



TECHNICAL NOTE N° IDB-TN- 02799

# Employment and Living Conditions of the Population over 50 in Latin America

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Inter-American Development Bank  
Labor Markets and Social Security Division

June 2023



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Cataloging-in-Publication data provided by the

Inter-American Development Bank

Felipe Herrera Library

Azuara, Oliver.

Employment and living conditions of the population over 50 in Latin America / Oliver Azuara, Mariano Bosch, Eric Torres.

p. cm. — (IDB Technical Note ; 2799)

Includes bibliographical references.

1. Population aging-Latin America. 2. Older people-Latin America. 3. Age and employment-Latin America. 4. Labor market-Social aspects-Latin America. 5. Labor supply-Social aspects-Latin America. 6. Income distribution-Latin America. I. Bosch-Mariano. II. Torres, Eric. III. Inter-American Development Bank. Labor Markets Division. IV. Title. V. Series.

IDB-TN-2799

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Inter-American Development Bank  
June, 2023

JEL Codes: E24, H55, H68, J11, J1, J21, J26, R23

**Keywords:** Pensions, Social Security, Defined contribution, Defined benefit, Fiscal sustainability, Pension reform, Population aging, Labor force participation, Replacement rates, Inequality

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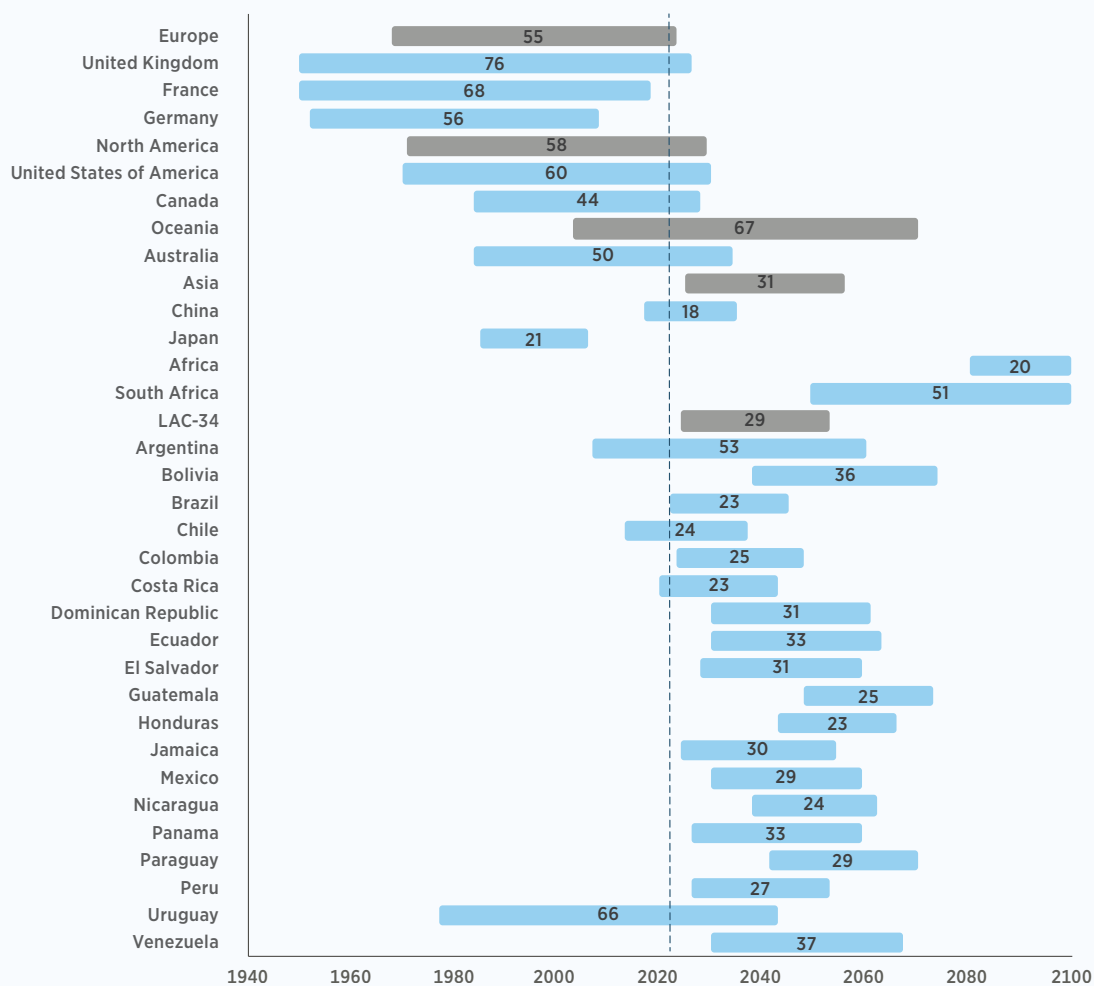
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# 1 Introduction

Latin America and the Caribbean is aging faster than the rest of the world. In the coming decades, many countries will age up to three times faster than most European countries, including Brazil, Chile, Mexico and Nicaragua (See Figure 1).

**FIGURE 1**  
**YEARS NEEDED FOR THE POPULATION AGED 65 AND OVER TO TRANSIT FROM 10% TO 20% OF THE TOTAL POPULATION**



Source: adapted from Bosch et al., 2018, based on data from the United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects: The 2019 Revision.



This old-age process represents a significant challenge for many reasons. First, reductions in families' size and increasing rates of female labor participation limit the provision of traditional care services for older adults, who are progressively living longer lives. Given the persistence of labor informality and the limited provision of social protection mechanisms, the region risks aging into poverty. Even with the proliferation of non-contributory pensions (Rofman et al., 2013), about 4 out of 10 older adults in Latin America and the Caribbean do not receive any old-age pension, and those who do receive pensions often do not receive enough to escape poverty (Bosch, Melguizo and Pagés, 2013).

The intersection between rapid aging, increased female labor participation, and smaller families will translate into significant public spending on health and social security benefits, ultimately competing with each country's continuing poverty reduction strategies. The magnitude of these fiscal contingencies is substantial and varies across countries. According to Flamini et al. (2018), compared to its current regional average spending-to-GPD ratio, both a public pension and health spending will double in 2065, converging to OECD levels. Public health and pension spending will triple in many countries, including Brazil, Colombia, Ecuador, and most Central American nations.

As demographic pyramids assume more vertical structures during the next decades, preventing poverty in later life will be an active issue for regional public policy. Thus the importance of understanding the lives of older workers is salient. The challenges this demographic transition poses depend on how labor markets and social security regulations prepare for these changes. In this context, more evidence is needed on the historical and current trends of labor outcomes for older adults in Latin America.

The lives of older workers have been scarcely studied in a region historically portrayed as "young." Some exceptions include Gasparini et al. (2010), Cotlear and Tornarolli (2011), and Oliveri (2016). Nonetheless, these studies focus on measuring poverty outcomes from unidimensional standpoints. We propose a more holistic approach to assessing the profile of Latin American workers in the final phases of their working lives.

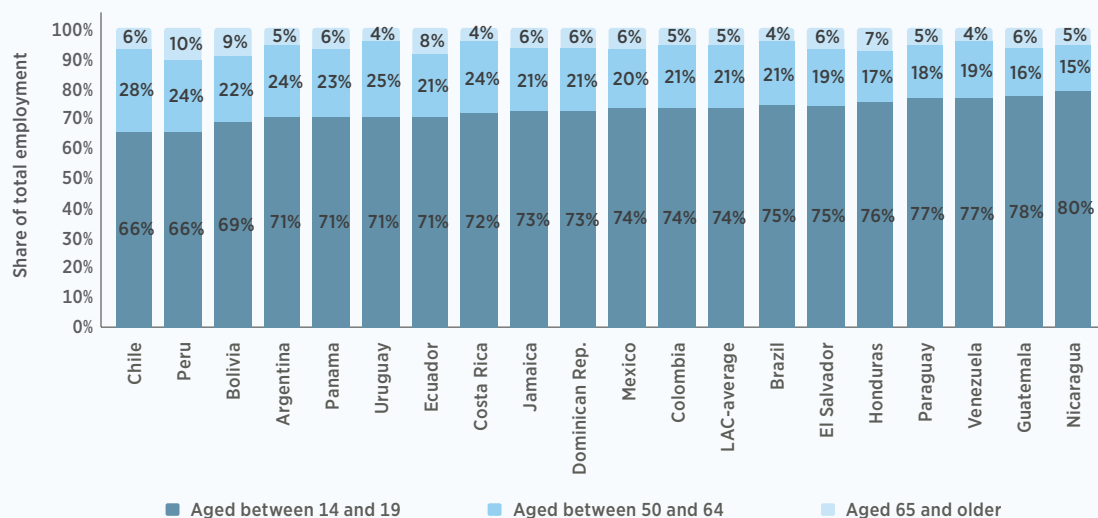
This document describes recent demographic, economic, and social trends of people 50 and older in Latin America. We analyze the labor profile of those generations who will face retirement over the next two decades to understand how likely it is to reduce the current gaps in coverage and sustainability of pensions. We explore the occupation profiles, contributions to social security, and their comparisons with previous generations. The document's last section describes different inequality angles for this population, including income and access to public services.



## 2 Socioeconomic profiles and labor market outcomes

The share of employed workers 50 and older in Latin America and the Caribbean is significant for a comparatively young region. According to survey data, over one out of every four employed workers are 50 and older. This equals approximately 70 million employed workers for the countries portrayed in Figure 2. Given the persistent gender labor force participation gap, out of those 70 million people, the majority were men (42 million), with 29 million women representing, on average, 41% of the total. The contribution of older workers to the labor market relates not only to demography because as a country's population grows older, this share increases, but as we will see later in this chapter, it also relates to the provision of social security for workers that have reached retirement age.

**FIGURE 2**  
**LAC CIRCA 2019, EMPLOYMENT CONTRIBUTION OF OLDER WORKERS**



Source: IADB - Social Sector Harmonized Household Surveys.

When considering the share of people 50 and older in the whole population as an index for old age, Barbados and Uruguay are the oldest populations in Latin America (Table 1). On the contrary, by this metric, the youngest countries are Guatemala and Honduras. Older workers' contribution to labor income is highly correlated with the fraction of the population they represent. According to the United Nation's world population prospects (UN, 2019), as of 2020, people 50+ add up to 22.6% of the population, and this share is expected to rise to 36.1% by 2050.

It is well documented that mean years of schooling in Latin America have increased significantly during the last decades (Levy & Schady, 2013), even when the region's quality of education is substandard according to PISA test reports. For people 50+, however, regional average schooling levels do not guarantee they go far past primary school.

**TABLE 1**  
**DESCRIPTIVE STATISTICS FOR ADULTS 50 AND OLDER IN LAC (CIRCA 2019)**

Country	Share of population	Share of population in 2050	Median age	Average schooling	Employment rate	Formality rate	Job tenure in years	Middle class (%)	Share of labor income (%)
Argentina	25,3%	34,9%	64,8	10,5	95,0%	42,0%	NA	58,0%	29,9%
Bahamas	24,7%	37,2%	61,0	NA	90,7%	70,5%	NA	50,3%	30,0%
Bolivia	17,9%	28,8%	63,2	6,6	98,8%	16,4%	21,1	41,4%	25,9%
Brazil	25,5%	43,3%	63,1	7,2	94,2%	58,7%	15,3	57,7%	29,9%
Barbados	37,1%	46,4%	63,7	10,2	96,3%	NA	15,6	52,1%	36,9%
Chile	29,7%	45,2%	64,1	8,6	95,7%	59,5%	12,3	56,4%	35,3%
Colombia	24,1%	41,6%	62,8	6,8	94,4%	25,9%	13,4	37,7%	29,0%
Costa Rica	26,9%	44,7%	63,5	7,8	95,6%	64,7%	13,8	48,1%	28,5%
Dominican Rep.	20,5%	33,8%	63,3	6,9	98,7%	34,6%	13,9	43,2%	26,4%
Ecuador	20,0%	33,4%	63,7	7	98,9%	42,4%	23,8	36,9%	32,0%
Guatemala	13,1%	26,8%	62,8	6,3	99,6%	11,5%	17,6	18,8%	22,6%
Guyana	20,9%	31,6%	61,9	7,6	90,2%	33,2%	22,6	13,2%	22,4%
Honduras	14,2%	30,5%	63,7	4,7	98,9%	10,9%	NA	18,6%	22,8%
Jamaica	24,1%	39,4%	63,5	8,4	94,7%	NA	NA	4,9%	28,6%
Mexico	21,1%	35,5%	62,9	7,3	98,0%	23,1%	NA	33,1%	24,5%
Nicaragua	16,3%	32,7%	63,1	4,9	98,5%	16,0%	NA	14,6%	23,9%
Panama	22,3%	34,3%	63,6	9,1	97,7%	41,7%	16,0	55,7%	33,3%
Peru	22,6%	37,2%	64,1	7,8	98,5%	16,4%	16,1	42,5%	33,9%
Paraguay	17,6%	30,6%	62,6	6,7	97,5%	14,8%	20,5	37,3%	27,1%
El Salvador	20,8%	36,0%	64,1	4,9	98,6%	18,9%	NA	29,1%	24,5%
Surinam	21,9%	31,7%	62,1	7,6	96,5%	49,3%	8,3	14,9%	22,2%
Uruguay	31,5%	40,7%	65,1	8,7	96,2%	72,1%	16,1	73,0%	37,0%
Venezuela	22,7%	33,1%	62,6	9	94,6%	58,0%	NA	NA	22,6%
Simple average	22,6%	36,1%	63,3	7,5	96,4%	34,7%	16,4	38,1%	28,2%

**Source:** IADB – Social Sector and UN's population projections. Notes: Middle class refers to the headcount index for individuals with household per capita income between 12.4 USD and 62 USD per day at purchasing power parity (PPP)2011. Formal workers are those contributing to social security at the time of the interview. NA= Not Available.

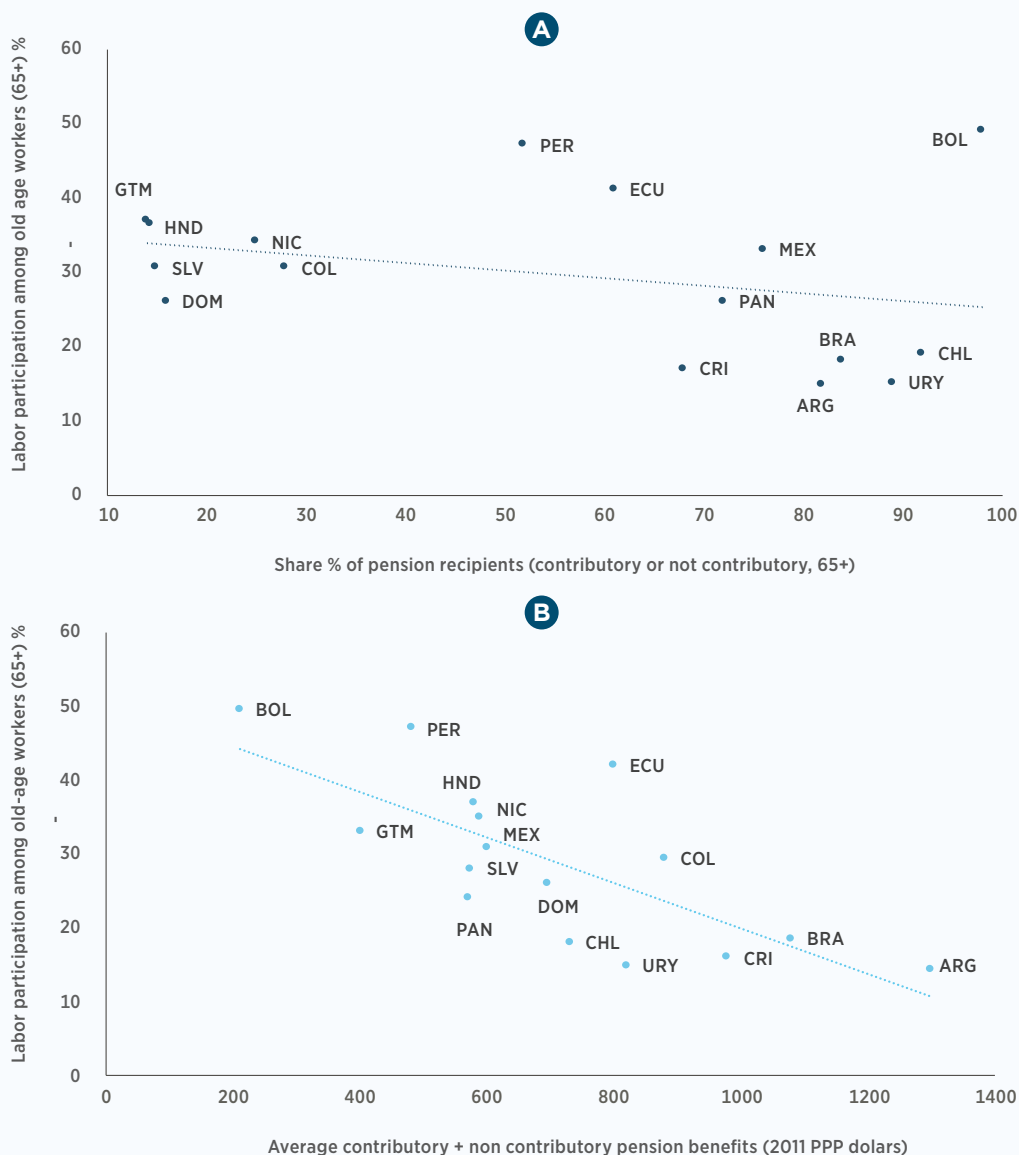
Unemployment among people 50 and older is in all countries very low, under 5% for most cases. However, two Caribbean countries, Barbados (9.3%) and Guyana (9.8%), observe relatively high rates. On the other hand, the share of workers contributing to social security is much more heterogeneous and slightly above one-third for the regional simple average. Except for Paraguay, the cluster of countries in the southernmost part of South America drive the average up, with labor formality rates that gravitate around 70%. Outside of the Southern Cone, only two other countries (Costa Rica and Barbados) have formality rates over 50% for this age group.

In LAC, labor force participation in old age is relatively high. In 2018/2019, 68% of those aged between 54 and 64 were part of the Economically Active Population (EAP). The average labor force participation rate for the 28 countries of the European Union was lower, at 63% in 2019 for the same age group. For people of retirement age (65+), the difference between these two regions increases expressively, with an average labor participation rate of 38% for Latin America and of 7% for the EU.

Among older workers, a share corresponds to workers in post-retirement ages that for the most part, keep working to generate income, either because they do not receive pension benefits, or because those benefits are not sufficient. For example, Oliveri (2016) documented the negative relationship between the share of pension recipients and labor participation among older workers in Latin American countries.

