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The 2-Billion-Person Challenge
Background Paper #5**

Riding the Demographic Wave: Pensions and Retirement Income in an Aging World

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Abstract

This report examines the state of pension and social insurance systems globally, focusing on old-age income protection. It analyzes expenditure, coverage, adequacy of benefits, and sustainability of both contributory and non-contributory pension schemes. The report highlights the impact of population aging on pension systems, emphasizing the need for reforms to ensure fiscal sustainability and adequate benefits. It also explores the challenges of extending coverage to informal sector workers and the importance of gender equity in pension provision. The report concludes with recommendations for adapting pension systems to evolving economic and demographic realities, emphasizing the need for inclusive and sustainable solutions.

JEL Codes: H55, J14, J26, I38, O15, O17

Keywords: Pension system, sustainability, coverage, aging, non-contributory pension, social pension, social insurance, retirement policies.

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Abbreviations and Glossary

ADePT	Software platform for automated economic analysis developed by The World Bank
AFR	Africa Region
APY	Atal Pension Yojana, India
ASPIRE	Atlas of Social Protection Indicators of Resilience and Equity
AUD	Australian Dollar
DB	Defined Benefit
DC	Defined Contribution
EAP	East Asia Pacific
ECA	Europe and Central Asia
GDP	Gross Domestic Product
ILOSTAT	International Labour Organization Department of Statistics
LCR	Latin America and Caribbean Region
MNA	Middle East and North Africa
NDC	Notional Defined Contribution
NSF	National Savings Fund of Thailand
NSER	National Socio-Economic Registry of Pakistan
NSSF	National Social Security Fund of Kenya
OECD	Organisation for Economic Cooperation and Development
PAYG	Pay-as-you-go
PM-SYM	Pradhan Mantri Shram Yogi Maan-dhan, India
RMF	Retirement Mutual Fund of Thailand
RURS	Rural and Urban Resident Scheme, China
SAR	South Asia Region
USD	United States Dollar
USSD	Unstructured Supplementary Service Data
VSIF	Voluntary Social Insurance Fund
VSS	Viet Nam Social Security Agency
WDI	World Development Indicators

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Aging Will Define the Evolution of Pensions and Social Insurance in the Coming Years

Population aging is one of the megatrends affecting the world, with effects on economies and societies that will be felt for the foreseeable future.¹ A country's demographic structure usually shapes its economic and social conditions. Young countries with significant infant and child populations need to devote sizable resources to investment on education and health, relying on a relatively small active population. As countries age, fertility declines and longevity increases, the countries experience a 'demographic dividend', as a growing active population can generate more economic activity to support a declining dependent population, generating higher growth. As countries age further, however, that demographic dividend fades and a declining active population needs to generate enough resources to support an increasing inactive population due to aging.

Against this backdrop, countries implement social insurance and pension systems to manage risks that are directly associated with aging and the consequent declining capacity to productively engage in economic activities. Therefore, contributory pension systems typically cover the risks of old-age retirement, disability, and survivorship. These traditional pension systems can be understood as a byproduct of the process of industrialization, as they first emerged in advanced economies to gain the political support of workers who faced different working conditions in industrial settings and prospects of retirement due to old age as they were unable to perform physically demanding jobs.

When implemented in less advanced economies, contributory pension systems generally lack the labor structure and institutions that enable wide coverage in advanced economies. In particular, formal employment relationships based on long-term contracts between employers and employees were, and continue to be, less common in middle- and low-income countries, where labor markets are characterized by informal work relationships or self-employed jobs.² This factor limits the expansion of contributory pension systems and leaves sizable portions in the population without adequate coverage.

In response, governments have sought to implement schemes that are intended to close the coverage gap through non-contributory pension benefits. However, these non-contributory

1. United Nations 2022.

2. Ohnsorge and Yu 2022.

pensions require fiscal resources that, in turn, limit the extent to which they can be implemented. Therefore, a wide variety of non-contributory pensions have emerged, from targeted poverty alleviation programs to universal social pensions.

Pension systems are, in general, not fulfilling the objective of providing adequate, affordable and sustainable income during retirement. Social insurance and pension provision face numerous challenges depending on the contexts in which they are implemented. In the countries that have achieved high coverage levels with adequate benefits, sustaining contributory pensions and the fiscal implications of covering deficits in the contributory regime will be the main challenges that governments will face.

Some countries have achieved moderate levels of coverage through systems that are adequately funded (either through systemic reforms towards defined contribution [DC] pension or to adjustments in defined benefit [DB] systems that achieve sustainability). In these countries, adequacy of pension benefits will be a major challenge, as demand for income protection in old age increases with population aging.

Finally, many countries are still struggling to achieve even moderate levels of coverage, given the informality of their labor markets, fragmentation in their pension systems that cover only part of the employed population, or a lack of fiscal space to provide non-contributory benefits. Although most of these countries are still young, increasing coverage will be the main challenge for them in a context of rapid population aging.

In this paper we will analyze recent trends on expenditure, coverage and relevant performance indicators of both contributory and non-contributory pensions, painting a comprehensive picture of old-age income protection in different regions of the world. This paper also includes distributional impacts and analysis of the adequacy of benefits and parametric consistency of pension design. The data used in this report correspond to the administrative data of pension programs collected in the ASPIRE database, analysis of household surveys using the ADePT model, and analysis of pension parameters using a simplified actuarial calculator developed by the World Bank.

The report focus is on pension programs that cover the risks of old age, disability, and survivor retirement income. Although other social insurance programs—such as maternity benefits or occupational injuries—are also important, the focus on pensions is due to their higher prevalence and importance in total social spending for most countries, the higher impact that aging populations will have in this type of programs, and the greater data availability for pension programs.

Aging Will Affect All Regions of the World, Many at a Rapid Pace

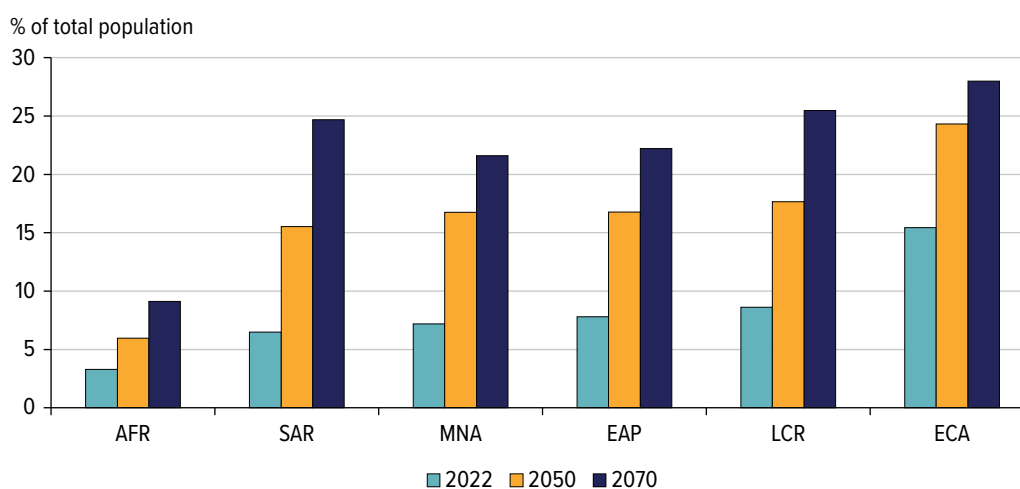
Population aging is a global phenomenon, but the pace and intensity of aging varies between and within regions. Currently, Europe and Central Asia is the region with most advanced aging structure. The proportion of the population ages 65 or older in Europe and Central Asia is 15.4 percent, followed by Latin America and the Caribbean with 8.6 percent. East Asia and the Pacific, the Middle East and North Africa, and South Asia are between 7.8 percent and 6.5 percent, while Sub-Saharan Africa is the youngest region with only 3.3 percent of population ages 65 or over.

All regions will experience rapid population aging in the coming 30 to 50 years. According to this measure, by 2050, the population of all regions, except Sub-Saharan Africa, will become as old as the population of Europe and Central Asia today. The proportion of the population ages 65 and over will reach 15 percent globally and in all regions, except Sub-Saharan Africa, at least 15.5 percent of the population will be 65 years of age or older. By 2050, Sub-Saharan Africa is expected to have 6 percent of its population ages 65 or over.

By 2070, the aging process is expected to continue at a rapid pace, especially in South Asia and the Middle East and North Africa. South Asia is expected to go from 6.5 percent of its population ages 65 and over today to 15.5 percent by 2070. The Middle East and North Africa is expected to go from 7.2 percent to 16.8 percent in the same period. These are more rapid changes than what developed countries experienced in their aging processes, leading to the by-now common assertion that developing countries will become old before they become rich, contrary to the experience of developed countries that became rich before becoming old. In any case, the most aged region today, Europe and Central Asia, will go from 15.4 percent to 24.3 percent, underscoring the prevalence of the aging process.

Population aging will have important implications for growth, productivity, and pension policy. Among many other determinants, demographic dividends³ have played a role in sustaining growth for middle-income countries in the past. As societies age, this dividend dissipates, and countries must reinforce other policies and institutions to maintain growth. A more aged labor force needs to become more productive to maintain growth levels with a reduced working-age population. Education, training, and labor regulation and policies, among other aspects, need to be reviewed and strengthened in the context of an aging population.

3. Demographic dividend refers to the potential for additional economic growth derived from a population age structure in which the working-age population (15–64) has increased in relative terms with respect to the child (0–14) and elderly population, which are traditionally considered ‘dependent’ population.

FIGURE 2.1 All Regions, Except Sub-Saharan Africa, Will Age Rapidly*Percentage of the population age 65 and over by region (2022, 2050, 2070)*

Source: United Nations Population Prospects.

