impact of non-contributory programs.