There is an even stronger negative relationship between the average level of pension benefits and labor force participation (Figure 3). A regularly observed case study is Bolivia, where its universal non-contributory pension, Renta Dignidad, covers almost all workers 60 and over, but it provides very low benefit levels and does not deter old-age labor participation. On the other hand, countries in the Southern Cone (Argentina, Brazil, Uruguay, Chile) or Costa Rica provide both high pension coverage and adequacy.

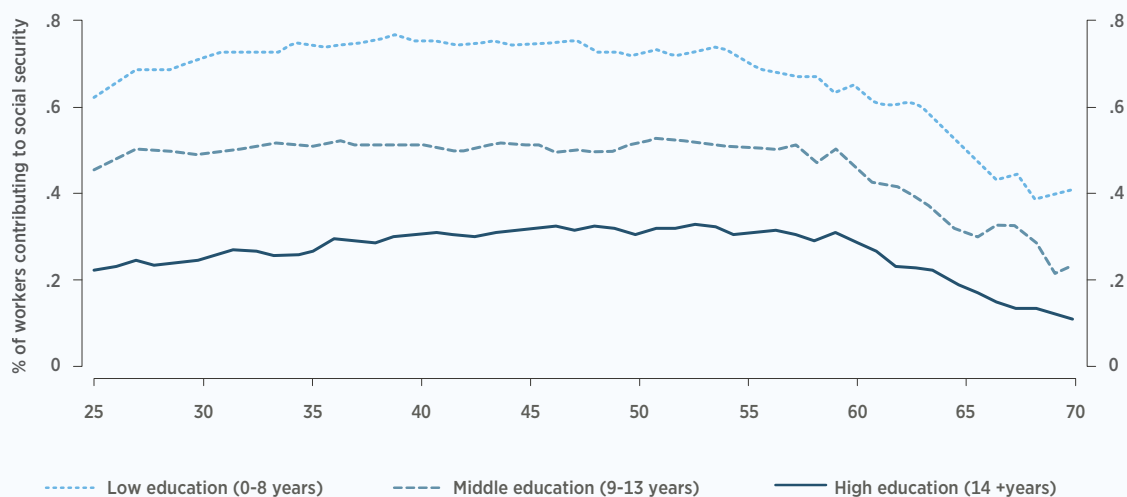
**FIGURE 3**  
**LAC CIRCA 2019. (A) LABOR PARTICIPATION AND AVERAGE PENSION BENEFITS; (B) LABOR PARTICIPATION AND AVERAGE PENSION BENEFITS**



Source: IADB – SIMS, Labor Markets and Social Security Information System.

Formal employment among older workers decreases with age, and as observed across all age groups, it is significantly higher for workers with greater schooling levels (Figure 3). Figure 3 pools data for all countries with labor formality data circa 2018, showing that while formality peaks between 35 and 50, for those 50 and older, it falls rapidly after reaching legal retirement age.

**FIGURE 4**  
**LAC-19: FORMALITY RATES BY SCHOOLING AND AGE (CIRCA 2019).**

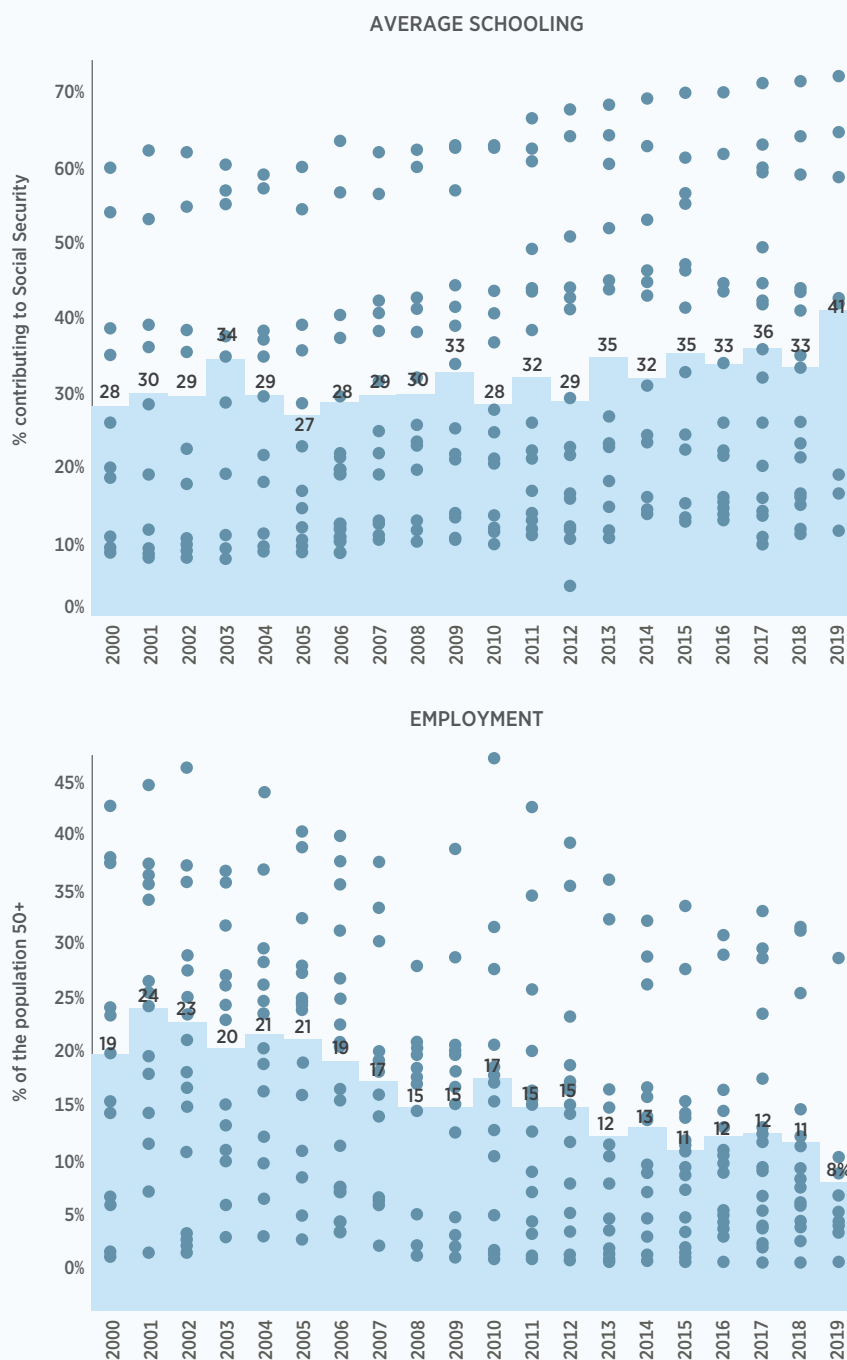


Source: IADB – Social Sector Harmonized Household Surveys.

During the past two decades, the regional average years of schooling among people 50+ rose from 5 years to more than seven years, and for most of the beginning of the 21-century, employment rates among older workers were high, forming an inverted U-shape for the duration of the commodities’ boom period (Figure 4). However, labor formality has stagnated during the same period, and most countries are less formal than what corresponds to their level of development (Loayza, 2020; IDB, 2020).



FIGURE 5  
LAC: SCHOOLING, EMPLOYMENT, FORMALITY, AND POVERTY TRENDS FOR PEOPLE 50+





Source: IADB – Social Sector Harmonized Household Surveys.

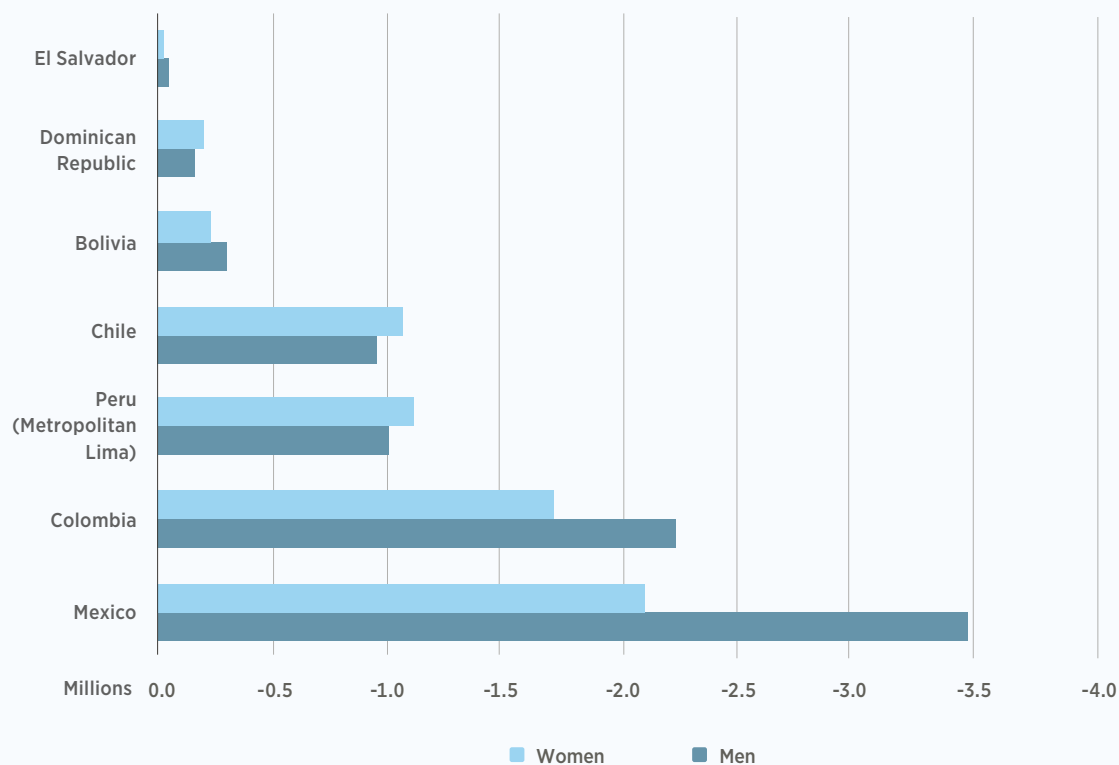


The weak ties that most labor markets deliver between employment and social protection threaten to become the greatest cause of poverty in future Latin American and Caribbean societies. Along with labor informality, the ubiquity of labor force participation gender gaps will translate into a disproportional number of impoverished women. Between 2017 and 2019, women accounted for 55% of people 50 years and older living under US\$ 3.1 PPP daily.

COVID-19 arrived at a period of sluggish economic growth in Latin America and the Caribbean. Its first impact was an economic sudden stop related to public health isolation policies. So far, it has already destroyed over 25 million jobs in the countries where public official statistics are available. Moreover, as Figure 6 shows and given their prevalence in service occupations (Altamirano et al., 2019), women have been disproportionately affected by this unprecedented crisis. In seven months from February 2020, women have lost over 8 million jobs in countries for which data is available.

Furthermore, little is known yet as to the specific impacts the post-COVID-19 recession is having on older workers, who, for the most part, will not be able to go through the retraining and re-skilling needs derived from a probable acceleration of technological change.

**FIGURE 6**  
**JOBS LOST BETWEEN FEBRUARY AND SEPTEMBER 2020**



Source: IADB, COVID-19 Labor Market Observatory

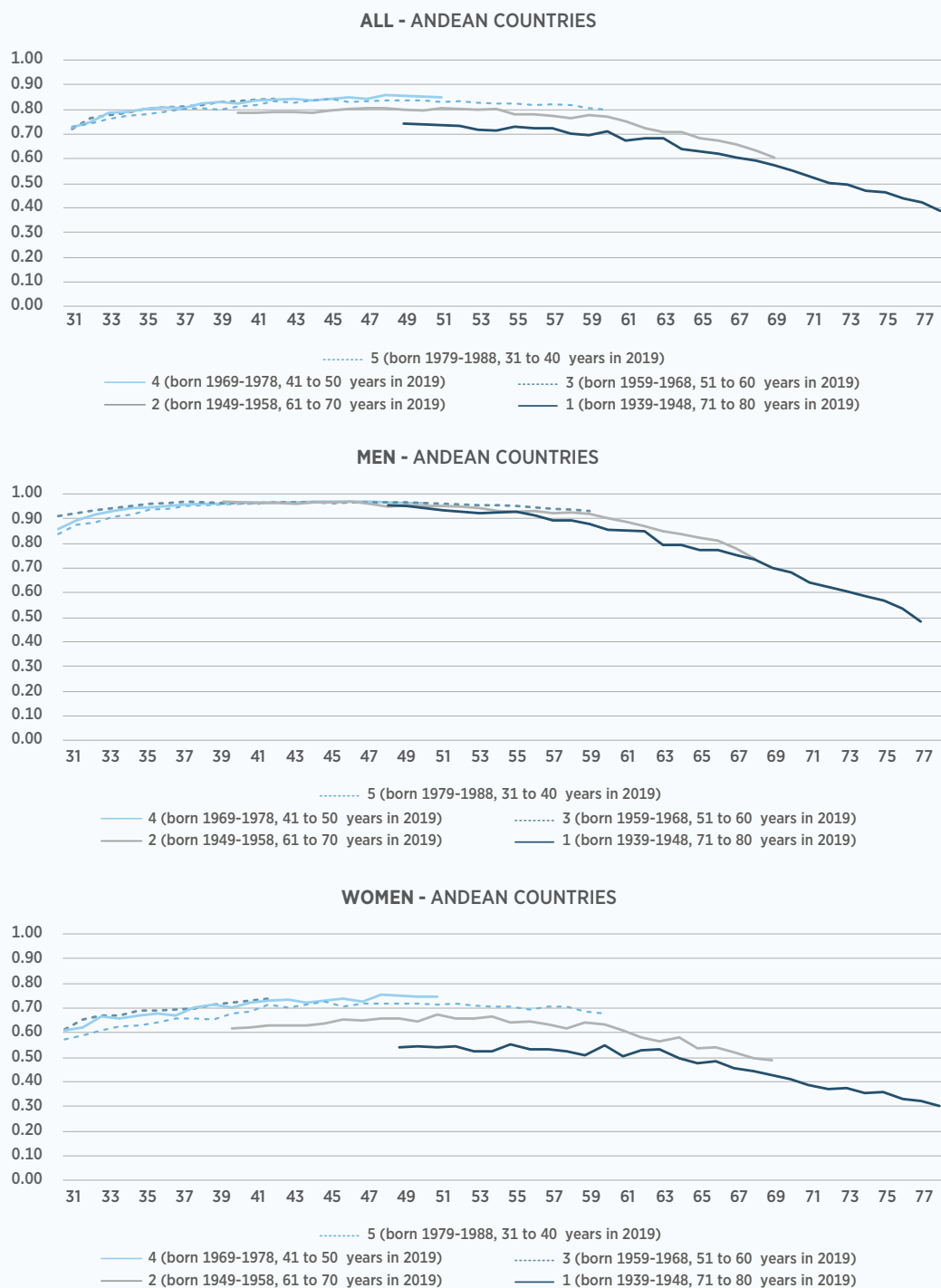
This section portrayed older workers’ main sociodemographic characteristics, highlighting their fragile links to social security and gendered differences. In the next section, we will analyze in more detail their employment, occupational distribution, and formality trends over time and across countries.

## 3 Trends in Employment among older

Labor participation rates change constantly as the working-age population ages, and some things attract a lot of attention, such as the gaps between men and women. However, in this section, we will go a step beyond the simple comparison between genders and focus on this indicator's evolution among generations. Figure 7 shows the evolution of the participation rates for five generations, divided into five cohorts of ten years each. The first cohort corresponds to people born between 1939 and 1948, who in 2019 were between 71 and 80 years old. The second cohort is of those born between 1949 and 1958, who in 2019 were between 61 and 70 years old. Following this succession, the last cohort corresponds to people born between 1979 and 1988, who in 2019 were between 31 and 40 years old.

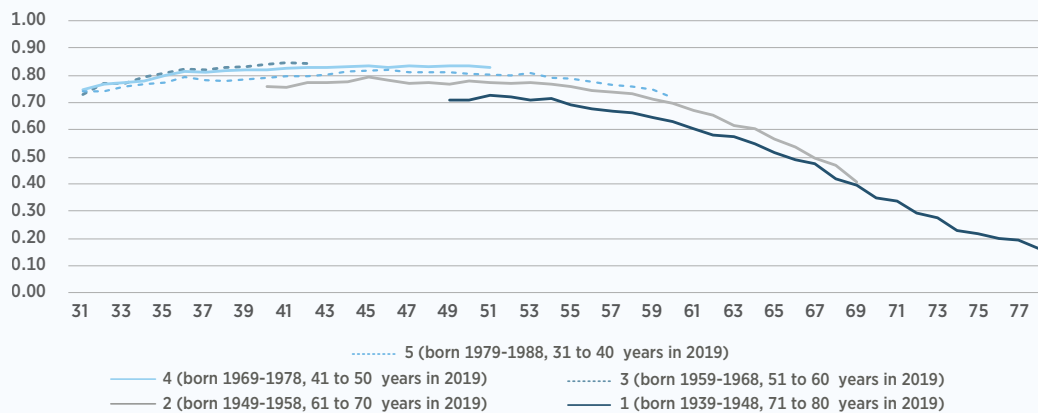
Because we show the total series and its disaggregation by gender, in terms of practicality, we have grouped the countries into three blocks, the Andean countries, the southern cone, and Central America and Mexico. The abscissa axis represents age, and the ordinate is the labor participation rate. Likewise, each line symbolizes a generation. Consequently, this data presentation allows us to compare each generation at different ages. Along these lines, more than the levels, we are interested in trends and differences between generations for each group. For example, in the entire population, the highest intergenerational gains have occurred in the group of Andean countries, compared to those of the block of Central America and the Southern cone. Second, in terms of gender, the group of men does not show significant differences among generations, unlike what happens with women, where in all three cases, they present similar improvements (mostly in Andean countries). The good news is that this reflects a gain in women's participation in the labor market since if we compare cohort 6 and cohort 3, the Andean countries show a growth close to 20 percentage points in their fifties, similar to Central America and Mexico. Equally important, the gains in the southern cone countries are around 10 pp. This is significant progress because the new generations of women have a more active role in the economy, and policies must keep pushing the boat of equal opportunities to have more inclusive labor markets.