Countries will need to assess and adapt their pension systems to the realities of an aging population. As populations age, demand for adequate and predictable retirement income will increase. Countries will need to meet that demand with a set of policies and regulations that balance fiscal sustainability, coverage and adequacy of benefits. Some countries with well-established pension systems will need to make changes to sustain the fiscal costs associated with the system, as we have seen in more advanced economies in Organisation for Economic Co-operation and Development (OECD) countries.⁴ Countries with more limited reach of their pension systems will need to find ways to develop these systems further, increase coverage, and improve adequacy to provide income security in old age to an increasingly older population.

The rest of the paper will assess the current state of pension and social insurance systems around the globe. The following sections will analyze the level of expenditures, extent of coverage, adequacy of benefits, and some indicators of sustainability of pension systems in a sample of World Bank client countries covering all regions of the world. While the analysis in the report aims to present the status of pension systems in recent years, including during and around the COVID-19 pandemic, future evolution of the system in the presence of demographic aging should always be considered by the reader and policy makers.

4. OECD 2023.

Contributory and Social Pensions as Instruments for Income Protection in Retirement

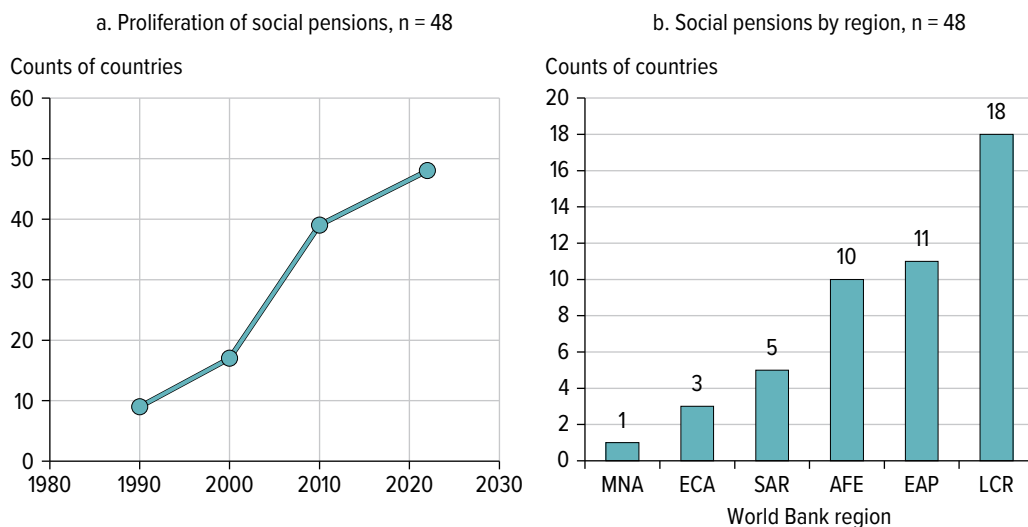
This report covers government-mandated pension plans, including non-contributory pension programs—henceforth referred to as ‘social pensions’—which could be either universal/pensions-tested or means-tested, and earnings-related pension systems for public sector employees, private sector employees, or both within an integrated pension system, covering public and private sector employees alike. Additionally, information on emerging schemes intended to cover informal sector workers will also be included.

We use administrative data collected on the ASPIRE database on pension programs worldwide to analyze expenditure and coverage trends. We focus on contributory schemes that are mandatory for all or part of the population in each country. We have selected countries for which we have enough complete data on the main mandatory earnings-related pension programs, amounting to a total of 192 contributory pension programs in 102 countries. These tend to be mandatory social insurance schemes for all the population or special schemes that are mandatory for all private sector workers or for public sector workers in the civil service. Depending on their importance in terms of coverage or expenditure, we have also included special pension programs, such as those for military or uniformed services in some countries. We also focus on countries for which we have sufficiently recent data with the last observation between 2020 and 2022. It is relevant to note that this period includes the effects of the COVID-19 pandemic and its aftermath on the economy.

Contributory pensions can be classified by the intended population to be covered. Some pension programs are intended to cover all salaried workers, whether they are in the private or public sector. We call these pension schemes ‘integrated’ as they encompass both sectors of the economy. Many pension programs were implemented initially only for public sector workers. In these cases, private sector workers might have their own special pension schemes or not be covered at all. Therefore, contributory pensions can be classified into three groups: integrated, public sector, or private sector. These categories include mandatory contributory schemes; therefore, we exclude voluntary schemes that might cover other workers. In most cases, we also exclude special regimes that cover groups such as the military, judges, parliamentarians, and so on, focusing on public sector pension schemes that cover the civil service.

FIGURE 3.1 Social Pensions Have Expanded Rapidly, Especially in Latin America and the Caribbean, East Asia, and the Pacific and Sub-Saharan Africa

Growth and regional distribution of social pensions



Source: World Bank, ASPIRE administrative data - <https://www.worldbank.org/aspire>.

Despite the long history of social pensions, they have gained prominence in the last two decades. In this report, recent data have been made available for 48 World Bank client countries, most of which are low- and middle-income countries. As shown in Figure 3.1, there has been an accelerating trend in countries adopting social pensions, with 31 countries introducing social pensions since 2000, compared to only 8 in the previous decade ($n = 48$).

While policy makers worldwide have introduced social pensions, in recent decades such programs have been particularly prevalent in Latin America and the Caribbean. This can be explained by a commodity boom that provided additional fiscal space and political economy motivations,⁵ but the result is an expansion of coverage to those outside formal labor markets, or those unable to afford contributory pension plans. Five⁶ of the eight countries in South Asia have non-contributory schemes targeted to the elderly.

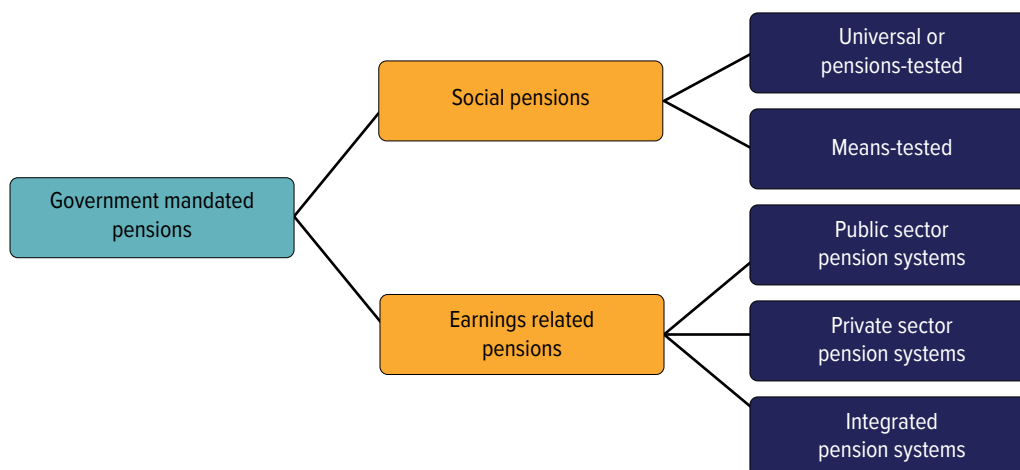
Non-contributory or social pensions serve disparate roles in the social protection sector across countries and vary in several aspects of their design, such as eligibility age, benefit amount (generosity), and administrative arrangements. They are referred to as non-contributory pensions because entitlements are not based on employment or a record of payroll contributions. Non-contributory schemes addressing old-age poverty and vulnerability can be part of social assistance programs, which help households in poverty, including older persons, or stand-alone programs, which consist of self-standing social pension schemes focused explicitly on older groups. In some countries, social pension programs serve as a backstop to government-mandated contributory

5. Apella, Rofman, and Vezza 2014.

6. Bhutan, Afghanistan, and Pakistan do not have social pensions targeted to the elderly.

schemes characterized by extensive coverage (such as middle-income countries throughout Europe and Central Asia). These programs often incorporate internal redistribution mechanisms, such as minimum pensions, ensuring a safety net for individuals within the contributory system. At the opposite end of the spectrum, there are countries in which non-contributory pensions are universal or near universal: that is, anyone above the eligibility age can receive the benefit, regardless of any other source of income or contributory pensions (normally subject to certain residency or citizenship requirements (for example, Bolivia, Botswana, Eswatini, Georgia, Guyana, Kosovo, Mauritius, Namibia, Seychelles, and more recently Mexico⁷ and Chile⁸).

FIGURE 3.2 Categorization of Pension Programs Included in the Analysis



7. In 2020, Mexico elevated the Older Adult Welfare Pension (*Programa de Pensión para el Bienestar de las Personas Adultas Mayores*) to constitutional status, establishing the right to an old-age social pension for all citizens and encouraging its continuation into the future

8. In January 2022, Chile adopted Law No. 21,419 establishing a new, near-universal old-age social pension (*Pensión Garantizada Universal*, PGU) for legal residents ages 65 or older. The pension includes all individuals except those in the richest 10 percent of the population. The reform replaces the country's previous solidarity top-up (*Aporte Previsional Solidario de Vejez*) and solidarity social pension (*Pensión Básica Solidaria de Vejez*), which targeted older persons in the poorest 60 percent of the population. Under the new program, which was fully implemented in August 2022, all legal residents ages 65 or older and living in households assessed to be in the bottom 90 percent of the country's income distribution are eligible to receive a social pension provided they have lived in Chile for at least 20 years after reaching the age of 20 (including at least four of the five years immediately before claiming the benefit).

4

Pension Expenditures Are Significantly Affected by the Level of Aging

Expenditure on pension programs summarizes the size of resources that are being transferred to beneficiaries and retirees due to old age, disability, or survivorship. Classification of these types of benefits is needed. Non-contributory pensions are solely financed by general revenues or other sources of public financing, without reliance on any source of financing from beneficiaries. Contributory pensions are at least partially financed by contributions made from individuals who qualify for benefits. Therefore, not all pension expenditure figures presented in this section correspond to expenditure financed by general revenues, as social insurance and contributory benefits rely, at least partially, on their own sources of financing.