**FIGURE 7**  
**COHORT AND AGE SPECIFIC PARTICIPATION RATES**

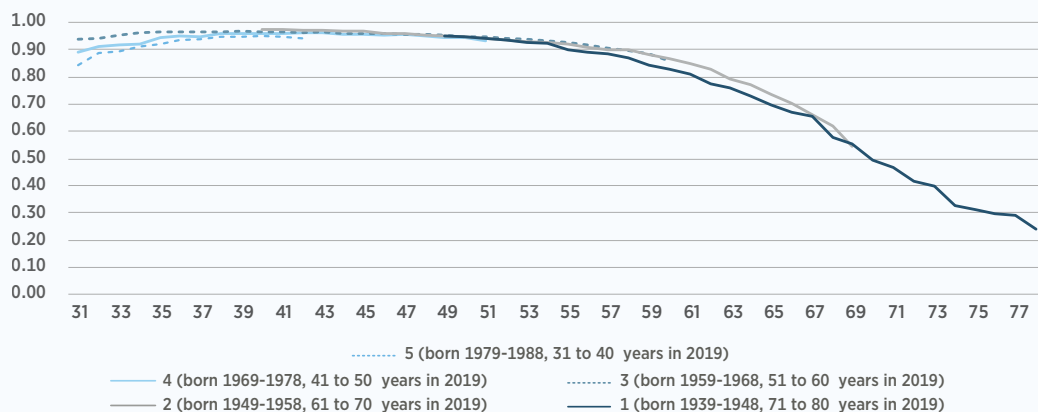




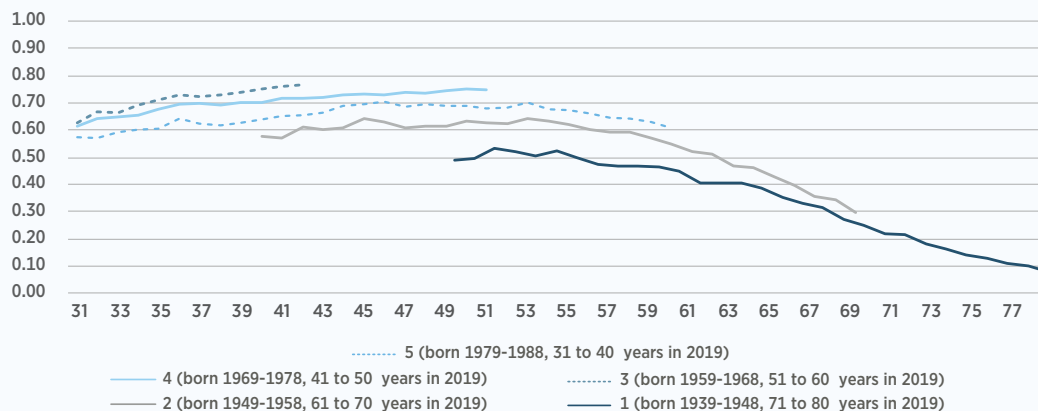
### ALL - SOUTHERN COUNTRIES

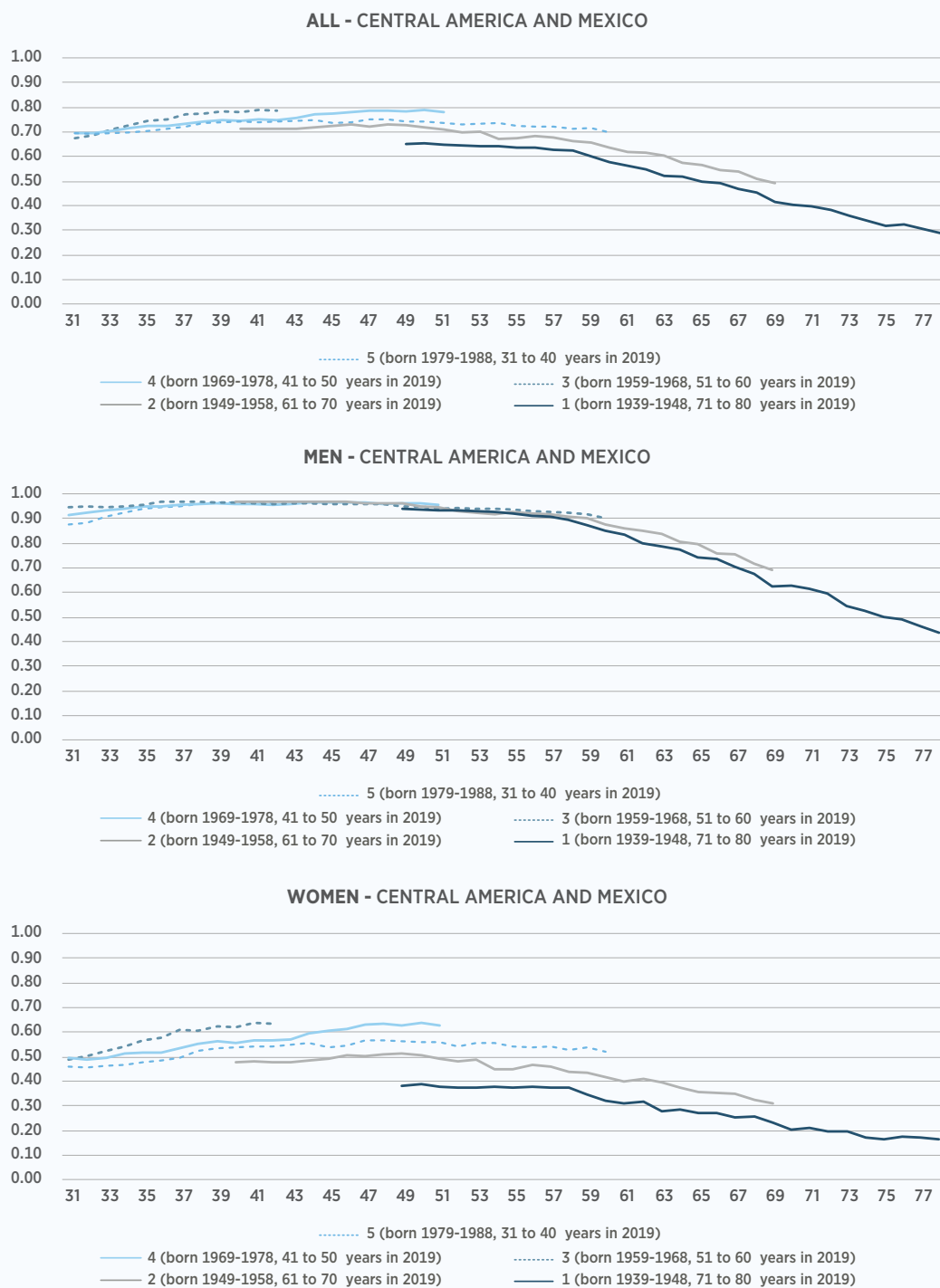


### MEN - SOUTHERN COUNTRIES



### WOMEN - SOUTHERN COUNTRIES





Source: IADB, Social Sector. Harmonized Household Survey.

## 3.1 Employment rates

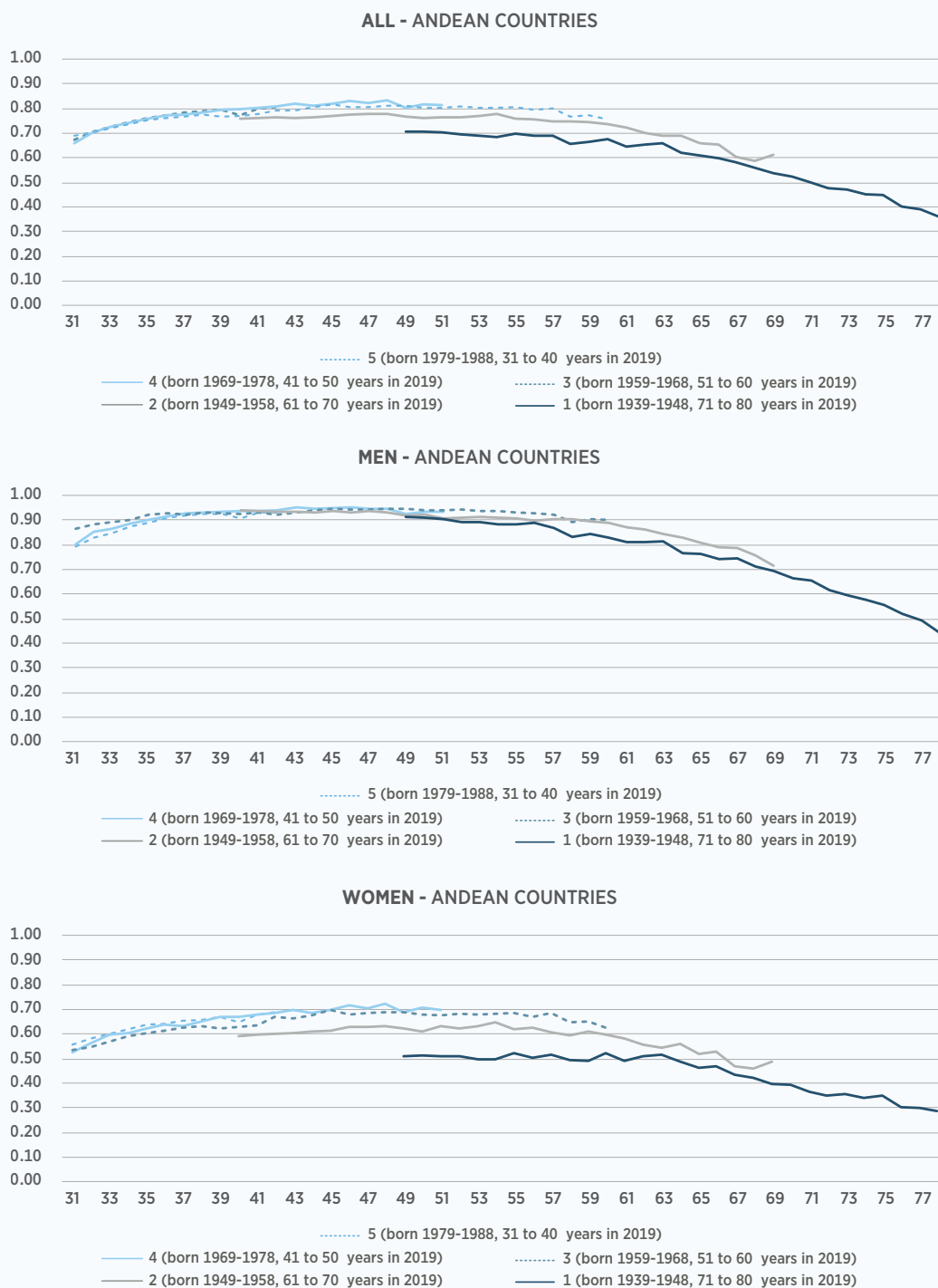
For older adults (50+), employment rates and trends during the last thirty years differ greatly among genders. For once, male employment levels are still significantly higher than those of women in the same age group, a difference of over 20 percentage points in most countries. However, this gap has been narrowing due to a rapid increase in female employment rates, particularly following the 2000s commodities boom. For women, this evidence mirrors the rise in female employment rates observed by Blundell et al. (2016) for developed countries.

Within Latin American sub-regions, employment rates among men in pre-retirement age vary between 80% and 90% for most countries. For women of pre-retirement age, Mexico and Central America are the sub-region where female employment is the lowest.

Rates of employment decrease with age, as shown in Figure 8 for those aged 50+. However, many men stay employed even after the legal retirement age. For Central America and Mexico, employment rates for men 65+ station at around 50%, suggesting low adequacy and/or coverage of social security provisions, as observed elsewhere by Oliveri (2016) and Bosch, Melguizo & Pagés (2013).

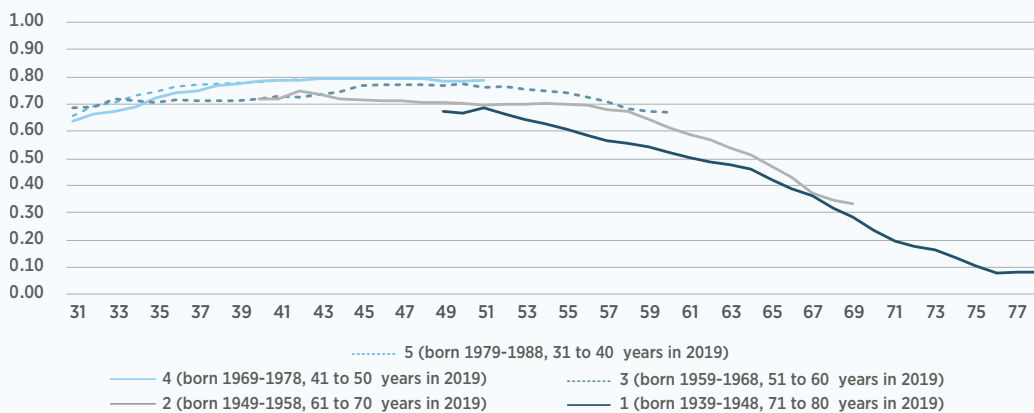


**FIGURE 8**  
**COHORT AND AGE SPECIFIC EMPLOYMENT RATES**

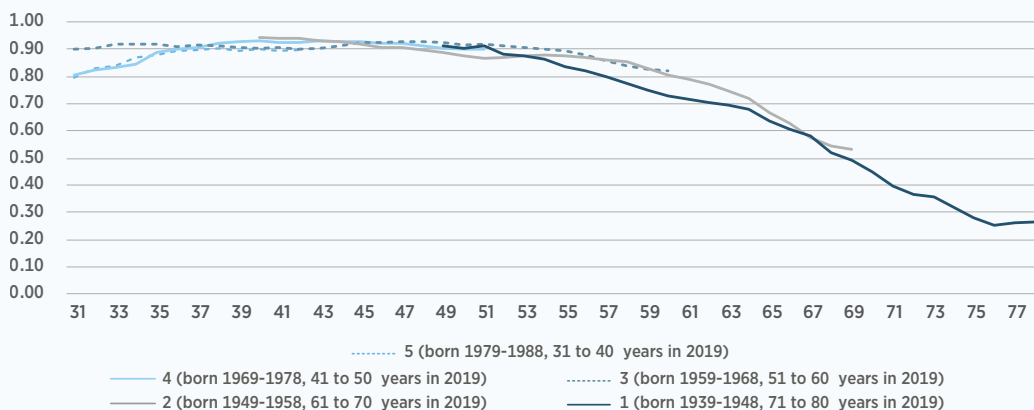




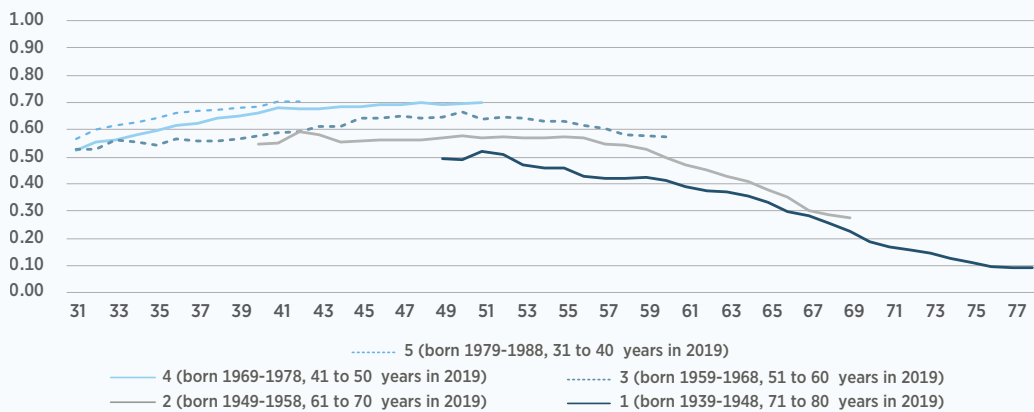
### ALL - SOUTHERN COUNTRIES



### MEN - SOUTHERN COUNTRIES



### WOMEN - SOUTHERN COUNTRIES



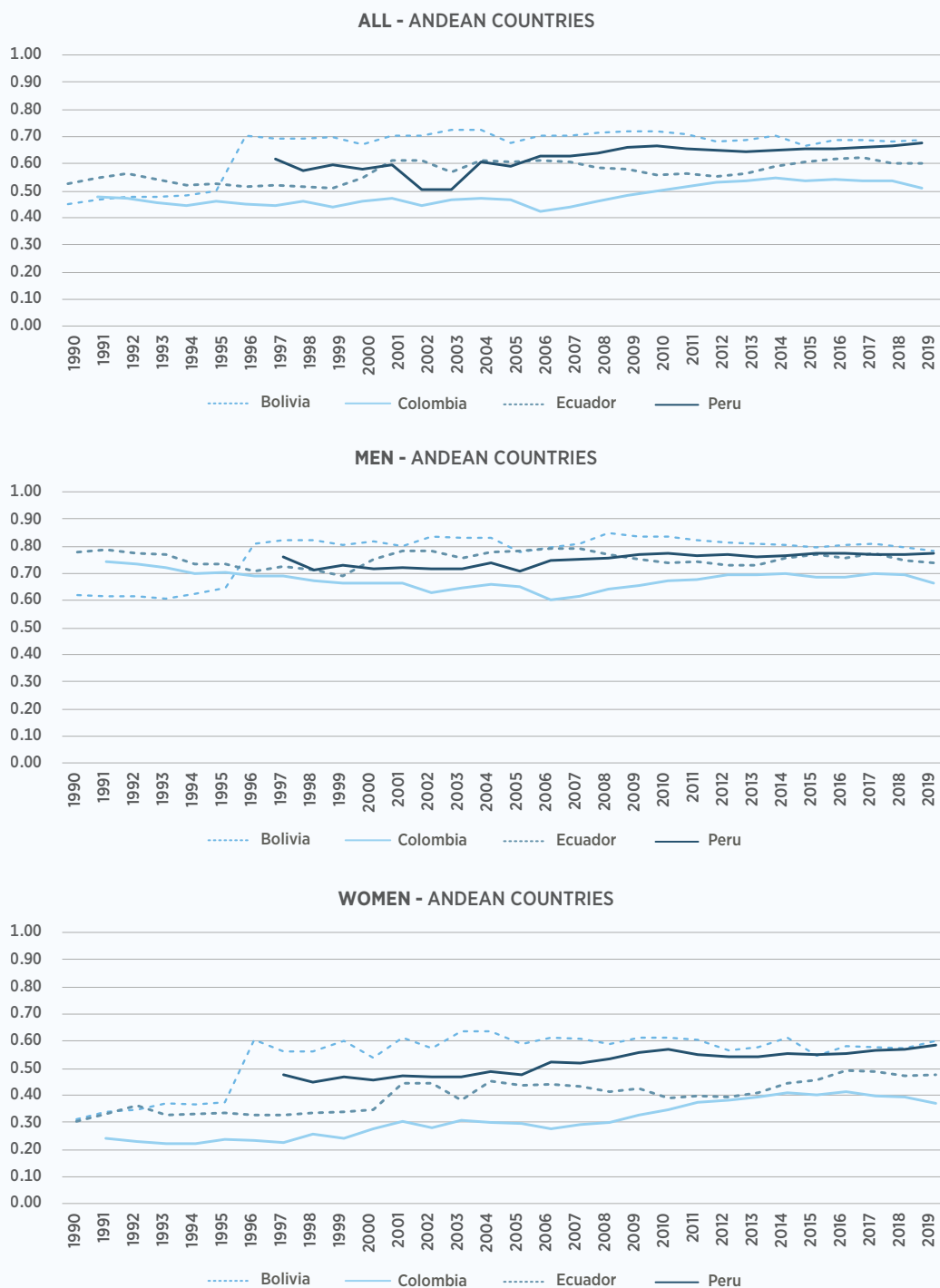


Source: IADB, Social Sector. Harmonized Household Survey.



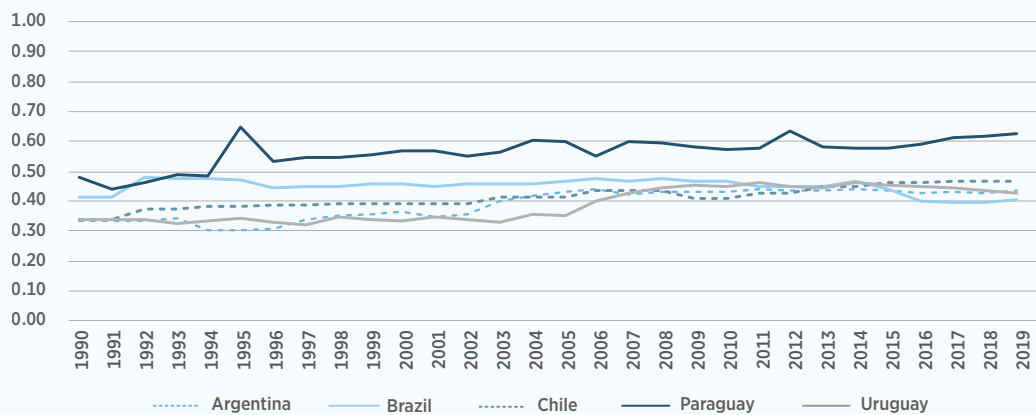
For countries with longer data series, cohort analysis supports the idea of generational shifts in women's employment. Since the early 1990s, the rise in female employment for newer generations is more visually evident in Bolivia, Costa Rica, Ecuador, and Paraguay (Figure 9). On the contrary, men's employment has remained almost unchanged, except for Brazil, where a decrease of close to 8pp is noted in the last decade and Costa Rica which has been experiencing a slow decline since the 2000s.

**FIGURE 9**  
**EMPLOYMENT OF THOSE AGED 50+**

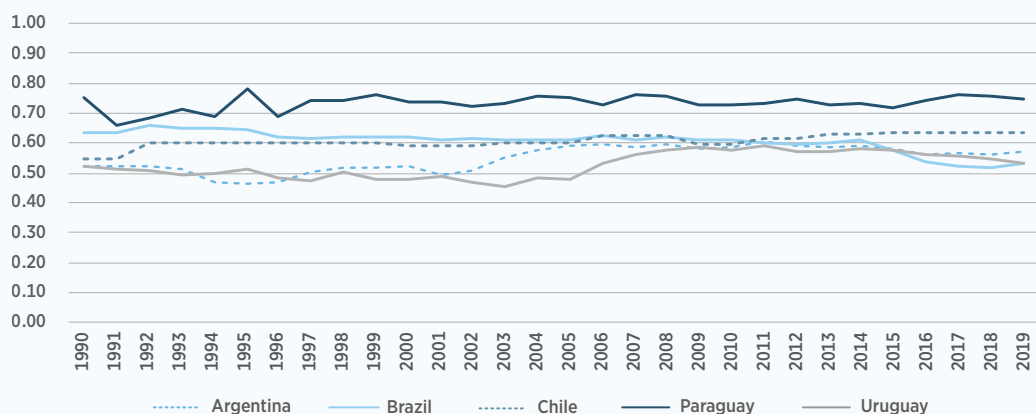




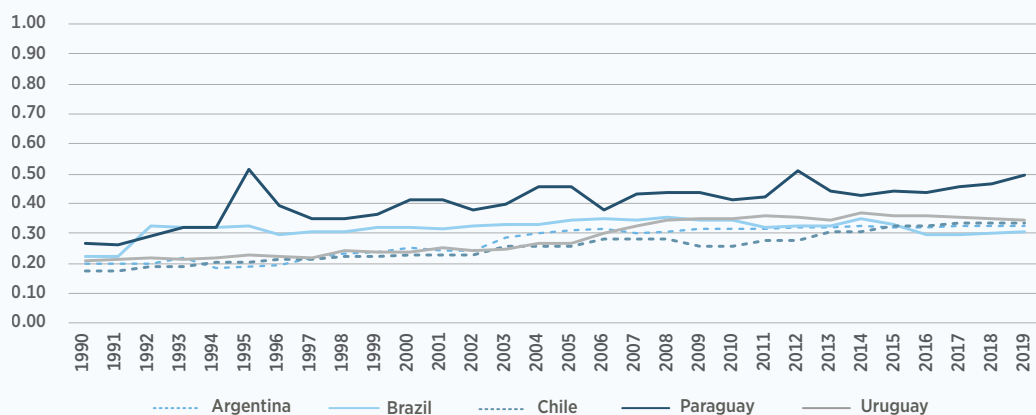
### ALL - SOUTHERN COUNTRIES



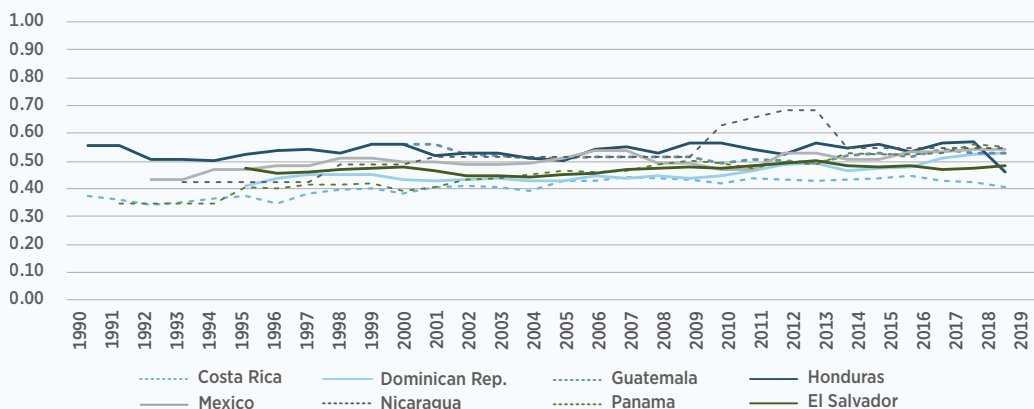
### MEN - SOUTHERN COUNTRIES



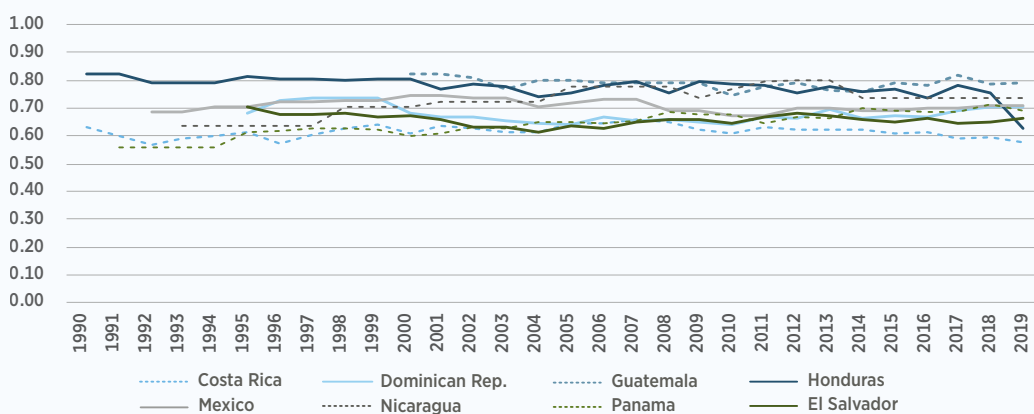
### WOMEN - SOUTHERN COUNTRIES



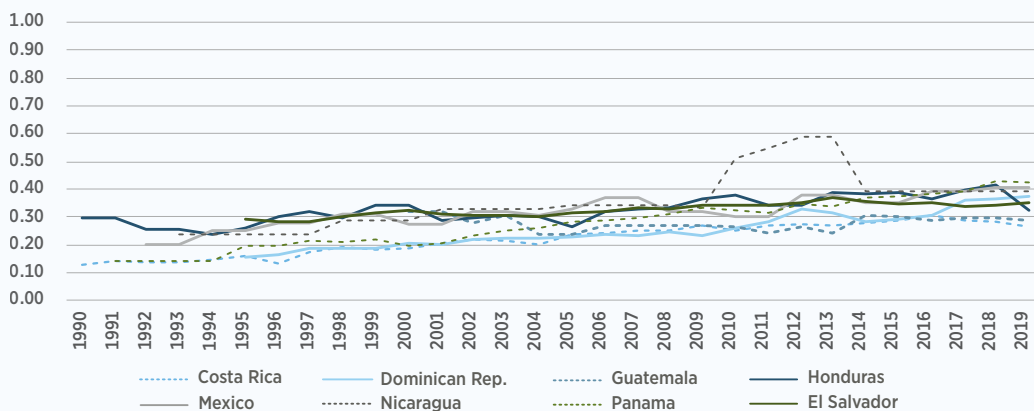
**ALL - CENTRAL AMERICA AND MEXICO**



**MEN - CENTRAL AMERICA AND MEXICO**



**WOMEN - CENTRAL AMERICA AND MEXICO**



Source: IADB, Social Sector. Harmonized Household Survey



## 3.2 Formality

The levels of formality between generations have behaved differently compared to the participation rates. First, comparing sub-regions, we note that, unlike South America, the group of Central America and Mexico has improved at a lower rate than their peers; even for women, there are almost no changes between generations.

The southern cone countries have improved on average by about ten percentage points between the first and third generations. In the same way, the Andean countries have grown by about 15 percentage points. Regarding employment rates, it is reasonable to believe that as one age, fewer older adults are actively working; however, in LAC, when these older adults are already out of working age, many continue to do so informally to maintain minimum living conditions.

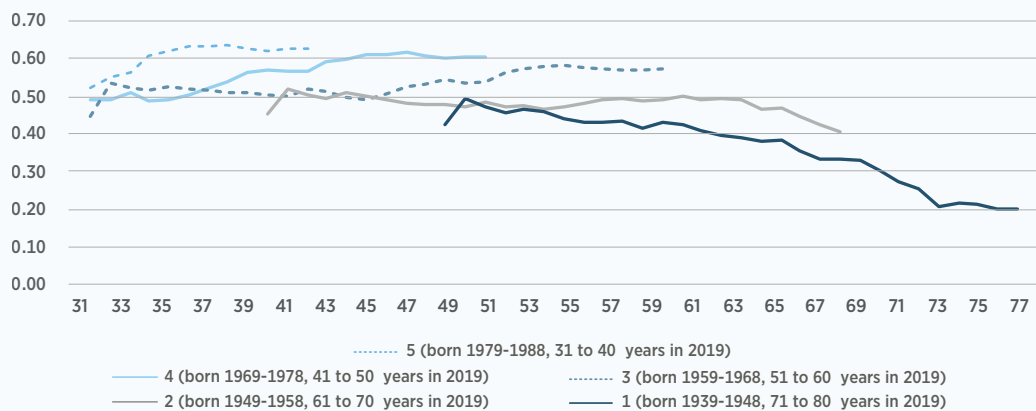
Although the gains in formality in the new generations have been positive for the Andean countries and those of the southern cone, these changes have not been substantial in Central America. This represents a warning signal to policymakers, given that in economies without good fiscal support and incipient non-contributory pension systems, formality is a reasonable way to achieve greater inclusion in pension systems.