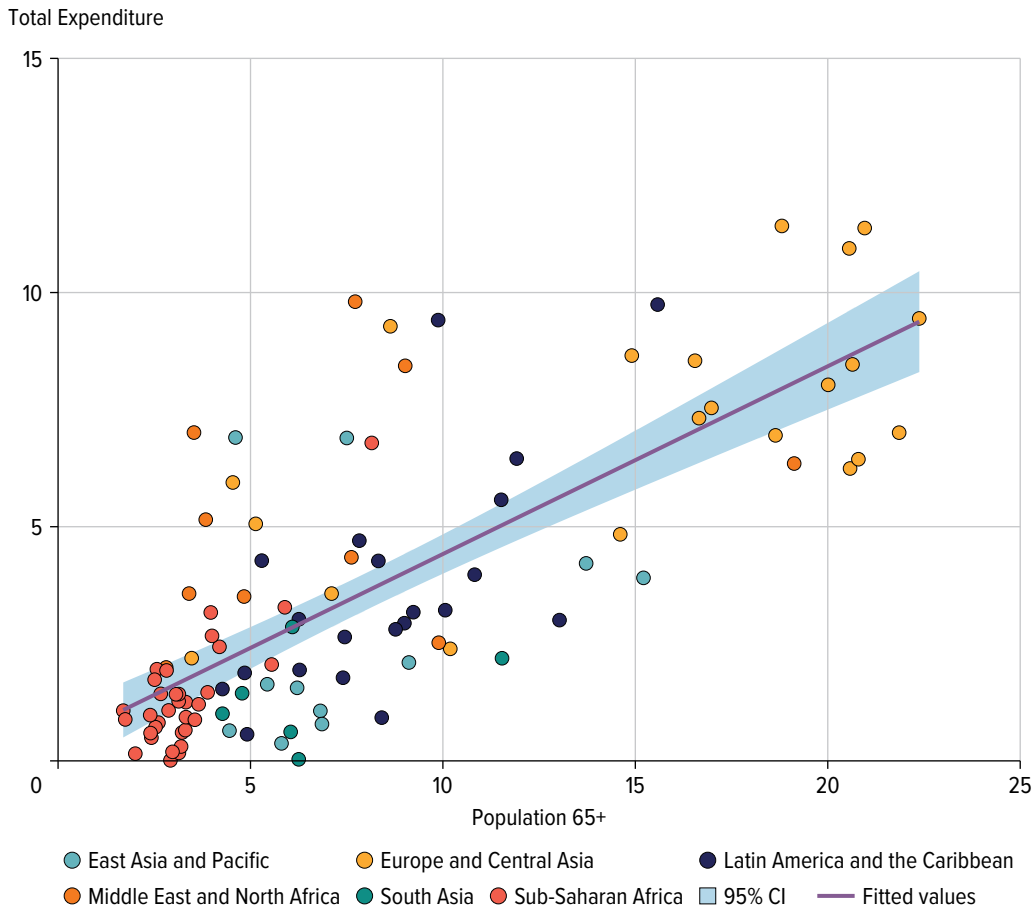
Aging of the population is a critical aspect to explain pensions and social insurance expenditure. It is expected that the higher the level of aging in a country, the higher the level of expenditure. Lower-than-expected levels of expenditure for a certain level of aging in the population may indicate lack of coverage or poor adequacy of benefits. On the other hand, higher-than-expected levels of expenditure may signify problems of sustainability, as further demographic aging is expected to translate to additional financial pressure to sustain increasing levels of expenditures.

Figure 4.1 shows the relationship between the level of aging in a country (measured as the proportion of the population that is 65 years and over) and total expenditure on pensions and social insurance in the country.

As expected, there is significant positive correlation between the aging situation of a country and its total expenditure on pension benefits. There is also a clear pattern of aging status across regions, from the advanced aging situation in Europe and Central Asia to the relatively young populations in Sub-Saharan Africa. A fitted values line has been added to represent the average level of pension expenditure given the aging situation of each country. As further aging is expected in all regions, most if not all points in the graph should move to the right as time passes, leaving open the question of how much they will move in the vertical dimension, that is, how countries will adjust their pension expenditures as they experience demographic aging.

FIGURE 4.1 Pension Expenditure Is Positively Correlated with Aging, but Significant Variation Remains

Pension expenditure as proportion of gross domestic product (GDP) and aging (%)



Source: World Bank, ASPIRE administrative data and World Development Indicators (WDI).

Countries significantly above the fitted line face a challenge of *sustainability* of pension expenditure as their populations age. These countries are spending today significantly more than the average for their level of aging, and it is worth wondering whether they will be able to maintain this level of spending or will need to introduce changes to their pension systems to be able to afford providing retirement benefits to a larger elderly population. Although average expenditure at any level of aging is not necessarily a measure of sustainability, countries significantly above the average will be more stressed in terms of spending as their population continues to age.

Countries significantly below the line might face challenges in *coverage* or *adequacy* of pension benefits. If a country is spending less than expected for its level of aging, this may be due to lack of coverage of significant portions of the elderly population (for example, due to a large informal sector or lack of programs covering relevant portions of the workforce). Even if coverage is large, low levels of expenditure may indicate that the level of benefits is not adequate to provide significant income replacement during retirement. These countries may face social pressures to

increase coverage or improve adequacy as their societies age, with the resulting need for additional financial resources to support those benefits.⁹

In terms of regional variation, the highest total average pension expenditure is observed in Europe and Central Asia, with 7.4 percent of GDP, followed by the Middle East and North Africa with 5.5 percent of GDP. The lowest spending region is Western Africa with 1 percent of GDP on average.

4.1 Mature, Well-Established Pensions Show the Largest Expenditures, but Special Regimes Constitute Significant Pension Costs in Less-Developed Countries

Countries with well-established and mature pension systems exhibit high levels of pension expenditure, which is especially the case in Europe and Central Asia and some countries in Latin America. Most pension systems in Europe and Central Asia and Latin America and the Caribbean are integrated, covering the entire population of workers in the formal sector. In Latin America and the Caribbean, some countries also have public sector pension schemes that provide additional benefits. Expenditure on integrated contributory pension systems reaches 7.0 percent of GDP on average in the Europe and Central Asian countries in our sample and 1.9 percent in Latin America and the Caribbean.

Countries with fragmented pension systems that cover public and private sector workers under separate schemes tend to have higher levels of expenditure than countries with integrated systems. Some countries have implemented pension systems in a piecemeal fashion, covering part of the labor force, such as the public sector or certain private sector occupations. Six of the ten countries in our sample for the Middle East and North Africa have separate pension provisions for public and private sector workers, and in five of them public sector pension expenditures are larger than private sector ones. Of the 21 Latin America and the Caribbean countries, 4 have separate private sector pension schemes. In Latin America and the Caribbean, total contributory expenditure averages 3.1 percent of GDP in countries with integrated (and public sector) pension systems, while it is 4.1 percent in the four countries with separate schemes for the public and private sectors.¹⁰

Expenditure on public sector pensions constitutes fiscal costs even in systems that are contributory. Public pensions are usually financed by general revenue, and even when a contribution has been established, it is usually an accounting transfer from one public purse (payment of remunerations) to another (pension fund).¹¹ Public sector pensions are the main

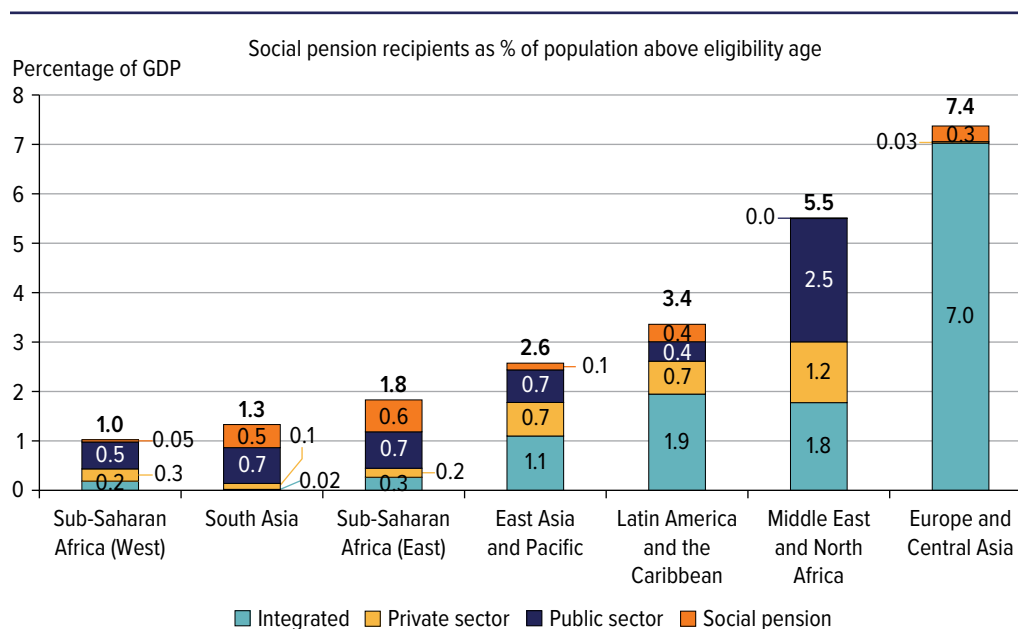
9. Another important distinction in the effect of aging on pension systems comes from the type of pension design. Increased longevity in DB systems will translate into sustainability challenges as the same benefit needs to be paid for a longer period but might generate adequacy challenges in a DC system, since the same balance at retirement needs to finance a longer period.

10. The latter average is mainly influenced by the figures from Brazil, which spends 9.1 percent of GDP on contributory pensions for their public and private sector schemes combined.

11. In the few cases where an independent pension fund has been established to pay public sector pensions, only the payment of contributions constitutes direct fiscal costs for the government.