**FIGURE 10**  
**COHORT AND AGE SPECIFIC FORMALITY RATES**

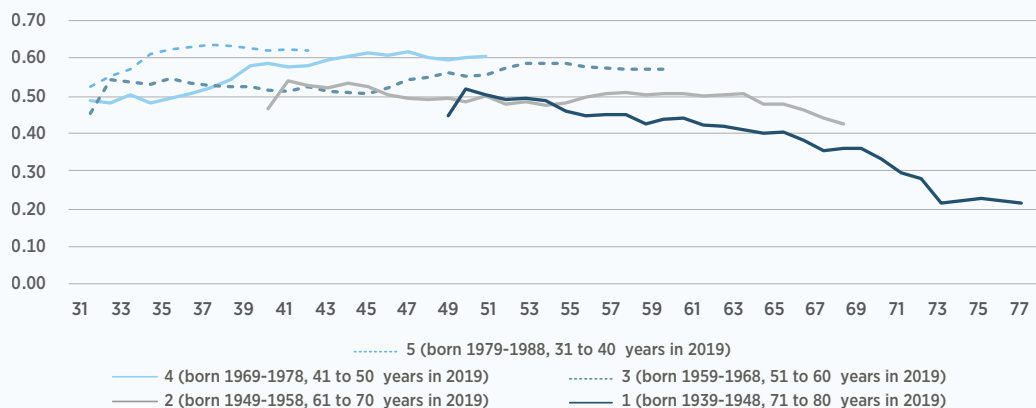




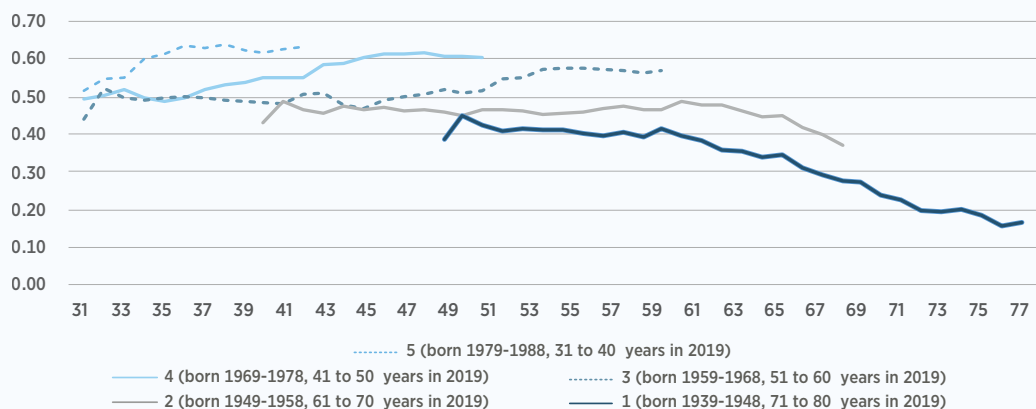
### ALL - SOUTHERN COUNTRIES



### MEN - SOUTHERN COUNTRIES

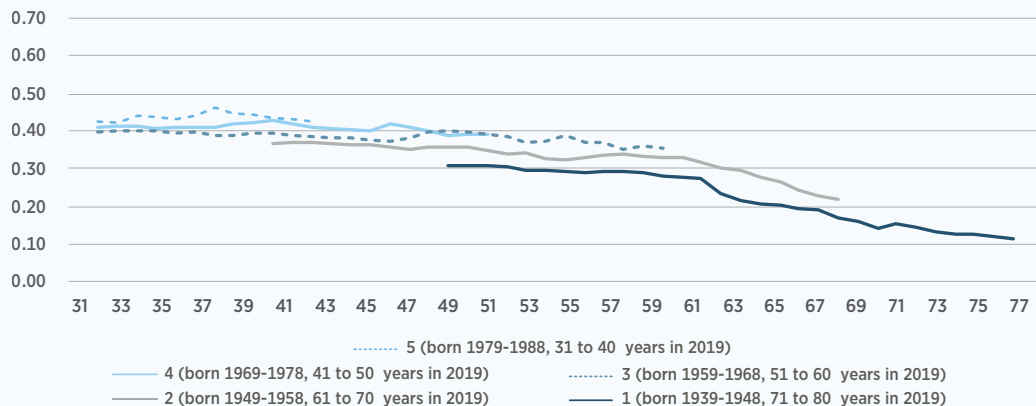


### WOMEN - SOUTHERN COUNTRIES

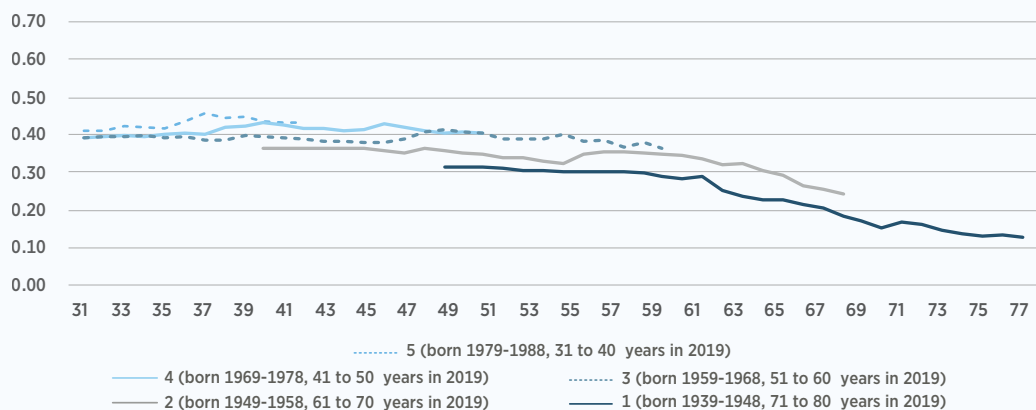




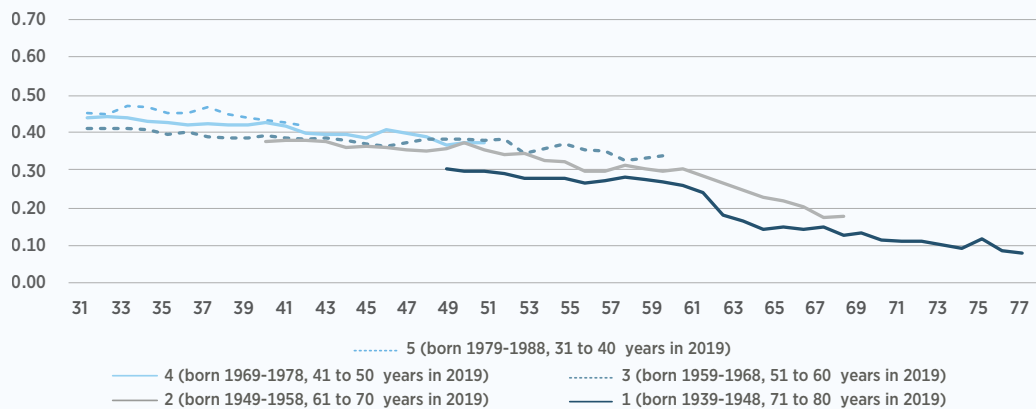
### ALL - CENTRAL AMERICA AND MEXICO



### MEN - CENTRAL AMERICA AND MEXICO



### WOMEN - CENTRAL AMERICA AND MEXICO



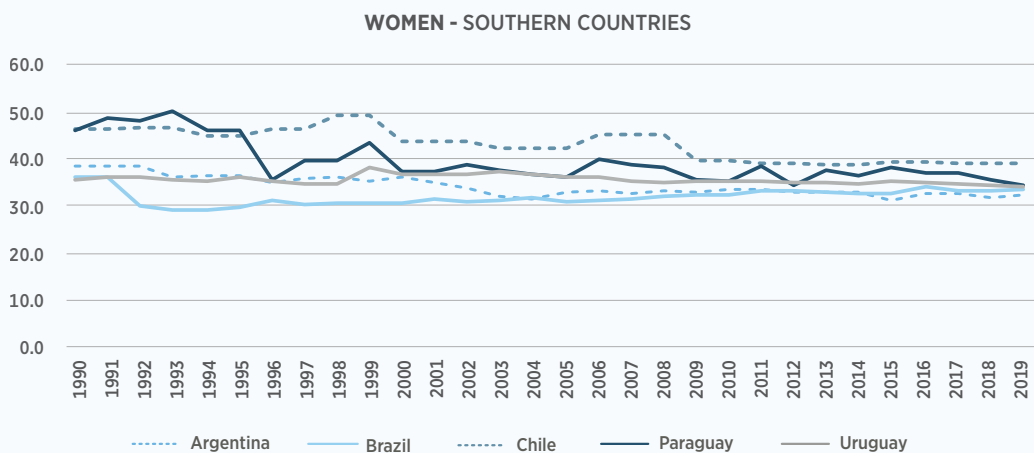
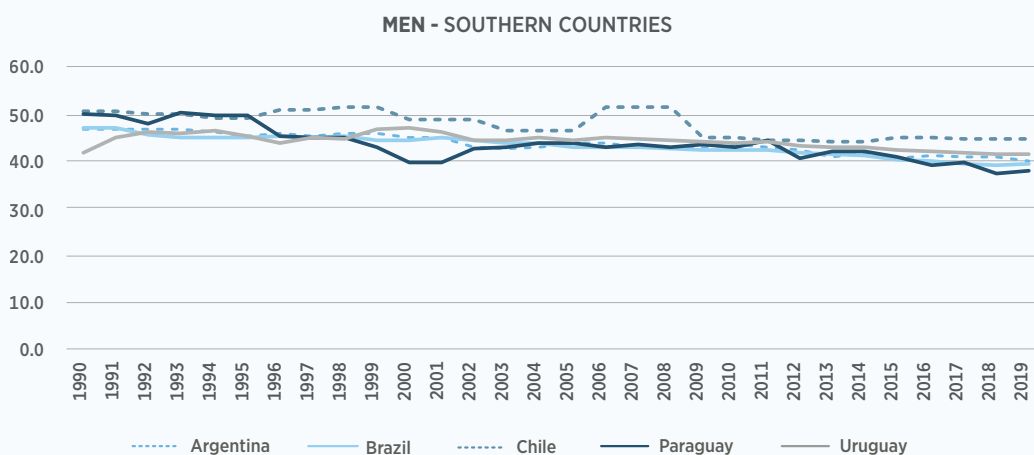
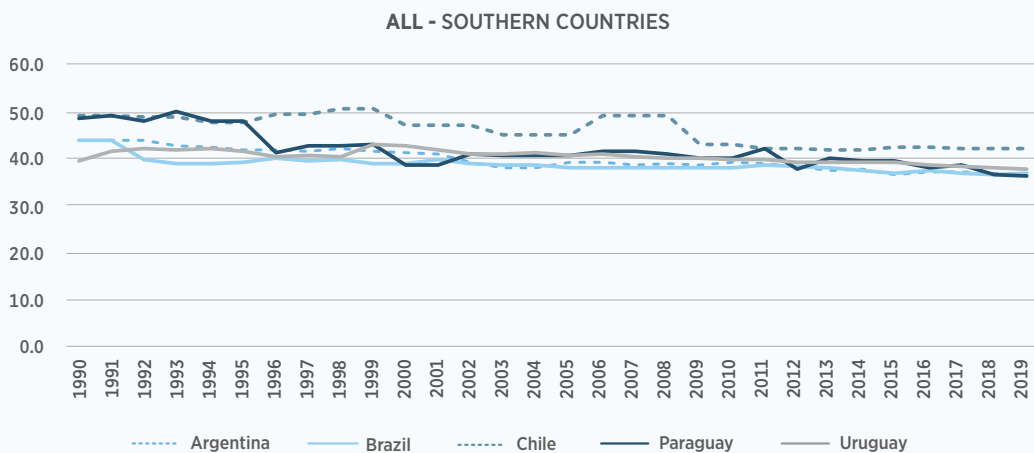
Source: IADB, Social Sector. Harmonized Household Survey.

### 3.3 Hours of work

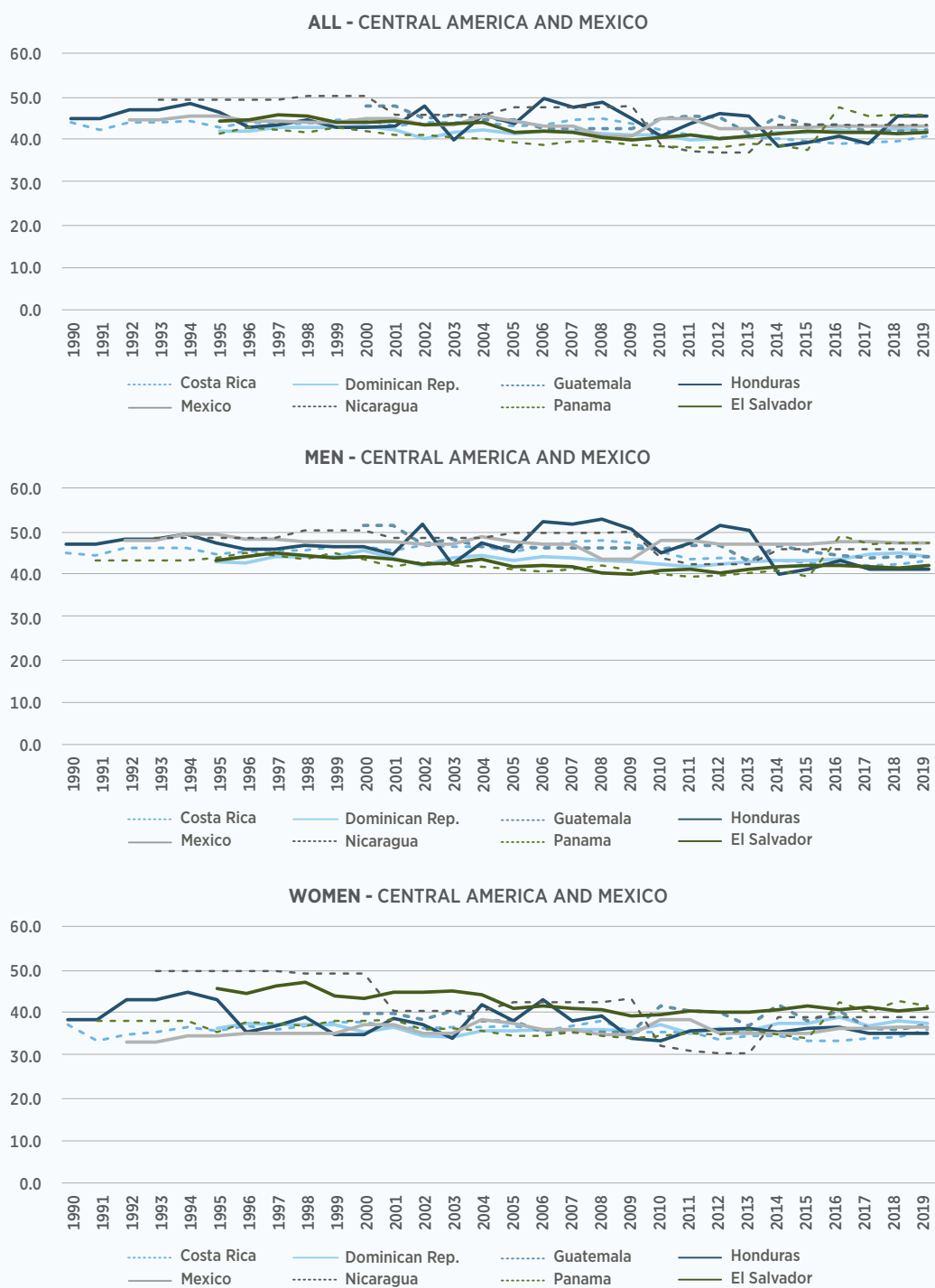
For employed individuals, the average work hours have declined over time for all Southern Cone countries and Ecuador and Bolivia in the Andean region. In Central America and Mexico, weekly labor has remained within 40 to 50 hours. The gender difference in hours of work is less pronounced than the employment gap, but women's workload does not seem to converge with men's (Figure 11). On the other hand, a particularity is observed in the differences between countries by gender since the differences in hours worked in the group of men are much smaller compared to women. For example, the average difference in hours worked by women between Brazil and Chile is approximately 12 hours per week in the 90s, while since the 2000s, there has been a trend towards convergence between the two countries. While in the case of men, the average gap between both countries is approximately 5 hours per week, which is stable over time.

**FIGURE 11**  
**WORKED HOURS AMONG INDIVIDUALS 50+**









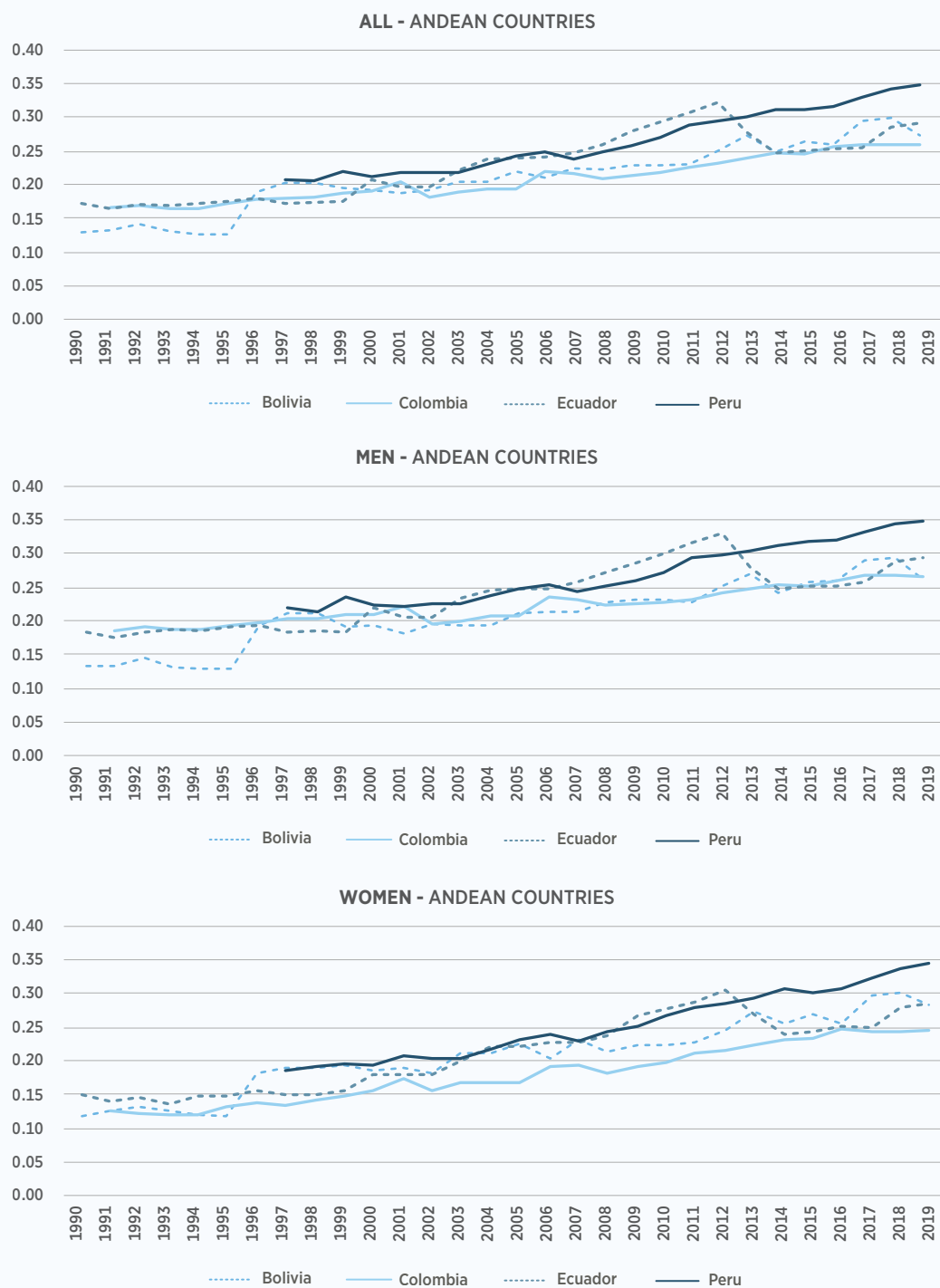
Source: IADB, Social Sector. Harmonized Household Survey.

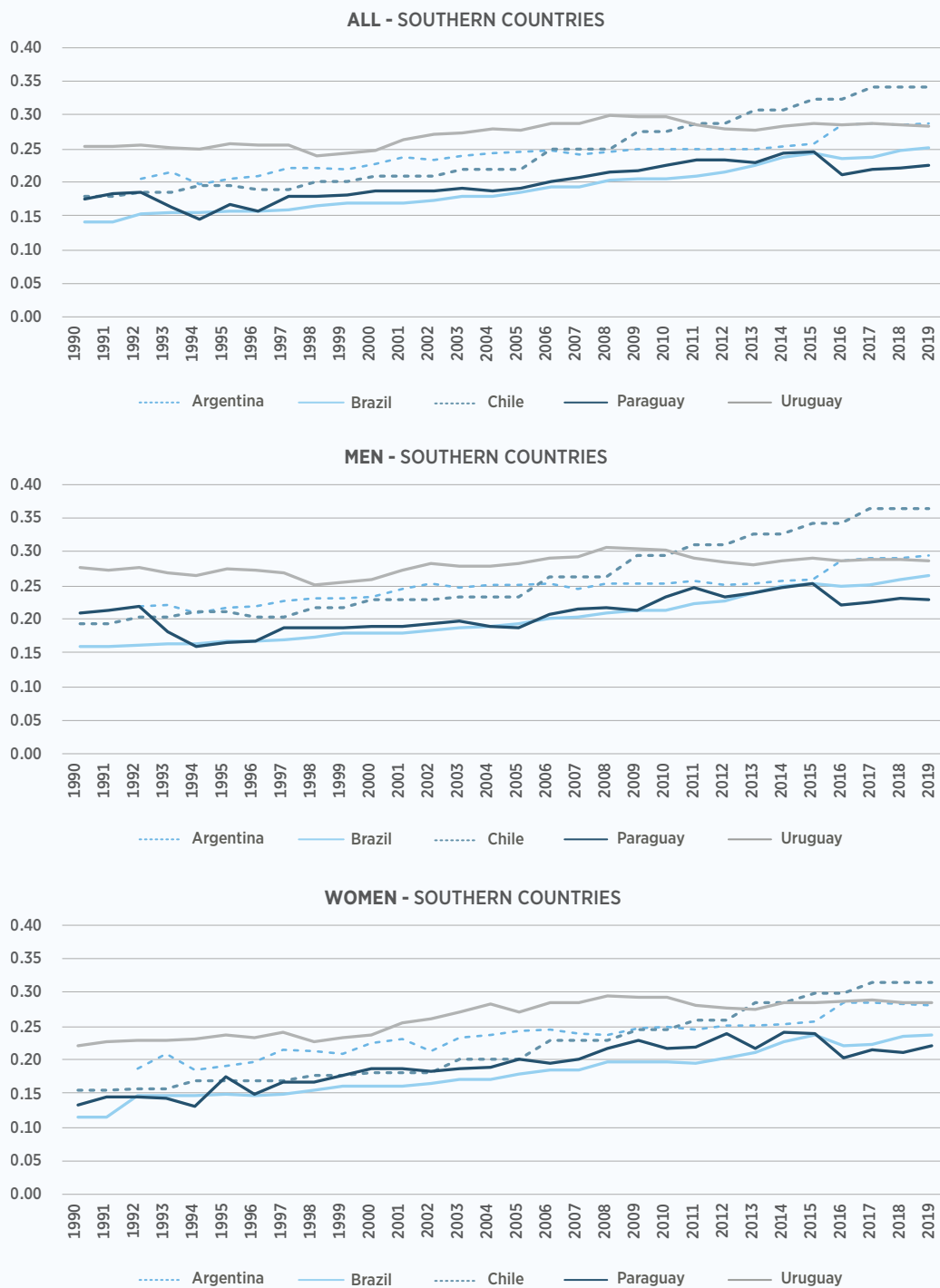
## 3.4 Contributions to employment and labor income

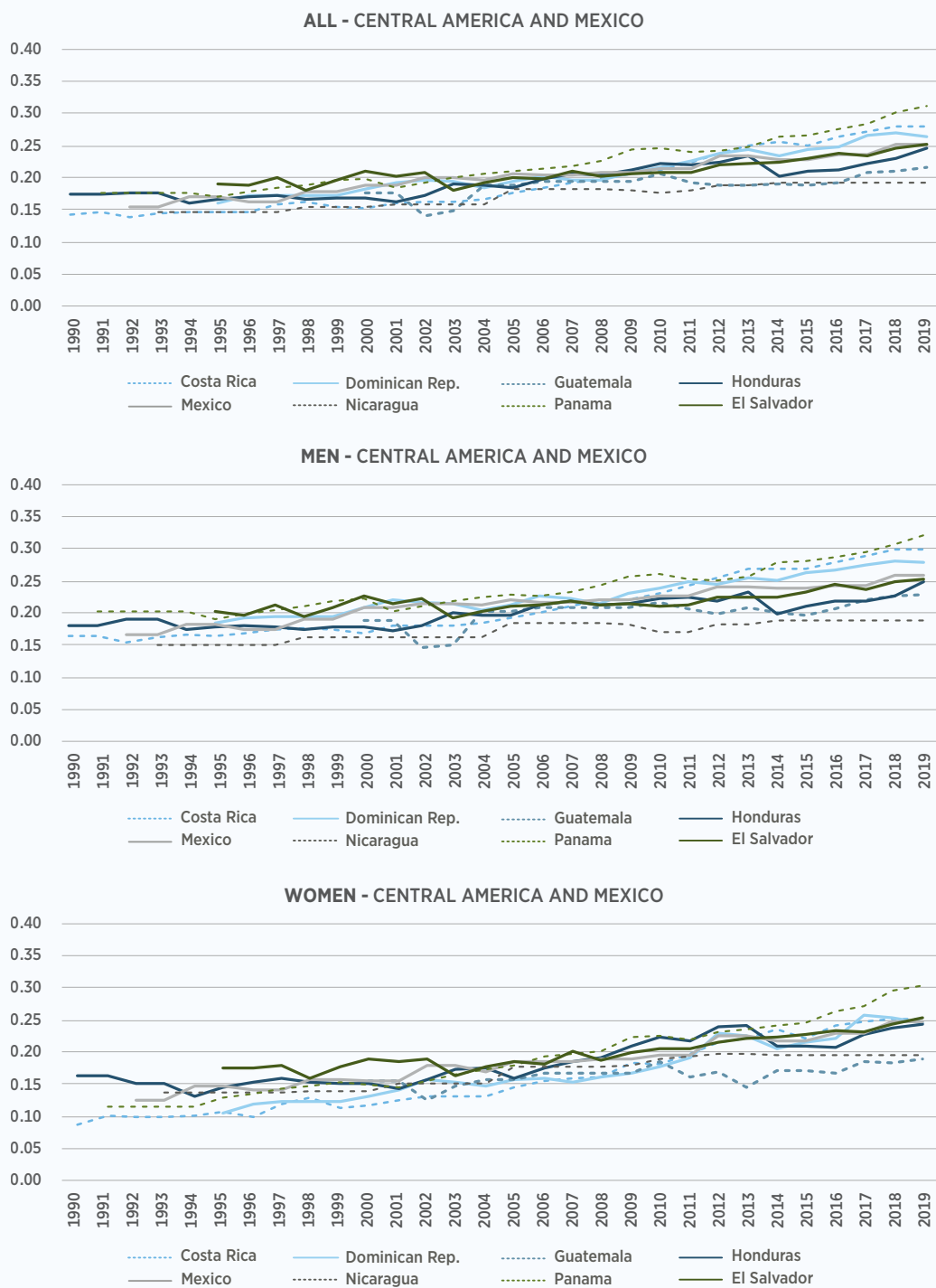
The regional aging process will be very rapid; therefore, the share and significance of older workers will also increase quickly. This process has already started, and for most countries, those aged 50 and older currently add up to 30% of total employment (Figure 12). As this figure shows, the share of employment added by older adults has risen steadily since the first decade of the 21st century. This trend has been stronger in Brazil, Chile, Costa Rica, Panama, and Peru.

Unlike the series reviewed in the previous sections, where the differences in terms of trends and gender gaps were visible, the contribution to employment between both genders and between countries have followed similar behaviors, except for slightly lower levels shown in the group women in Central America compared to their peers in the other subregions.

**FIGURE 12**  
**EMPLOYMENT CONTRIBUTION OF THOSE 50 AND OLDER**







Source: IADB, Social Sector. Harmonized Household Survey.

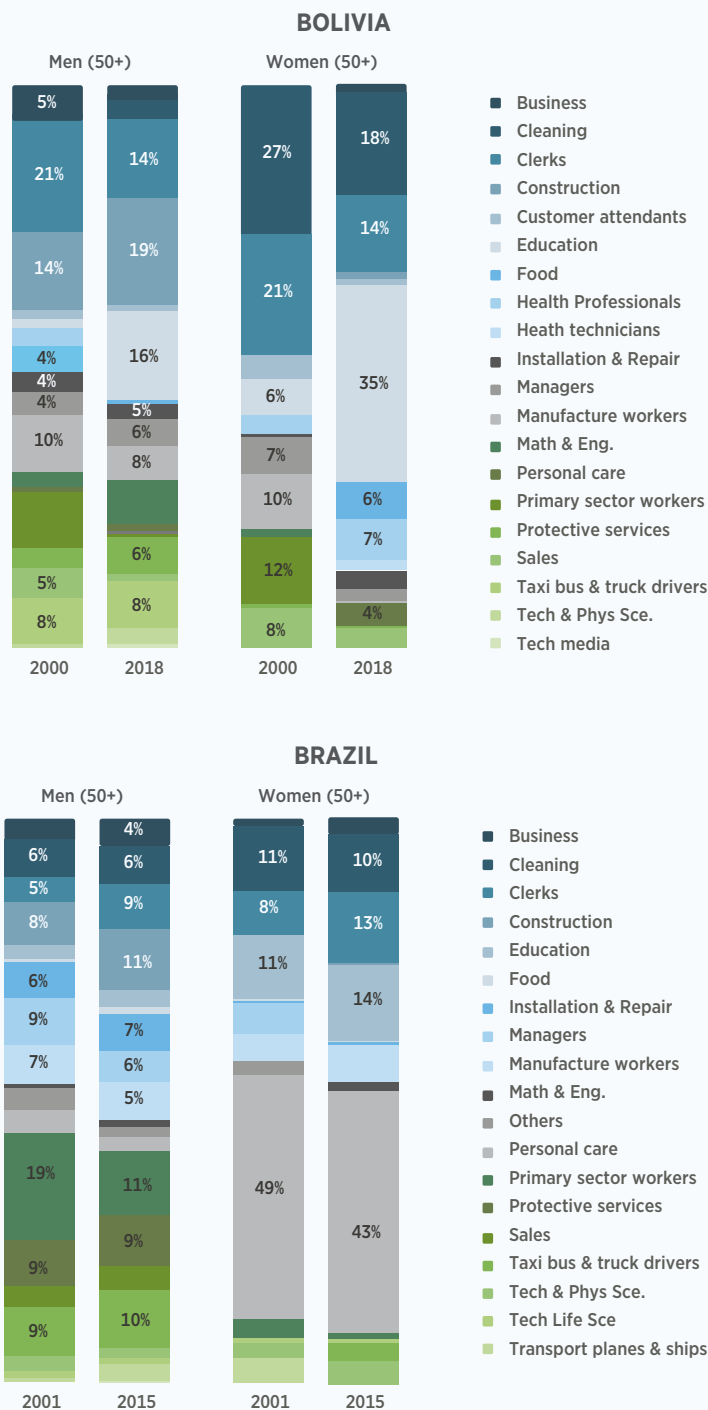
## 3.5 Trends in occupations in Latin America and the Caribbean

To document the trends in occupations for workers 50 and older, we follow the homogeneous classification for occupations developed by Altamirano et al. (2019a, 2019b). This classification is illustrated in Figure 13 as the occupation distribution of salaried employment for workers 50 and older.

From a regional perspective, the overall structure of occupations has exhibited only modest changes during the last two decades. However, two trends are common in most countries. The first is a significant decline in jobs in Agriculture (Primary sector workers) and manufacturing (Production operations), suggesting labor substitution for capital. The second trend is an increase in the share of employment for service sector occupations such as Cleaning and Maintenance, Food Preparation, Sales, and Education Specialists.

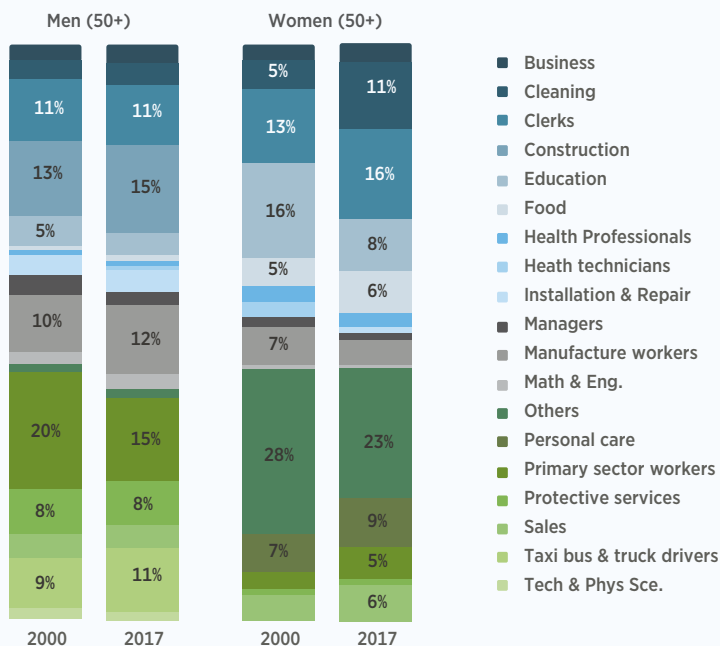
For most countries, the gendered structure of salaried occupations reveals clear patterns of gender segregation in the labor market. Although specific structures may differ by country, the distribution of occupations by gender shows that men specialize in Construction, Primary Sector, and Transportation, while women dominate occupations such as Clerks, Education Specialists, Food Preparation, and Sales.

**FIGURE 13**  
**OCCUPATIONAL DISTRIBUTION OF SALARIED EMPLOYMENT FOR WORKERS 50 AND OLDER (%)**

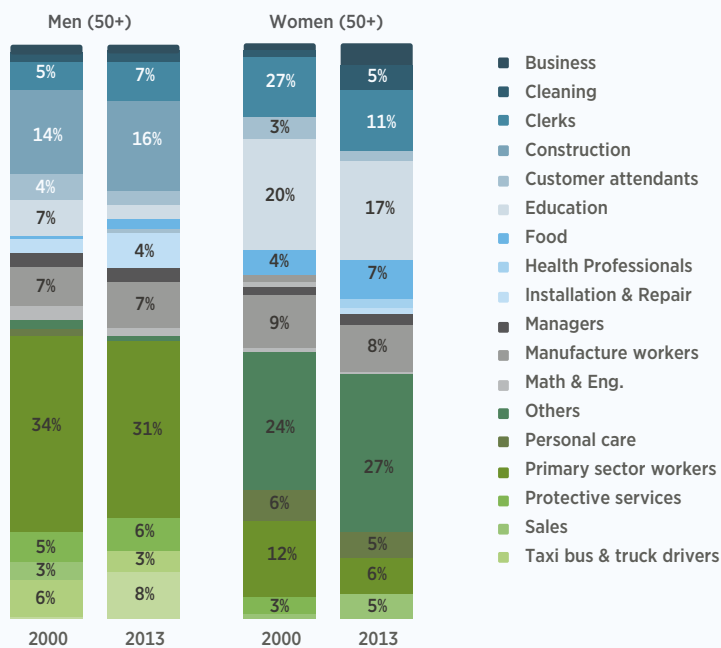




### CHILE

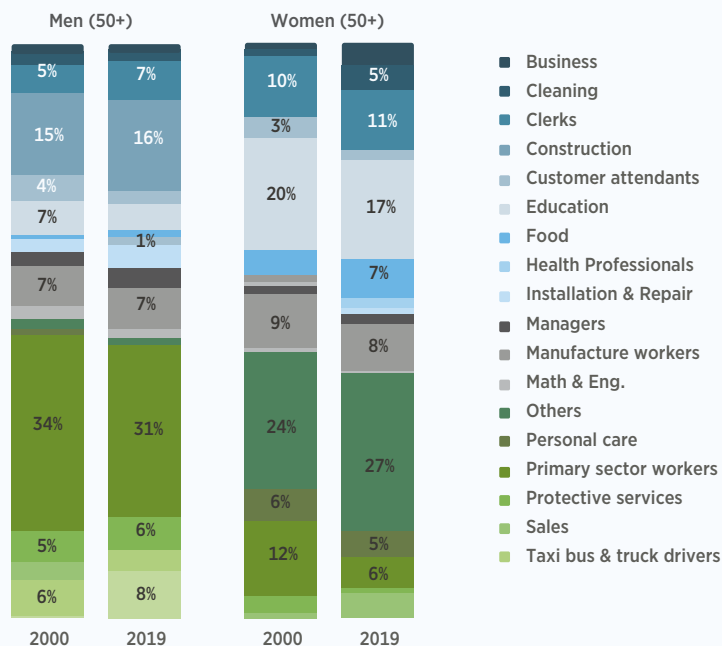


### COSTA RICA

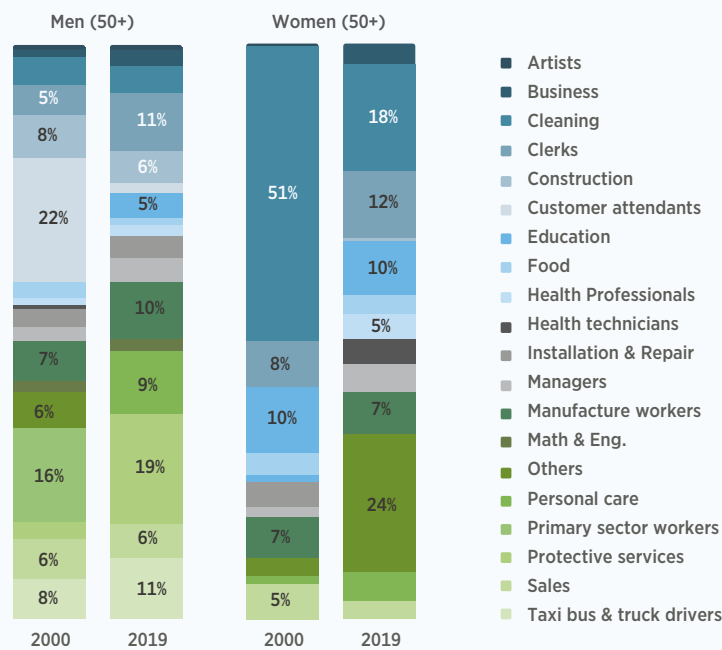




### ECUADOR

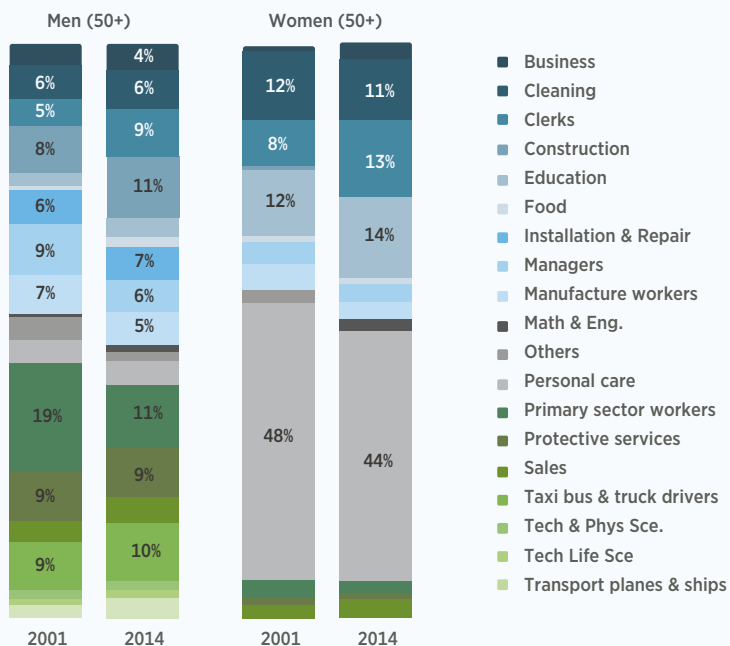


### DOMINICAN REPUBLIC

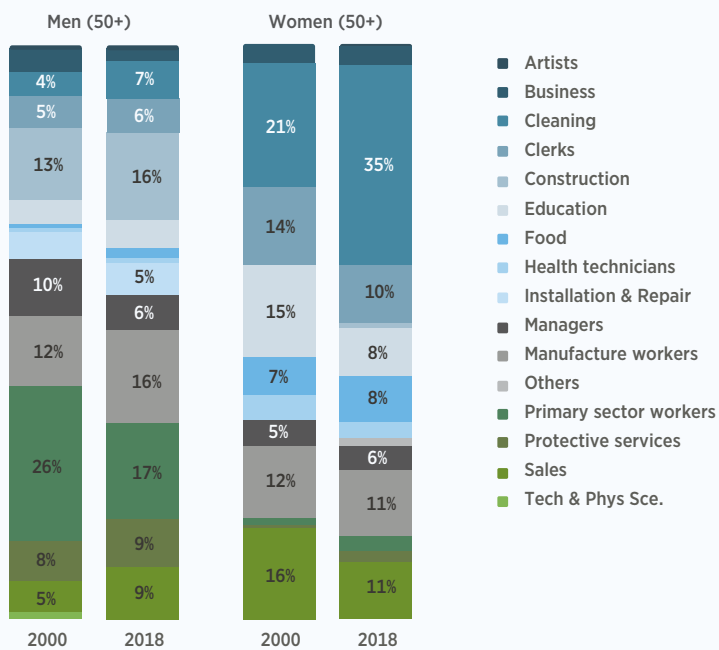


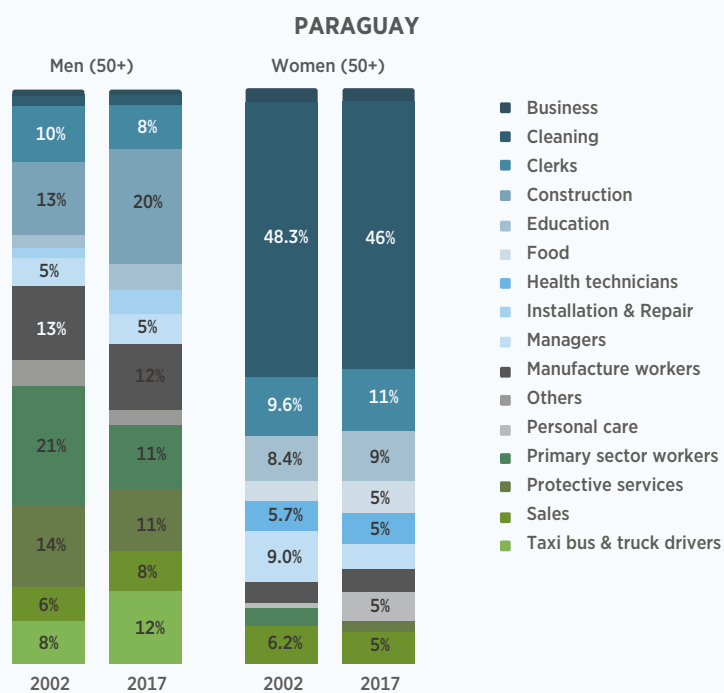


### JAMAICA



### MEXICO





Source: National Household Surveys and employment surveys of each country.