FIGURE 4.2 Mature Systems Show Higher Expenditures, but Less Mature Systems Lack Consolidation

Pension expenditure by type of pension across regions



Source: World Bank, ASPIRE administrative data - <https://www.worldbank.org/aspire>.

component of pension expenditures in the Middle East and North Africa, South Asia, and Sub-Saharan Africa. This indicates that a sizable portion of expenditure is being devoted to paying benefits to the relatively small proportion of workers who are in the public sector, and this makes up a significant component of fiscal expenses, including in countries with limited fiscal space. On average, expenditure on public sector pensions in the Middle East and North Africa reaches 2.5 percent of GDP, while integrated systems on average represent 1.8 percent of GDP. Separate provision of public sector pensions is prevalent in Sub-Saharan Africa, with 27 out of 33 countries having special public sector pension scheme. Five of these countries offer no other contributory coverage for private sector workers. Ten countries have integrated systems, but four of these also offer a supplemental public sector pension. Average contributory expenditure in the 10 countries with integrated systems reaches 0.9 percent of GDP, while those with fragmented systems spend 1.2 percent of GDP on average.

As contributory schemes that run deficits are subsidized by the governments, the distinction between contributory and non-contributory expenditures becomes murky in some cases. In Europe and Central Asia, although countries spend on average 7 percent on contributory schemes, part of that figure corresponds to fiscal expenditure that subsidizes benefits through the contributory schemes. Therefore, although only three countries in our sample run social pension programs, other countries in Europe and Central Asia are financing pension benefits from general revenues within the contributory system instead of explicitly through a non-contributory benefit. This is not only the case in Europe and Central Asia, as it applies to any contributory system that receives government financing to cover contributory deficits.

4.2 Expenditure on Non-Contributory Pensions Mirrors Their Coverage Target

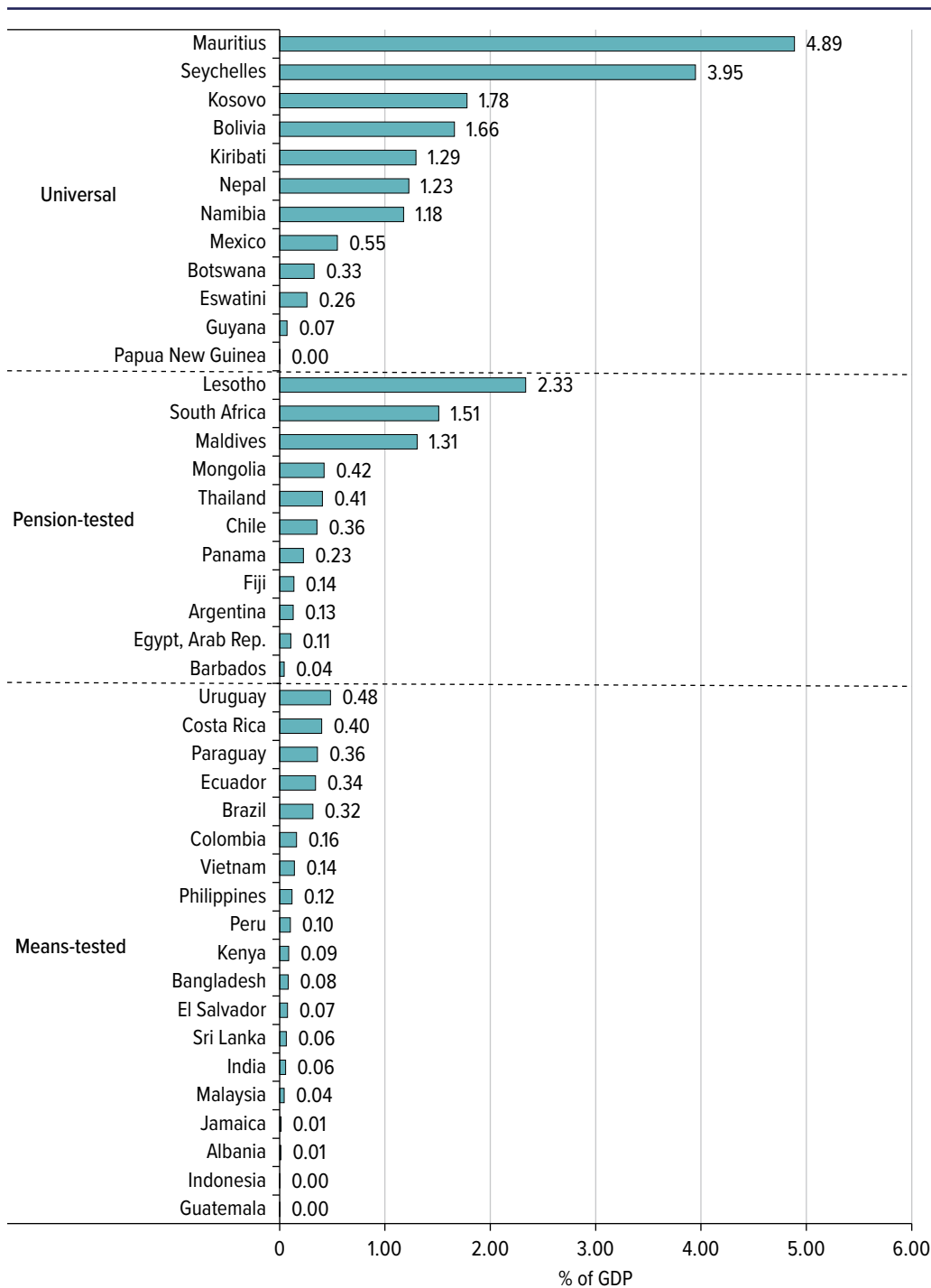
The diversity in targeting criteria observed for social pensions explains much of the differences observed in social pension expenditure, with universal programs being more expensive than targeted programs in general, especially if the size of the population above eligibility age is greater. In currently demographically younger countries, such as Guyana and Mexico, despite its universal nature, social pension expenditure is lower than in some other countries where societal aging is already at a more advanced stage. The level of benefits is another important factor influencing social pension expenditure. Some countries, including Botswana and Eswatini, have chosen universality at lower benefit levels while others (Mauritius, Namibia, and Seychelles) aim for both universality and a higher degree of benefit generosity, affecting their level of expenditure.

Expenditure on social pensions is comparatively lower than expenditure on contributory regimes, but some countries are using social pensions to provide benefits to populations not covered by contributory schemes. In Europe and Central Asia, average expenditure on social pensions reaches 0.3 percent of GDP, but this figure is significantly affected by the Universal Old Age Pension in Georgia, which accounts for 4.8 percent of GDP and the Universal Basic Pension of Kosovo with 1.8 percent of GDP. Social pensions are also extensively used in Latin America, with 16 of the 21 countries in our sample using some form of non-contributory pension, making up an average of 0.5 percent of GDP. The programs with the highest expenditure in the region are the universal pension in Bolivia, with 1.7 percent of GDP and the semi-universal Senior Citizens Pension in Trinidad and Tobago with 2.5 percent of GDP.¹² In South Asia, four countries have social pensions, but only the cases of Maldives and Nepal are significant, with expenditures of 1.3 percent and 1.4 percent of GDP, respectively. Similarly, in Sub-Saharan Africa, 10 countries spend an average of 1.1 percent each on social pensions.

Expenditure trends mirror program coverage and benefit levels. Expenditure is the highest in Mauritius and Seychelles, which also have the largest share of individuals ages 60 and older and pay the highest non-contributory pensions. Seven of the 10 countries for which data are available in the East Africa region provide universal or near-universal old-age pensions. In Europe and Central Asia, social pensions play a small, complementary role. We observe no social pension programs in West Africa and very few in the Middle East and North Africa.

12. Other countries such as Chile and Mexico are transitioning to a universal basic pension provision model. See <https://www.issa.int/analysis/social-pensions-americas-recent-developments>.

FIGURE 4.3 Social Pension Expenditure as Percentage of GDP in Select Countries



Source: World Bank, ASPIRE administrative data - <https://www.worldbank.org/aspire>.

BOX 4.1 Pension Systems and COVID -19 Response¹³

Countries adopted a series of measures in response to the economic effects of COVID-19, during both 2020 and 2021, including some related to pensions and social insurance systems. Broadly speaking, measures related to pensions can be classified in four general categories:

1. Contribution waivers, holidays, or subsidies
2. Additional benefits
3. Administrative adjustments
4. Early withdrawals of pension savings.

As COVID-19 had an immediate impact on economic activity, paralyzing economies in many cases due to social distancing restrictions, countries adopted contribution waivers or subsidies to reduce the burden on employers. These usually accompanied other tax measures such as reduction or postponement of tax payments. In DB or Pay-as-you-go (PAYG) schemes, these measures affect the funding of the pension agency, while in funded schemes, they directly affect the future pensions of participants. However, these measures had a limited impact due to their temporary nature. This was the most observed measure in our review of country experiences, as it was observed in 115 countries, with up to 261 different measures.

Many countries provided additional benefits to current pensioners, such as top-ups, one-off payments, increased indexation, or higher minimum pensions. In most cases, these benefits were financed by general revenues, but some countries used pension system resources, affecting the level of funding in the pension schemes. Additional benefits were observed in 31 countries, with 44 measures. One-off pension top-ups were implemented in countries such as Argentina, Canada, the Czech Republic, Serbia, and Türkiye. Permanent pension increases were observed in Cameroon, Egypt, Georgia, and Uzbekistan.

Given the lockdowns imposed to fight the spread of the virus, many pension systems had to adapt their administrative systems and delivery mechanisms to ensure continuity of services. Introducing remote payment mechanisms and allowing third parties to collect benefits were the most common measures, while the use of digital technologies and online platforms is still rare in the area of pensions in developing countries. Our review has collected 15 instances of delivery or administrative adjustments in 13 countries that were widely announced. However, it is possible that pension systems had to introduce many more administrative adjustments in their operations that are not captured in this review. Pension delivery was modified in countries such as Algeria, Armenia, Bulgaria, Serbia, and Uruguay, while Brazil introduced the option of presenting proof of life using a mobile app.