# 4 Current situation of pension systems in Latin America and the Caribbean

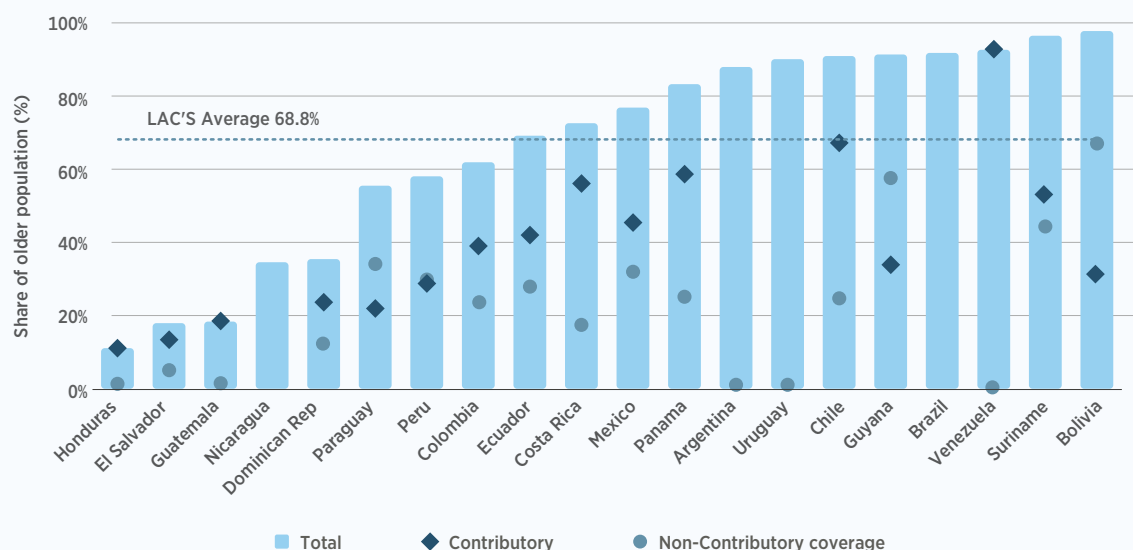
The inherent heterogeneity of the pension systems in Latin American countries is closely linked to their labor market structures, so the coverage and the pension levels differ markedly among countries. In this chapter, we will cover some starting points in the discussion about the reality of pensions in our region.

## 4.1 Coverage

Pension coverage is defined as the proportion of adults over 65 who receive pensions, whether contributory or non-contributory. These pensions replace the wages earned before retirement. There are some important messages to highlight in the next figure. First, Central American countries present rates below 40%. Honduras holds the lowest coverage in this group, barely reaching 10%. On the other hand, in South American countries, the situation is a bit different since coverage exceeds 50%, although, in countries like Bolivia, with almost 100% of coverage, approximately 70% is covered by the government through cash transfer programs. A similar case is Guyana, with the Old Age Pension program.

These non-contributory pensions have helped in some way to alleviate the coverage gaps among countries, but their sustainability is a topic of permanent discussion in the field of public policy, the same that will be treated later.

**FIGURE 14**  
**PENSIONS COVERAGE**



Source: IADB, Social Sector. Harmonized Household Survey.

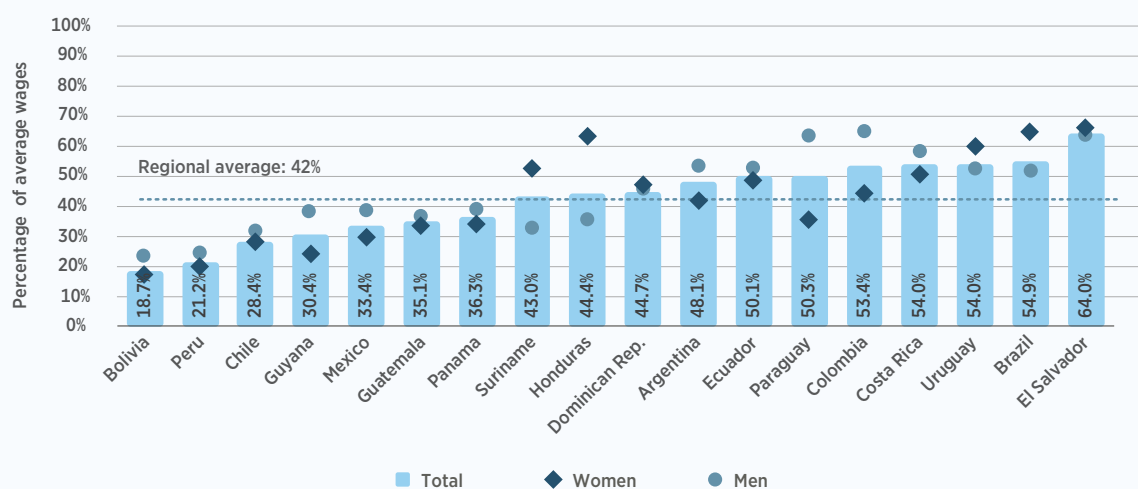
Universalizing pensions as a right raises questions like the “quality of pensions.” Sufficiency is narrowly related to living in good and healthy conditions during the last years of life. Chile is a paradigmatic case of the importance of taking the pensions debate far beyond coverage since the reform of its pension system has not only been on the public policy agenda but has also triggered a strong social discussion.

## 4.2 Quality of pensions: adequacy

As we emphasized before, the level of pension coverage is not enough indicator to answer questions about the quality of pensions, as well as to understand if that money is enough to smooth consumption and maintain a standard of living similar to the time before retirement. Then, the question is: when should a pension be considered adequate? can we talk about the quality of pensions if they exceed a certain threshold? In this document, we carried out an exercise whose main premise is that a retired has a sufficient pension if it is equal to or very close to her income before retirement.

To estimate the quality of pensions, a sample of 18 countries with available information from more recent national household surveys has been considered. We have taken a concept known as “replacement rate,” defined as the ratio of average pensions that retirees receive over their average salary before retiring. In 2018, the Inter-American Development Bank published a document where the authors developed a tool to calculate theoretical replacement rates (Figure 16). Unlike that document, we explore an exercise to calculate the effective replacement rate with cross-country microdata. Thus, each point represents the ratio between the average income of formal workers before retirement (50 to 64 years old) and the average pension after retirement. (65 to 69 years old). In such a way that, the closer to or greater than one is that ratio, the ability to smooth consumption increases.

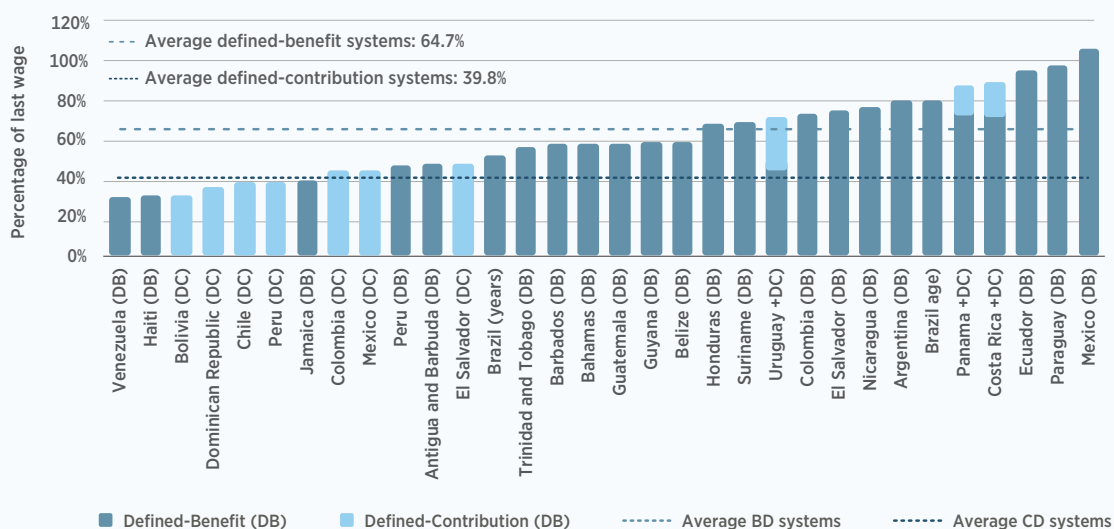
**FIGURE 15**  
**REPLACEMENT RATES**



Source: IADB, Social Sector. Harmonized Household Survey.

As we can see in the figure above, the average replacement rate in Latin America is not only low in terms of sufficiency (42%), but also more the half of the countries in our sample show a ratio lower than this average, which explains in somehow the situation that retirees face in our region. On the other hand, analyzing the countries separately, El Salvador, Brazil, Uruguay, and Costa Rica have a better score than those in the tail of the sample, such as Bolivia, Peru, Chile, and Guyana. Regarding gender, the gaps observed between men and women are not consistently homogeneous across countries since, in some cases, they favor women.

**FIGURE 16**  
**THEORETICAL PENSION REPLACEMENT RATES OF PENSIONS SYSTEMS IN LATIN AMERICA AND THE CARIBBEAN (100% OF THE DENSITY OF CONTRIBUTORS TO THE PENSION SYSTEM)**



Source: IADB, El futuro de las pensiones en América Latina y el Caribe.

These rates can be considered complementary to the work mentioned above so if we compare these results with the theoretical rates (Figure 16), we find that effective rates are consistent for most countries (regarding their position concerning the rest of the countries). Although the theoretical rates have indeed been estimated considering the types of pension systems (Defined-Benefit and Defined-Contribution), the comparison is useful as long as we continue in the same line of discussion and the consistency of the estimations.

### 4.3 Sustainability

As we point out at the beginning of this section, the imminent loss of the demographic bonus raises concerns about the sustainability of pension systems in Latin America and the Caribbean, given that the total contributions and the aging of the population are moving in a remarkably opposite direction. The pressure generated by pension expenditures on the public budget is an interesting measure that provides relevant information about the fiscal sustainability of pension systems in countries. In this section, we will address

an exercise that aims to estimate pension expenditures (PE) by country as a percentage of GDP up to the year 2050.

Then, for each projected year, the estimated value is a function that depends on four indicators: the old-age dependency ratio<sup>1</sup> (DR); the eligibility rate (ER), measured as the ratio of pensioners over the population of adults 65+; the replacement rate (RR)<sup>2</sup>, the ratio between the average pension over the average income before retirement; and finally, the inverse of the employment rate (IER)<sup>3</sup>. All these components are summarized in the following expression:

$$PE(\%GDP)_t = PE(\%GDP)_{t-1} \left( \frac{DR_t}{DR_{t-1}} \right) \left( \frac{ER}{ER_{t-1}} \right) \left( \frac{RR}{RR_{t-1}} \right) \left( \frac{IER}{IER_{t-1}} \right)$$

The most important assumptions rest on the idea that the eligibility rate, the old-age dependency ratio, and the inverse of the employment rate don't change over time, such that changes in pension expenditures depend mainly on the growth rate of the population in each country (fertility rate). This assumption allows us to infer that under the current circumstances where fewer young people work, more older persons demand public services on an increasingly larger scale.

To estimate the sustainability of each pension system, three possible scenarios have been considered, depending on the fertility rate of each country (low, medium, and high). It is then intuitive to deduce that in scenarios with low fertility, the pressure on pension systems is much higher, and their sustainability is at risk. In the same way, in the cases of high fertility rates, the pressure is lower and, therefore, also the risk. Although it is reasonable to analyze this problem under a scenario of normal population growth, this exercise gives us a different perspective on possible changes that may arise, such as unexpected shocks that could affect population growth not only in terms of level but also in the structure and speed of growth for different cohorts.

Although, indeed, in recent decades, population growth rates for the countries of Latin America and the Caribbean have decreased considerably, they have not done so at the same rate, and this partly explains why the estimates for the year 2050 in some countries

- 
1. The estimates of the old age dependency ratio were taken from the World Population Prospects 2015 revision, United Nations.
  2. The average pension has been calculated only for retirees between 65 and 69 years old, and the average earnings before retirement were calculated for the subgroup of workers between 50 and 64 years old.
  3. The inverse of the employment rate is the ratio of the labor force over the employed.



such as Brazil and Argentina are striking due to the enormous pressure that their pension systems could face. Let's go first to the case of Brazil; from 2025 to 2050, an increase of 14.5 percentage points is expected in expenditure on pensions (37% of GDP) in a normal fertility growth. In a low fertility rate scenario, the old-age dependency ratio goes from 11.8% to 28.9%, boosting pension expenditures by 17.1%. The case of Argentina is similar, since at normal fertility rates, the growth of 9.3 percentage points of its old-age dependency rates for 2025 -2050 would lead to an increase in pension expenditures close to 15% of GDP in 2050. Moreover, in the same group, Barbados and Uruguay share similar behavior.

**TABLE 2**  
**PENSION EXPENDITURES AS %GDP 2025-2050**

Country	Low fertility				Medium fertility				High fertility			
	2025	2030	2040	2050	2025	2030	2040	2050	2025	2030	2040	2050
Argentina	10.1	10.6	12.5	16.3	10.1	10.6	12.1	15.0	10.1	10.6	11.7	13.9
Bahamas	3.3	4.1	5.4	6.7	3.3	4.4	5.2	6.1	3.3	4.4	5.0	5.6
Brazil	11.8	14.2	19.9	28.9	11.8	14.2	19.2	26.2	11.8	14.2	18.6	24.1
Barbados	13.3	15.6	19.0	21.4	13.3	15.6	18.4	19.4	13.3	15.6	17.7	17.8
Chile	2.4	2.8	3.8	4.8	2.4	2.8	3.7	4.4	2.4	2.8	3.6	4.0
Costa Rica	4.9	6.0	8.2	11.2	4.9	6.0	7.9	10.2	4.9	6.0	7.6	9.4
Dominican Republic	0.7	0.8	1.1	1.4	0.7	0.8	1.1	1.3	0.7	0.8	1.0	1.2
Honduras	2.2	2.5	3.6	5.3	2.2	2.5	3.4	4.9	2.2	2.6	3.3	4.5
Jamaica	1.1	1.3	1.7	2.3	1.4	1.3	1.6	2.1	1.4	1.3	1.6	1.9
Mexico	4.1	4.8	7.4	10.1	4.1	4.8	6.9	9.3	4.4	4.8	6.7	8.5
Panama	3.5	4.0	5.4	7.0	3.5	4.0	5.3	6.5	3.6	4.0	5.1	6.0
Peru	1.6	1.9	2.6	3.5	1.6	1.9	2.5	3.3	1.6	1.9	2.4	3.0
El Salvador	2.4	2.7	3.4	4.5	2.4	2.7	3.3	4.1	2.4	2.7	3.2	3.7
Trinidad and Tobago	5.3	6.2	7.4	10.4	5.3	6.2	7.1	9.5	5.3	6.2	6.9	8.7
Uruguay	9.4	10.0	11.8	14.4	9.4	10.0	11.4	13.1	9.4	10.0	11.1	12.1

Source: author's own calculations based on data from United Nations. World Population Prospects 2015 revision, World Bank - Population estimates and projection, World Bank-World Development and estimators (ILO estimation), SIMS Database: Labor Markets and Social Security Information System, Central Banks of each country, International Monetary Fund - World Economic Outlook Database october2017, National Institute of Statistics from each country.

It is important to note that sustainability is not a concept that depends only on population growth but also on the design of each pension system. In our region, most countries have a Defined Benefit (DB) or mixed system, except in some cases, such as Chile and the Dominican Republic, which only have a single defined contribution regime with individual capitalization. In the latter case, we note that by the year 2050, this Caribbean country does not exceed 2% of GDP in pension expenditure, like the case of Chile (4.4%). On the other hand, in countries with mixed systems, the pressure is lower, as in the cases of Peru (3.3%), El Salvador (4.1%), and Panama (6.5%).

# 5 Pension system's impact on inequality and how to turn them progressive

This chapter points to the following objectives: (1) It estimates the theoretical impact on monetary inequality of pension systems, and (2) given the labor reality of each country: it estimates the actual impact of these designs. We do this following the following methodology.

## 5.1 Theoretical impact on monetary inequality of pension systems

### a) Wage Inequality Index (Gini) of a cohort before retiring<sup>4</sup>

Wage distribution measures for this subset of countries reveal highly unequal wage labor markets<sup>5</sup> (Table 3). Another approach to measuring inequality is to illustrate Lorenz's curved wage distribution. As not a summary measure of inequality, Lorenz's curves illustrate the dominance of subgroup inequality. This property will be useful in identifying whether the design of pension systems reduces or amplifies wage inequality throughout income distribution.

---

4. The population analysis group is an important thing that we have to discuss (all workers, the whole cohort even those who do not work).

5. The OECD average Gini of market revenue for workers aged 18 to 65 was 0.35 in the same period (OECD-Stat, 2020).

**TABLE 3**  
**MEASURES OF DISTRIBUTION OF WAGES BY MAIN ACTIVITY (CIRCA 2018)**

Country/system	Gini pay	Percentile ratios		
		P90/P10	P90/P50	P10/P50
Argentina	0.389	7.3	2.2	0.3
Brazil	0.531	8.7	3.5	0.4
Chile	0.427	4.8	2.9	0.6
Costa Rica	0.523	18.4	3.7	0.2
Ecuador	0.435	8.0	3.0	0.4
Mexico	0.491	11.5	2.9	0.2
El Salvador	0.427	6.9	2.8	0.4

Source: Household Surveys. Note: Sample includes only salaried dealers born between 1952 and 1959 (between 59 and 66 years in 2018), who reported positive income from main activity.