While most COVID-19 responses had limited or temporary effects on pension systems, the measure that may have had the most lasting and damaging effect on future pensions was the early withdrawals from pension funds adopted in some countries. While voluntary schemes tend to provide some level of flexibility with certain conditions, mandatory schemes traditionally prevent any sort of early access to savings until eligibility conditions are met. Loosening regulations on pension withdrawals may provide short-term relief but it compromises the adequacy of future retirement income. At least nine countries (Australia, Chile, Iceland, India, Kosovo, Malaysia, Peru, Spain, and the United States) adopted temporary rules for private pension accounts allowing for early withdrawals. The cases of Australia, Chile, Kosovo, and Peru are the most salient examples of early withdrawals from pension savings, with Chile and Peru in particular allowing withdrawals in up to three separate instances.

(continued)

13. Based on Gentilini et al. (2022).

BOX 4.1 Pension Systems and COVID -19 Response *(continued)*

In Australia, there were around 4.5 million withdrawal applications from 2.6 million people and a total of AUD 37.8 billion pulled out of people's savings, corresponding to 1 percent of assets or 2 percent of GDP.¹⁴

In Peru, Congress authorized pension fund withdrawals due to COVID-19 in 2020, 2021, and 2022 (plus an additional one as recent as 2024), totaling close to 11 percent of GDP withdrawn from pension funds.¹⁵

While Chile had accumulated pension funds equivalent to 80 percent of the country's GDP before the pandemic, through three subsequent early withdrawal authorizations, pension system members withdrew a total of 18 percent of GDP from their individual savings accounts.¹⁶

14. Australian Taxation Office 2023.

15. Superintendencia de Banca Seguros y AFP 2023.

16. Superintendencia de Pensiones 2021.

Coverage of Pensions and Social Insurance

5.1 Coverage in Working Age Is Determined by Extent of Formal Employment

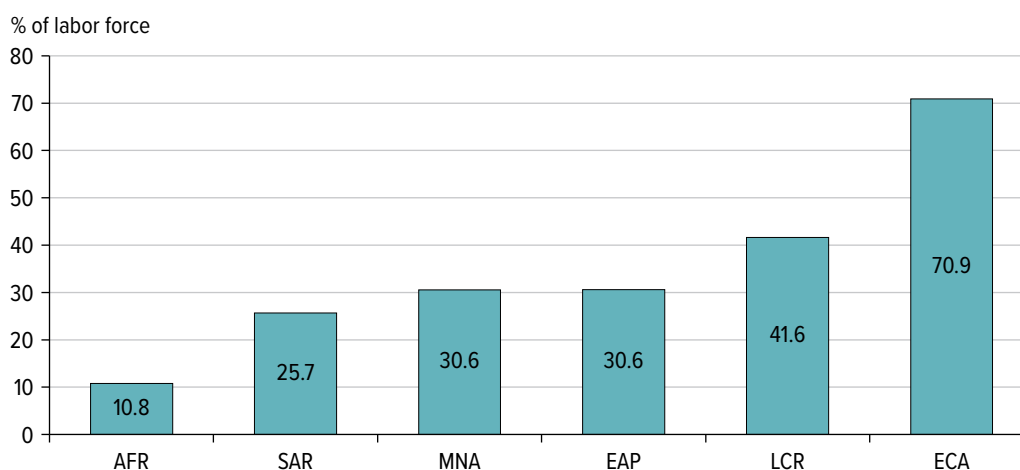
The extent to which contributory programs will be able to provide income support in retirement is largely determined by the number of people who contribute to them in working age. Demographics and labor market composition are the main factors that affect contributory coverage. The potential number of contributors is determined by the size of the working-age population. Labor market composition will determine how much of the working-age population contributes.

The level of formality in the labor market and the definition of the target population for pension schemes are the main determinants of contributory coverage in the pension systems we observe. To contribute to a pension program, individuals must be working in formal jobs that pay contributions. Low participation, high unemployment and, more critically, high labor informality will limit the coverage of contributory programs. In addition, design elements of programs might also limit their coverage. In particular, mandatory programs that aim at only part of the population, such as public sector workers or specific categories of private sector workers, will have limited coverage.

We measure contributory coverage as the number of total contributors into mandatory pension schemes as a percentage of total labor force in each country. To avoid double counting of contributors, in countries where there is an integrated scheme, we only count contributors into the scheme that covers the entire population. In countries with separated schemes, we add up contributors (for example, private sector scheme contributors are added to public sector schemes), assuming that contributions are mutually exclusive.¹⁷

The region with the largest contributory coverage is Europe and Central Asia, where, on average, 70.9 percent of the labor force in the countries included in our sample is contributing to a pension scheme. This reflects the high level of formal employment in these countries, which has enabled pension systems based on payroll contributions to achieve high coverage of the population.

17. Two exceptions are Colombia and Peru, which run parallel integrated pension systems that compete for members. We have added contributors in both cases.

FIGURE 5.1 Contributory Coverage Is Higher in Countries with Higher Formal Employment*Coverage: Contributors as percentage of labor force by region*

Source: World Bank, ASPIRE administrative data - <https://www.worldbank.org/aspire>.

The region with the second largest contributory coverage after Europe and Central Asia is Latin America and the Caribbean, with 41.6 percent coverage of the labor force. Behind this average are countries with contributory coverage lower than 25 percent, such as Guatemala, Honduras, and Nicaragua, and countries with coverage higher than 60 percent, such as Costa Rica, Chile, and Trinidad and Tobago. This variation underscores fundamental differences in the level of formal employment in the region, highly correlated with the level of per capita income in each country.

The Middle East and North Africa and East Asia and the Pacific present similar levels of coverage at 30.6 percent of the labor force, with South Asia a little lower at 25.7 percent. These three regions are characterized by pension systems that are fragmented between private and public sector schemes, with not many integrated systems. For example, the lowest coverage levels observed in these regions are in Cambodia and Myanmar, which have pension systems that only cover public sector workers.¹⁸ The narrow definition of the target population, coupled with the incidence of informal employment, explains low contributory coverage in these countries.

Sub-Saharan Africa presents the lowest contributory coverage with an average of 10.8 percent of the labor force. The region is also characterized by very high levels of informality and pension schemes that only cover public sector workers and the very few formal employees in the private sector, leaving uncovered vast sectors of the population that work informally or are self-employed and are more vulnerable.

18. Cambodia started pension coverage of private sector employees in its National Social Security Fund in 2022. Myanmar enacted a social security law in 2012, but old-age (superannuation), disability, and survivors' benefits have not yet been implemented.

5.2 Beneficiary Coverage

5.2.1 Contributory Beneficiary Coverage is Linked to Aging, While Non-Contributory Benefits are Emerging to Fill Part of the Coverage Gap

The aim of contributory pension programs is to provide benefits in cases of old age, disability, or survivors. Lack of contributory coverage will generally translate into low beneficiary coverage. Furthermore, as a population ages, it is expected that more pension system participants will qualify for benefits. If relevant pockets of the population remain uncovered, this lack of income security will become more notorious. It is also expected that larger proportions of the population will increase their demand for more and better income protection from policy makers.

The proportion of pension beneficiaries in the population is higher in countries that (a) are at an advanced stage of aging and (b) have achieved high contributory coverage. In broad terms, coverage can be ascertained by comparing the total number of benefit recipients with the total population, based on administrative data that capture pension payments. This measure is the broadest possible as it includes old age, disability, and survivor recipients. Given this, there is the possibility of double counting individuals, as some beneficiaries may be receiving more than one benefit (for example, old age for their own contributions and survivors as a surviving spouse). Nevertheless, it provides a first glance of the extent of benefit coverage in a given country.

FIGURE 5.2 Contributory Beneficiaries are Related to Aging and Formalization, While Non-Contributory Benefits are Implemented in Some Countries with Low Contributory Coverage

Total number of beneficiaries as percentage of the total population of the region



Source: World Bank, ASPIRE administrative data - <https://www.worldbank.org/aspire>.

The region with the highest proportion of people benefiting from contributory pensions is Europe and Central Asia, where 21.1 percent of the total population are benefit recipients.

This is a result of the high degree of aging combined with the high coverage achieved by the mature contributory schemes present in the region. The data on non-contributory social pensions for six countries in Europe and Central Asia indicate that beneficiaries reach 10.7 percent of the total population on average. This result is highly influenced by Georgia, where social pension beneficiaries make up 40.3 percent of the total population and the social pension constitutes the main retirement income protection program, in the absence of a meaningful contributory scheme.

Total beneficiaries reach 7.5 percent of the population on average in the Middle East and North Africa. Egypt is the only country in the region that has a social pension, and this reaches 1.6 percent of the population. In East Asia and the Pacific, beneficiary coverage of contributory pensions reaches 5.8 percent on average, while in the four countries with social pensions, beneficiary coverage of non-contributory pensions reaches 6.1 percent of the total population. Beneficiary coverage of contributory pensions reaches 22 percent in Tonga,¹⁹ while Thailand's social pension stands out among social pensions in the region with 11.9 percent of the total population as beneficiaries.

Despite having a population at slightly more advanced age, Latin America and the Caribbean exhibits a lower beneficiary coverage than East Asia and the Pacific or the Middle East and North Africa, at 5.7 percent of the total population. Social pensions are extensively used in the region, and they cover on average 4.3 percent of the population in the countries where they are present. It is interesting to notice that some countries use non-contributory pensions to close the coverage gap of contributory benefits, as in Bolivia, where contributory benefits represent 1.9 percent of the population while the social pension reaches 9.5 percent of the population. Other countries—such as Chile and Trinidad and Tobago—use social pensions as part of the package of benefits that retirees receive, as many beneficiaries would receive both a non-contributory and a contributory benefit. In these cases, more than closing a coverage gap, non-contributory benefits are improving the adequacy of retirement income.

Given their relatively younger populations and limited coverage of contributory schemes, South Asia and Sub-Saharan Africa have the lowest contributory coverage, as beneficiaries make up 1.3 percent and 1 percent of the total population on average, respectively. Four of the six countries in our sample for South Asia have non-contributory pensions that cover on average 5 percent of the population. Nepal and Maldives stand out with around 7.5 percent of the total population as beneficiaries. For Maldives, the social pension is the main source of retirement income, as contributory benefits reach only 0.3 percent of the population.

Some countries in Sub-Saharan Africa are incipiently using social pensions to expand coverage of retirement income benefits. Apart from the long-standing social pension in South Africa, which reaches 12.6 percent of the population, Seychelles' universal retirement pension introduced in 2010 reaches 11.3 percent of the population, while Eswatini and Botswana have non-contributory pensions that reach 6.0 percent and 4.4 percent of the population, respectively.

19. For a review of pension and social protection systems in Tonga and the Pacific Islands, see World Bank (2023).

5.2.2 Old-Age Contributory Beneficiaries Follow System Maturity, While Non-Contributory Coverage is Largely Determined by Target Population of Social Pensions

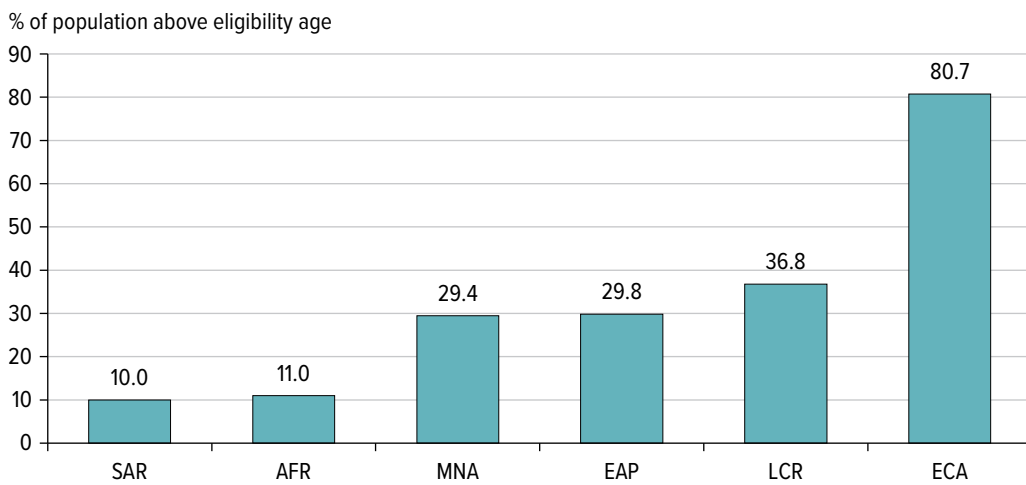
One of the main yardsticks to assess the performance of pensions systems is the proportion of the elderly population with access to pension benefits. Coverage of old-age populations can be ascertained by looking at the number of old-age beneficiaries as a percentage of the eligible population. As the age structure of the population and eligibility age for benefits differ across countries, we use the specific statutory retirement age for each country as the basis to compare the number of old-age beneficiaries receiving pension payments in the country. This provides us with a measure of coverage that is country specific but is also comparable, as it reflects the reach of benefits within the intended population for each program.

As in the case of contributory coverage, countries with higher levels of formal employment achieve higher old-age coverage of benefits. Average coverage of old-age populations is highest in Europe and Central Asia, with on average 80.1 percent of the target population receiving old-age benefits. This is more than double the average coverage reached in Latin America and the Caribbean (at 36.8 percent of the target population). The Middle East and North Africa and East Asia and the Pacific regions exhibit similar coverage levels (close to 30 percent), while Sub-Saharan Africa and South Asia exhibit the lowest coverage (around 10 percent on average). These numbers, once again, reflect the extent of contributory coverage given the degree of formalization in the labor market but paint a clearer picture of the coverage gaps that remain in the specific group of the old-age population, a group that will increase in size due to population aging.

Coverage of social pensions among the elderly varies according to the degree of targeting and the eligibility age that the country sets for receiving benefits. One approach to universal coverage of older individuals, while controlling the cost of social pensions, is to increase the retirement age, restricting eligibility to a smaller pool of recipients. The lowest eligibility age is found for Colombia's means-tested social pension (59 years for men and 54 years for women) while the highest is in Jamaica at age 75. In addition, as we saw in the expenditure section, social pensions will vary in the degree of targeting from defining narrow poverty requirements to universal access, affecting the level of coverage they can provide within the eligibility group.

Social pension programs with universal eligibility can reach 100 percent of their target populations. This is the case in countries such as Bolivia, Guyana, and Lesotho. In Maldives, even though the pension is not universal, the income threshold is quite high, which explains the near universal coverage of 95 percent of the population above the age of eligibility. In countries using means-test or income-test eligibility, the coverage of non-contributory pensions is largely determined by how strict the targeting is for the program.

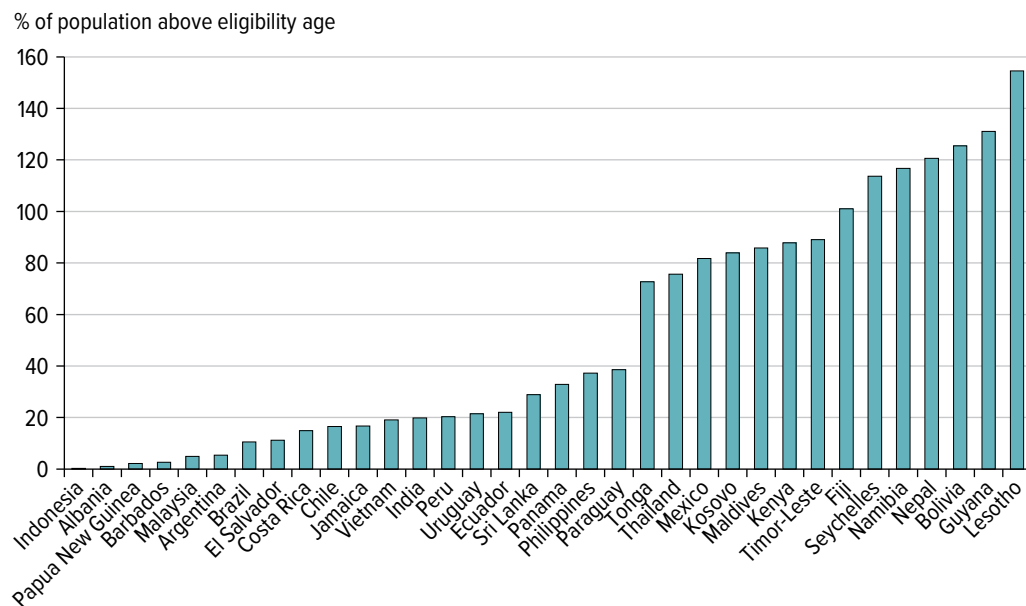
FIGURE 5.3 Average Contributory Pensions Coverage of Eligible Old-Age Population by Region



Source: World Bank, ASPIRE administrative data - <https://www.worldbank.org/aspire>.

FIGURE 5.4 Universal or Not? Targeting Determines Coverage of Social Pensions

Social pension recipients as % of population above eligibility age



Source: World Bank, ASPIRE administrative data and WDI.

5.3 Expanding Coverage to the Informal Sector through Voluntary Pension Schemes

Most government-mandated pension systems exclude workers in the informal sector, the self-employed, business owners, and workers employed in smaller enterprises. As the bulk of employment in emerging and developing economies occurs outside the formal sector, this means

most workers simply fall outside the purview of formal sector social insurance systems. Some countries have tried to address this issue by amending existing social insurance regulations to enable informal sector workers to participate in formal economy social insurance schemes, often with limited success, primarily because the existing schemes for the formal sector do not respond to the needs of the informal sector, given their lack of steady income and payroll deduction. Others have gone further to introduce parallel savings schemes that operate on a voluntary basis (Colombia, India, Kenya, Pakistan, Rwanda, and Thailand) and are specifically tailored to the unique characteristics and needs of informal workers.

There is wide variation in the benefit design of voluntary pension schemes globally, including DB and DC structure, size of the fiscal incentives, and the availability of other benefits as incentives to encourage participation besides old-age savings. However, most voluntary pension schemes (also known as long-term savings schemes or accounts) for informal sector workers tend to be DC schemes which in many ways resemble bank savings accounts and are therefore more intuitive and easier to understand. There are, however, some which operate as DB schemes, for example Viet Nam and two of the three schemes for informal workers in India (APY and PM-SYM²⁰). The advantage of a DB design is that it evokes a sense of guarantee in the minds of members, which can be useful when operating in a limited financial literacy environment. However, in some cases—for example, India’s PM-SYM—there is no defined indexation schedule for contributions or benefits, and this will eventually lead to an erosion of pension benefits because of price inflation. China combines DC and DB elements in its Rural and Urban Resident Scheme, providing a flat basic monthly pension in addition to individuals account savings after 15 years of contributions.

Evidence shows that the success of these schemes hinges partly on including flexible contributions, options for early withdrawal, and the availability of fiscal incentives.²¹ Informal sector workers earn relatively low and irregular incomes, and it has been shown that permitting contributions to be made in varying periods and amounts can make a difference (such as Kenya’s Haba Haba²²). Provision of matching contributions by governments, in many cases differentiated based on poverty status determined utilizing the social assistance system (for example, Rwanda’s Ejo Heza²³), have also been effective in encouraging savings especially among lower-income informal sector workers. China, Thailand,²⁴ Viet Nam, and India’s PM-SYM are among the schemes that also offer matching contributions for certain income groups, though there is a significant variation in the size of the fiscal subsidy across schemes and the pool of eligible members for the subsidy. Fiscal incentives alone do not appear to determine coverage of informal sector pension schemes, but they are an important feature. Offering fiscal incentives, especially in the initial years of operation, is intended to encourage individuals to save more, as ultimately low savings in the contribution phase will translate into lower pensions on retirement. Some schemes are stricter when it comes to ability to access savings before retirement age, while others impose no restrictions on withdrawals after a preset minimum period of contributions. While ability to tap into savings in emergencies is an attractive proposition for lower-income informal workers,

20. APY = Atal Pension Yojana; PM-SYM = Pradhan Mantri Shram Yogi Maan-dhan.

21. Guven 2019.

22. World Bank 2024.

23. Guven and Jain 2023.

24. Palacios and Jain 2021.

frequent withdrawals compromise the schemes' ability to deliver on its objective of achieving a certain level of benefit adequacy. While short-term accounts could be considered to incentivize long-term savings, the design needs to be carefully considered.