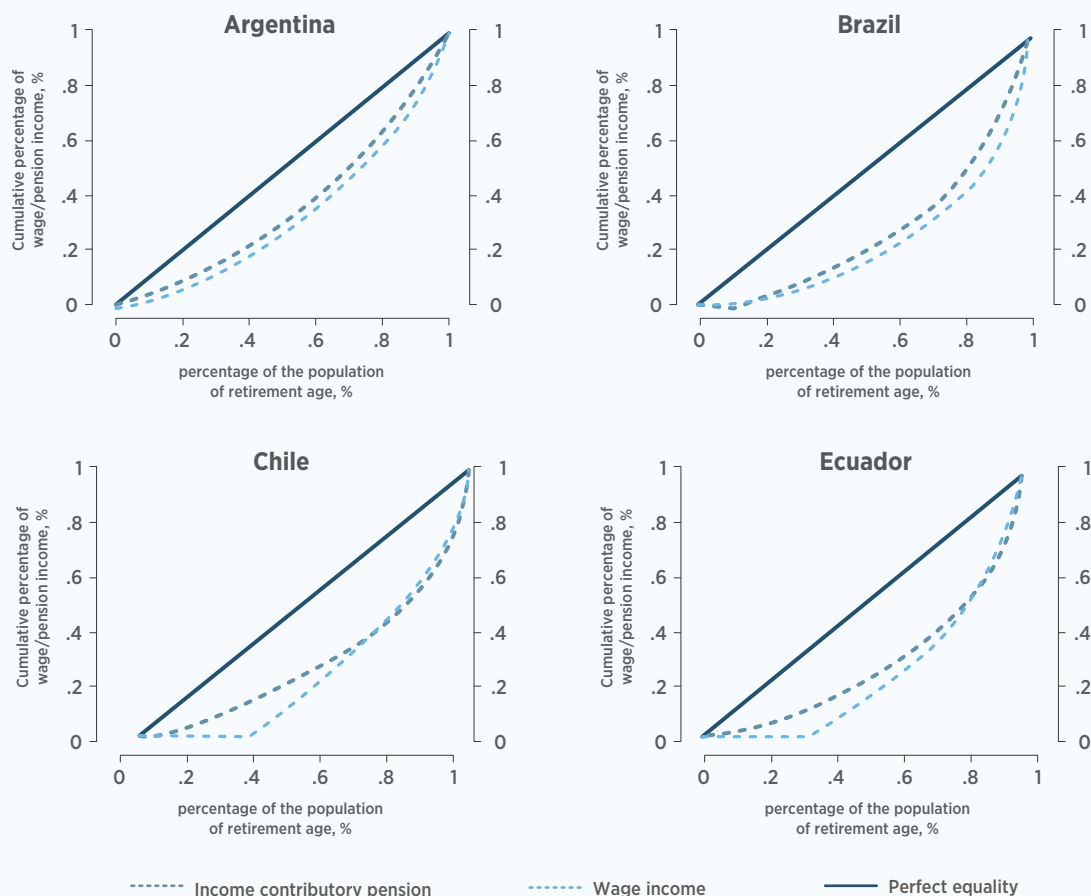
### **b) Using the monograph, we estimate what the pensions of that cohort would be if everyone had quoted 100% of the time to the pension system**

The following panel illustrates Lorenz’s wage and contributory pension curves for hypothetical workers who start working at age 20 and are trading uninterrupted social security until the legal retirement age. This approach extends the micro-simulation work presented in Altamirano, Berstein, Bosch, García-Huitron, and Oliveri (2018).<sup>6</sup> Household surveys allow us to take advantage of the sample distribution of observed wages instead of the theoretical ones. The panel shows that, given a significant mass of workers earning wages less than the minimum contribution, it is not clear that the design of social security systems reduces wage inequality for all income tranches, even in high contributory density scenarios.<sup>7</sup>

6. Altamirano, A., M. Bosch, S. Berstein, M. García - Huitron, M.L. Oliveri. (2018). Present and future of pensions in Latin America and the Caribbean. Monograph, Inter-American Development Bank.

7. Notes: For Argentina, the Universal Senior Pension (PUAM) introduced in 2016 is included.

**FIGURE 17**  
**LORENZ CURVE BY COUNTRY**

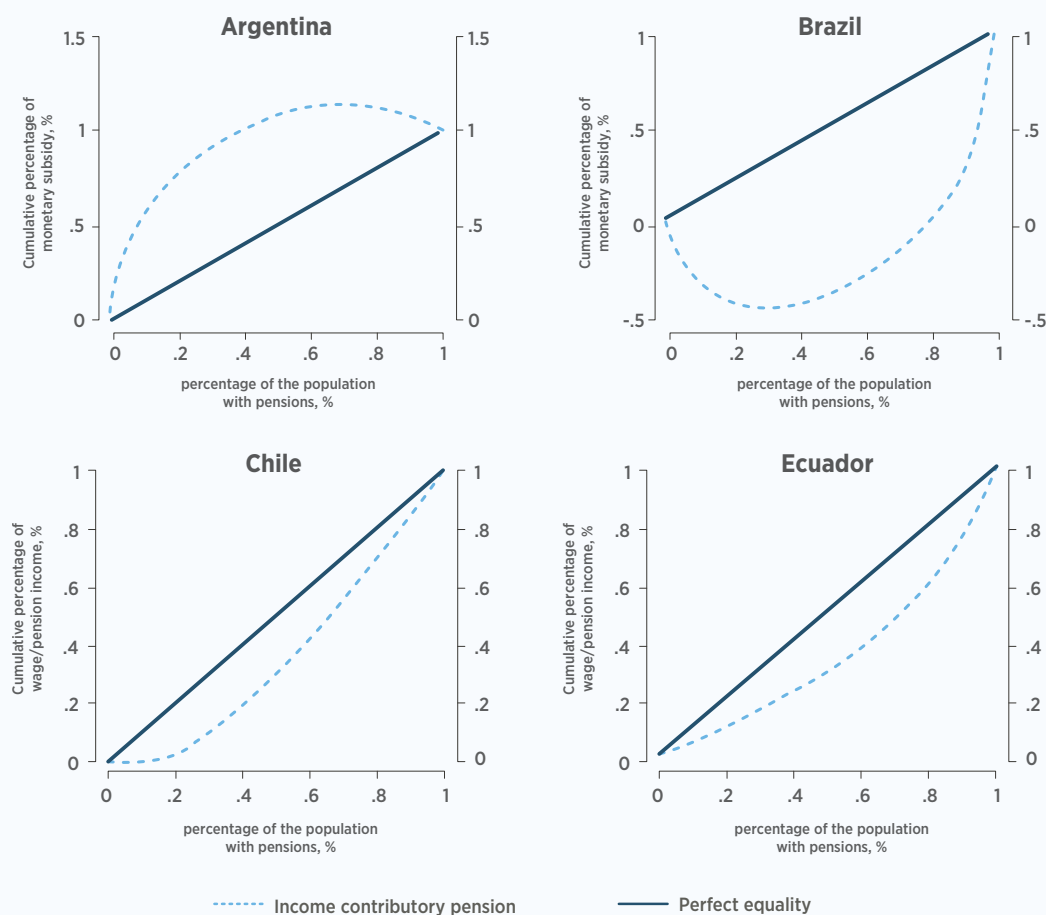


**Source:** Household Surveys. Note: Sample includes only salaried dealers born between 1952 and 1959 (between 59 and 66 years in 2018), who reported positive income from main activity.

A fundamental extension of Altamirano et al's work. (2018) is the calculation of implicit subsidies, measured as the difference between the capital needed to finance (e.g. capitalize on planned savings at market returns) the pensions granted by the system, and contributions made by the worker and the employer. As with the defined contribution systems (Chile, Mexico, El Salvador) presented above, this analysis is about the increase of wages at a real rate of 2% per year, while an interest rate of 3.5% is assumed for the capitalization of contributions that serve as the counterfactual necessary to compare

the generosity of the systems in force in each country<sup>8</sup>. The results are presented in the following Lorenz curve panel.<sup>9</sup>

**FIGURE 18**  
**LORENZ CURVE BY COUNTRY WITH IMPLICIT SUBSIDIES**



**Source:** Household Surveys. Note: Sample includes only salaried dealers born between 1952 and 1959 (between 59 and 66 years in 2018), who reported positive income from main activity.

- Other parameters, such as retirement ages, wage lows, minimum or maximum retirement homes, minimum pensions, annuity costs, compensation ratios to spouses, etc., further follow the provisions of Altamirano et al. (2018).
- In Argentina, the inclusion of PUAM generates positive subsidies in the first two wage decisions, while the minimum of years of contribution of 30 years, together with a high contribution rate in regional terms generates negative subsidies for the rest of the distribution deciles. In Brazil, the contribution rate punishes the savings effort of the middle class that does not receive a minimum pension.

### c) We compare the Gini wage index with the Gini theoretical pension index (if all had contributed 100%) using the following formula

$P(t)$  'Gini-p-Gini-w ranging from -1 to 1, the (t) is theoretical

- Gini-p-Gini-w  $P=0$  Neutral
- Gini-p>Gini-w  $P>0$  Increases inequality
- Gini-p<Gini-w  $P<0$  Decreases inequality

Qualitative interpretation would be: If the index is 0 this means that Gini-p-Gini-w, which means that pension systems replicate wage inequality and therefore are new with respect to inequality (not with regard to redistribution, the rich may have become poor and wealthy and this would not be captured by the index).

- If the -1 index is that the Gini-p-0 (everyone has the same pension) and the Gini -w-1, there was a lot of wage inequality but when everyone got the mass pension, pensions kill inequality
- If the index is 1, it means that Gini-p-1 and Gini-w-0, there was no wage inequality and the pensions generated it.

## 5.2 ii. Study the effective impact of the pension system on income distribution

This essentially does the same, but in step 2 instead of estimating pensions Gini if everyone had quoted 100%, it estimates it with the cohort's effective contribution densities by salary level and gender.

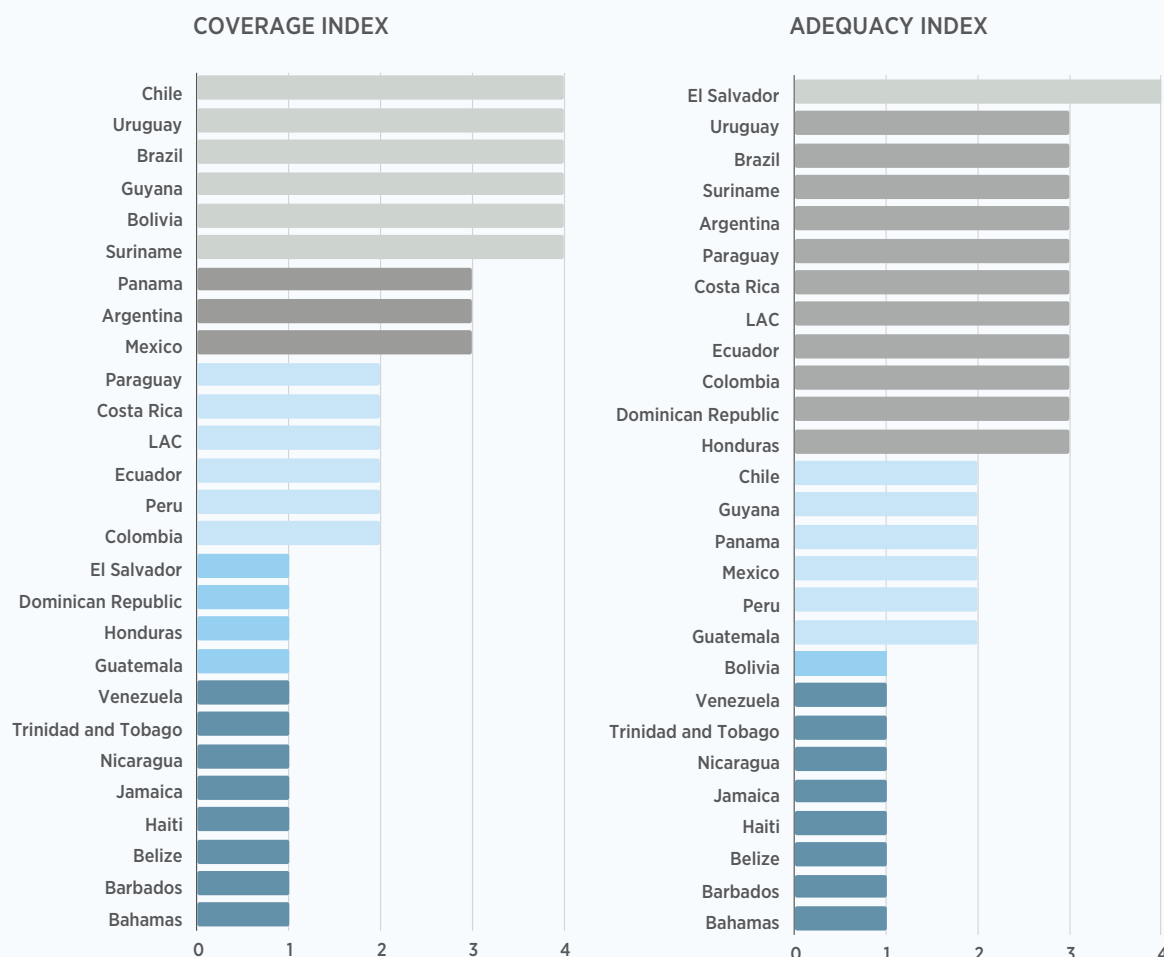
- This is going to give us a  $P(e)$ , e cash, which can be  $>$  or  $<$  that  $p(t)$
- For example, a system may be designed to give higher pensions to lower-income workers  $p(t)<0$ , but it turns out that the  $p(e)$  is  $>0$  because low-income workers are the unquoted and do not qualify for a pension. In fact the distance between  $p(t)$  and  $p_e$  would be a measure of how away is the pension system of its original design.

## 6 Protection for Old Age

The coverage and adequacy of pensions provide important information to understand the situation of pensioners in the region, which is why an index combining both indicators is proposed using both measures. In the first place, four categories have been established according to the levels of coverage and adequacy. For the countries with gray color, insufficient information has been found to compile the index. It is worth mentioning that both indicators consider contributory and non-contributory pensions, except in the countries of Argentina, El Salvador, and Honduras, which in graph (B), due to insufficient data, their replacement rates only consider the amounts received for contributory pensions. That is why it should not surprise us that El Salvador, despite being in the worst classification of coverage, adequacy is much better positioned.



**FIGURE 19**  
**COVERAGE AND ADEQUACY PENSION INDEX**



**Source:** author's own calculations based on data from IADB harmonized household surveys.

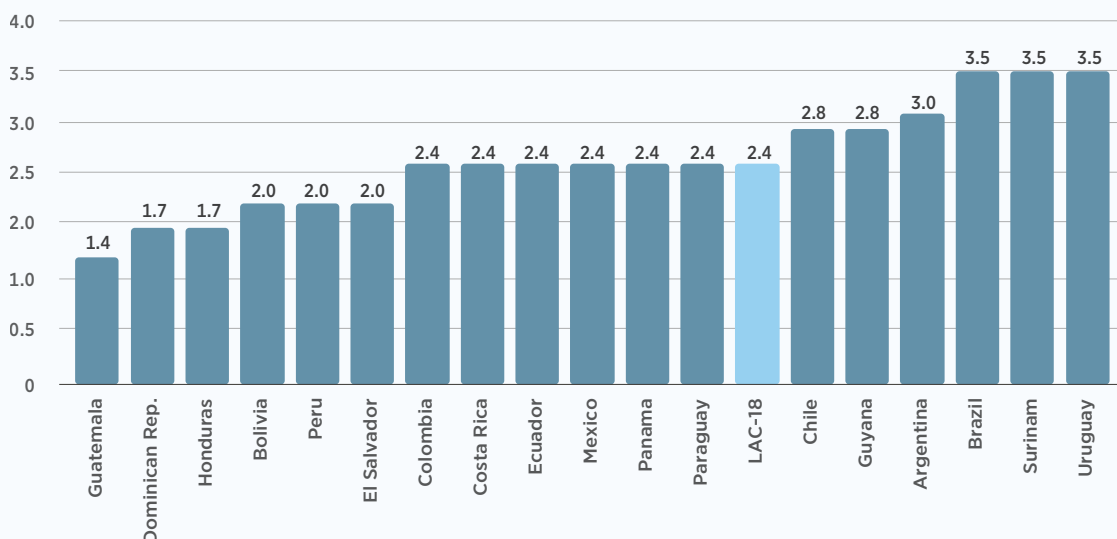
**Notes:** 1. very low - less than 75% over the poverty line (or no information); 2. low - between 75% and 84%; 3. high - coverage between 85% and 94%; 4. very high - coverage larger than 95%.

Panel (A) of Figure 19 the countries are grouped according to the value of the pension coverage index (from 1 to 4), whether contributory or non-contributory. Those in the upper part in green are the countries whose proportion of older persons receiving a pension exceeds 90%. In these countries, the southern cone (Chile, Brazil and Uruguay) stands out, as well as Bolivia, Guyana and Suriname. In panel (B) we note that Chile, Mexico and Peru are in the penultimate classification of adequate pensions, while most of the countries of the southern cone and Central America present a better level of adequacy.

## 6.1 Overall Index of coverage and quality

Finally, an overall index was built that considers both the coverage and the quality of pensions. Therefore, by joining these two indicators, we can assess the situation of retirees in Latin America and the Caribbean in comparative terms from a more practical perspective. The following figure shows the results for only 18 countries in the region, mainly due to the limited availability of data to perform the calculations.

**FIGURE 20**  
**OVERALL INDEX OF COVERAGE AND QUALITY OF PENSIONS**



Source: author's own calculations based on data from IADB harmonized household surveys.

As in the indicators shown above, the results reveal a clear disparity among countries. In first place is the group of countries with the highest score, such as Uruguay, Suriname, Brazil, and Argentina, that in some way they are imposed as the countries that have a greater development in social protection for the elderly. However, on the other side, the Central American countries (Guatemala, the Dominican Republic, and Honduras) as the least attractive countries for aging. Another important point to mention here is that it must be clear that coverage does not necessarily imply quality, given that, for example, Bolivia has universal coverage. However, these are mostly insufficient to maintain an adequate standard of living.

Finally, several institutions have developed an index that in many cases, considers a set of dimensions, like living conditions, care policies, etc. For instance, the Ageing Society Policy Index (ASPI) is an initiative aimed at identifying the conditions of the elderly, considering various factors that have been grouped into three pillars (original version) and four pillars (extended version). The pillars considered are demographic, economic, and health conditions, public policies, and living conditions. The last pillar for the extended version.

The first pillar contains information on demographic conditions, grouped into two components, the current demographic situation and that projected to 2050. The second pillar of economic and health conditions incorporates poverty, pension coverage, and life expectancy indicators. The third pillar of public policies is divided into economic and health policies, which incorporate care indicators for older adults, care measures, targeted support programs, and the number of doctors per thousand inhabitants. Finally, the fourth pillar, as part of the extended version, includes indicators of education, housing, adequacy of pensions, depression, difficulties in doing basic tasks such as walking, eating, banging, dressing, etc., as well as instrumental activities such as money management, household purchases, etc. All these dimensions are grouped and equally weighted to finally obtain a composite indicator to compare policies and comparisons among countries.

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