An equally important design element appears to be the bundling of short- and longer-term services and benefits. Bundling of short-term and longer-term services and benefits can be attractive if it is communicated well and if it allows informal sector workers to receive similar risk coverage to those the formal sector enjoys; for example, maternity, health insurance, sickness, and unemployment benefits. Rwanda's Ejo Heza also combines short- to medium-term benefits, such as life and funeral benefits, along with long-term savings for old age. In addition, it allows participants to withdraw 40 percent of savings above a preset level of fund balance for housing, school fees, and business investment needs.²⁵

Leveraging digital technology can help voluntary pension schemes for informal sector workers to reach scale faster. Rwanda's Ejo Heza utilizes digital technology in the registration and collection of contributions. Emphasizing digital efficiency, the scheme operates on an interoperable platform that integrates seamlessly with the government's national ID and social safety net databases, fostering a modern and inclusive approach to pension planning. As of March 2023, Ejo Heza had registered 3.1 million individuals—23.4 percent of the Rwandan population or 38.7 percent of the working-age population—many of whom are from low-income households. The number of active savers in Ejo Heza was 2.6 million as of March 2023. Rwanda's Social Security Board (RSSB) data show that as of March 2023 about 49 percent of the subscribers in Ejo Heza were women, while they accounted for only 32 percent of total contributors in the RSSB formal sector scheme. In Kenya's Mbao pension plan, payments are made through mobile money systems like MPesa or Airtel Money, which are widely accessible. There are minimal transaction fees, and members can check their account balance using their mobile phone. At the end of the year, they receive a statement on their phones for review and record-keeping. As of 2018, the Mbao Pension had about 100,000 members.

There is no single type of voluntary pension scheme design that is best for all countries interested in extending coverage to their informal sector workers. Countries can incorporate a mix of these measures according to their specific circumstances. Pakistan's Voluntary Pension Scheme—a tax-advantaged, self-contributory DC pension scheme—relies almost entirely on tax incentives to entice informal sector workers to save for retirement; the scheme also permits unlimited withdrawal of savings before retirement but without any tax advantages. Pakistan has also recently launched an additional instrument—Benazir Income Support Program (BISP) savings scheme—under which it provides a government match of 40 percent of gross savings up to a preset level to low-income workers at the end of the two-year pilot. The BISP savings scheme distinguishes itself by two unique features: government-provided matching contributions to encourage savings and integration with the existing infrastructure of the social registry (the National Socio Economic Registry, NSER), thereby becoming part of the broader social protection system, facilitating integration and continuity of social protection at operational level connected to the financial sector, enabling the BISP savings scheme to benefit from government investments in both the social protection sector and financial sector infrastructure.

25. Guven, Jain, and Joubert 2021.

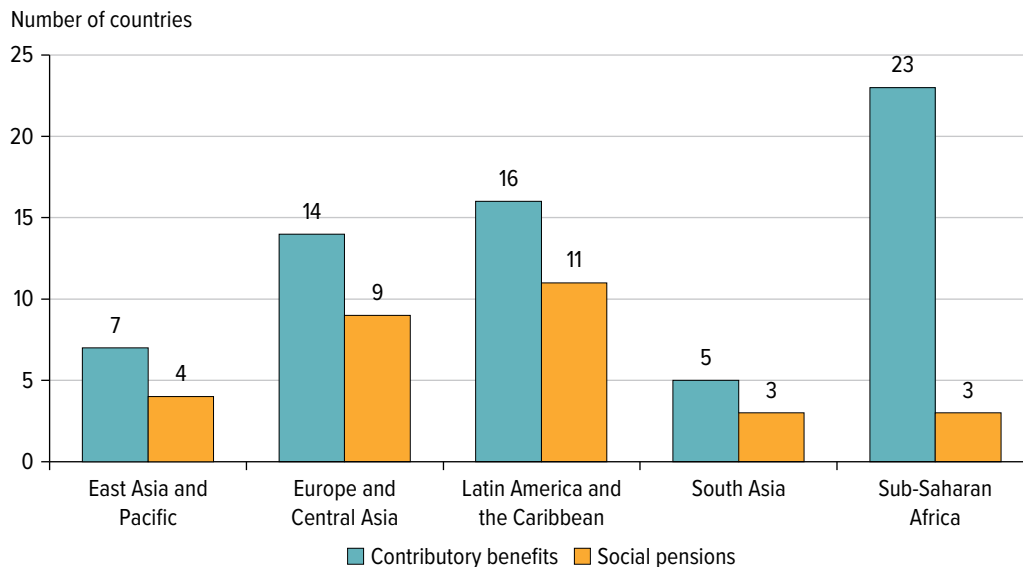
In addition to the more obvious incentives and best practices for informal sector pension schemes, many other factors need to be considered both during the planning stage and the initial years of operation. For example, raising awareness about the scheme among potential beneficiaries and creating public outreach campaigns aimed at instilling a savings culture among members can help boost uptake and encourage regular contributions by members. Countries with stronger digital infrastructure, including ID and payment systems and social registers, are seen to be better positioned to introduce innovative voluntary pension instruments to their large informal sectors and achieve coverage expansion. The success of informal sector schemes is also crucially dependent on engaging aggregators that can replicate the ‘observe and auto-deduct’ role that employers play for formal sector pension schemes. Proper governance frameworks, financial regulation, and awareness of the program among potential beneficiaries are also important factors policy makers need to keep in mind as they consider rolling out such schemes. It is also important to understand the characteristics of informal sector workers, including their ability to save, as well as to carry out a viability assessment to fully account for the up-front investments the government needs to make before the scheme breaks even. Inclusive monitoring aimed at learning and at correcting weaknesses both in the design and delivery of the scheme are important in providing a positive experience for members and ensuring the scheme is meeting its intended objective of contributing to old-age income security.

5.4 Coverage Tends to Increase with Income for Contributory Pensions and Decrease for Social Pensions

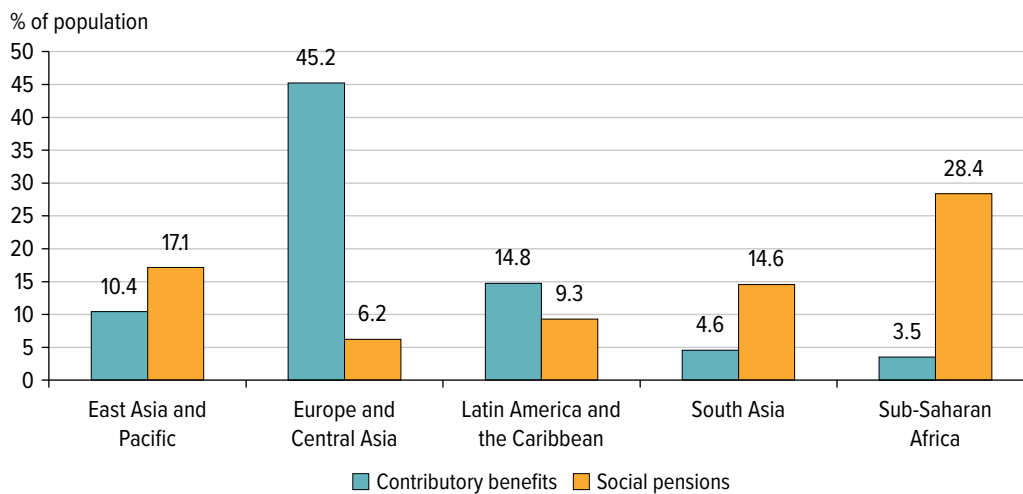
Using data from household surveys, we can also estimate the percentage of households receiving benefits from contributory or social pensions. Some household surveys include questions on receipt of pensions and amount and type of pensions that allow us to classify them into contributory or social pensions. In total, we have data on contributory pensions for 65 countries and social pensions for 30 countries. Unfortunately, the Middle East and North Africa is not represented in these samples.

The coverage measure presented here differs from what is captured from administrative data, as it counts direct and indirect beneficiaries of pensions. Therefore, it measures the number of individuals that reside in households receiving pension benefits as a percentage of total population. Contributory pensions reach 43.8 percent of the population in Europe and Central Asia, by far the largest overall coverage of all regions. This figure is followed by Latin America and the Caribbean, where 14.8 percent of the population benefit from contributory pensions and East Asia and the Pacific with 10.4 percent. Once again, the figures for Europe and Central Asia are explained by the reach of contributory systems, given the high levels of formality and the advanced stage of aging of its population.

As was observed using administrative data, coverage of social pensions is larger than of contributory pensions in Sub-Saharan Africa, East Asia and the Pacific, and South Asia. On average, 28.4 percent of the population in the three countries in our Sub-Saharan African sample live in households that receive social pension benefits. Meanwhile, 17.1 percent of population in four countries in East Asia and the Pacific and 14.6 percent in three countries in South Asia receive social pensions. This indicates an incipient trend of countries using non-contributory benefits to compensate the low coverage of contributory pension systems. However, the viability of this strategy depends on the affordability of non-contributory benefits—which have to be financed by general revenues—in countries with low fiscal space.

FIGURE 5.5 Number of Countries Included in Household Survey Sample by Region

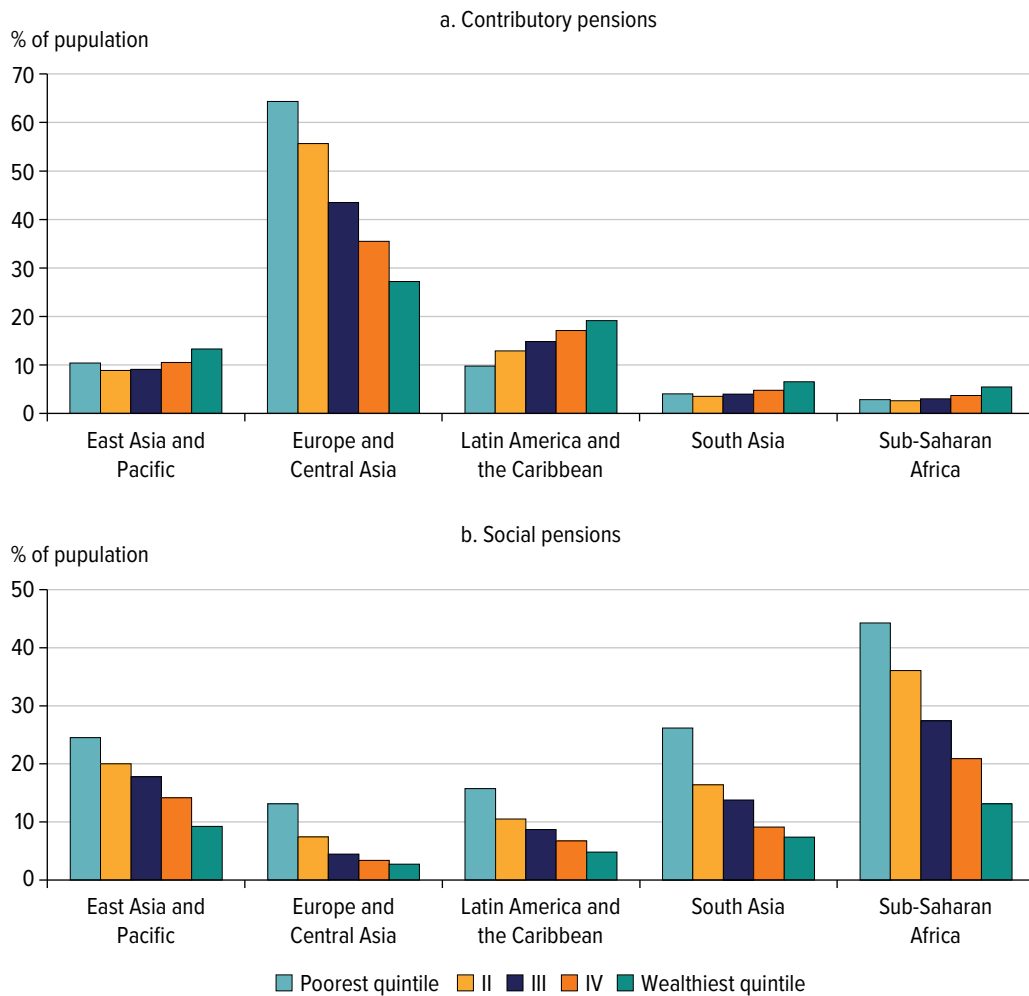
Source: World Bank, ASPIRE household survey data - <https://www.worldbank.org/aspire>.

FIGURE 5.6 Coverage of Pension Benefits from Household Surveys

Source: World Bank, ASPIRE household survey data - <https://www.worldbank.org/aspire>.

Using household survey data allows us to assess the distribution of coverage by income decile. Benefits coverage of contributory pensions tends to increase with income in all regions except Europe and Central Asia, given the positive correlation between formal employment and household income. As formal employment is higher in Europe and Central Asia, it is expected that the link between income and coverage would not be as strong in the region, but further analysis would be needed to assess why beneficiary coverage is higher among poorer households in this region. On the other hand, social pensions are progressively distributed in all regions.

FIGURE 5.7 Coverage of Pension Benefits by Income Quintile



Source: World Bank, ASPIRE household survey data - <https://www.worldbank.org/aspire>.

BOX 5.1 Gender Dimensions of Pension Coverage

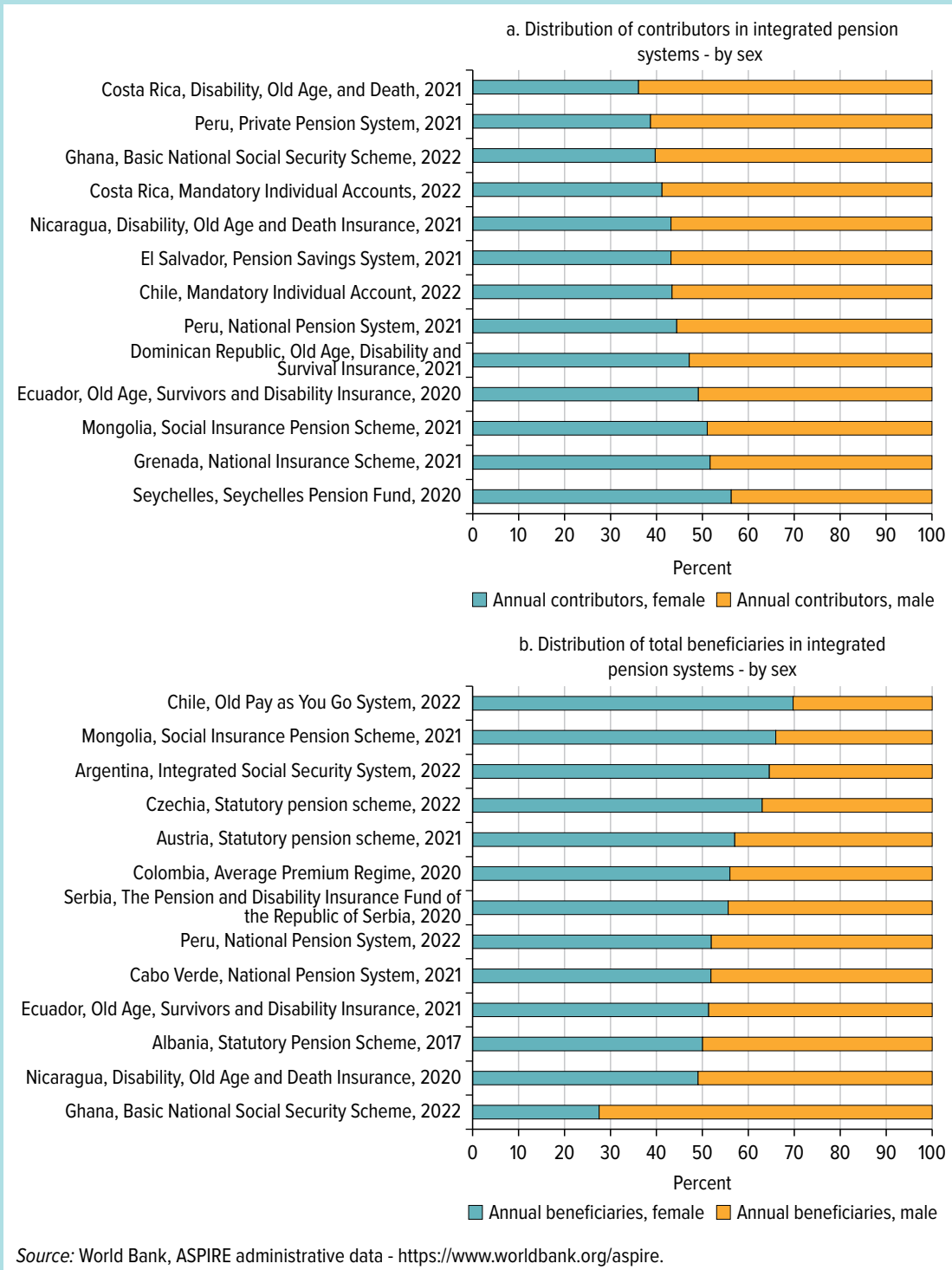
The disparity in pension outcomes between genders is strongly influenced by labor market dynamics and societal gender norms. Women often encounter barriers when seeking full-time employment and participating in labor markets, which limits their capacity to build substantial pension savings under earnings-related contributory pension systems. Societal expectations frequently place the primary responsibility for unpaid care work on women, causing interruptions in their careers. This impedes their ability to meet minimum vesting requirements within earnings-related DB systems. Additionally, wage discrimination compounds these disparities, as women typically earn less than men for similar roles, leading to diminished pension entitlements. Without corrective measures, earnings-related pension systems can inadvertently widen the gap by linking benefits to labor market outcomes, disproportionately affecting women who face obstacles to full employment and wage parity.

Addressing the structural labor market and societal factors contributing to poorer pension outcomes for women is crucial. However, design measures within pension systems can also alleviate the negative effects on women. Such measures include implementing equal retirement ages for men and women, reducing vesting periods for women to qualify for pension benefits more quickly, implementing greater redistribution within pension systems to offset disparities in earnings

(continued)

BOX 5.1 Gender Dimensions of Pension Coverage (continued)

and contributions, increasing coverage through non-contributory pensions to support women with limited access to formal employment or pension schemes, automatic indexation of pensions to inflation to protect the purchasing power of benefits, especially for women relying heavily on fixed income in retirement, and ensuring survivor pensions adequately support surviving spouses, particularly women who may outlive their partners, to mitigate financial insecurity in later life.



(continued)

BOX 5.1 Gender Dimensions of Pension Coverage (*continued*)

Women comprise a smaller proportion of total contributors to pension systems, yet they represent a larger share of total pensioners.²⁶ This discrepancy is partly because female pensioners tend to outlive male pensioners. At the same time, since women live longer, the present value of benefits paid will be higher on average for women. With unisex mortality tables, female pensions will be subsidized due to this longevity advantage. The fact that most pensioners are women, or women receive benefits for longer, underscores the importance of ensuring that pensions are adequately indexed during retirement to account for price inflation. This measure is essential to prevent poverty among older women.

In contributory regimes with earnings-related benefits, the gender distribution of contributors and pensioners varies between countries, influenced by numerous factors both within and outside the pension system. An essential design element is the minimum vesting requirement—the minimum number of years an individual must contribute to become eligible for pension benefits. In Ghana, approximately 40 percent of contributors are female, while around 30 percent of pensioners are female. In Ghana, vesting for a pension requires 15 years of contributions, which exceeds international best practice of 10 years. Conversely, in Chile, just over 30 percent of contributors are women, yet nearly 70 percent of all pensioners are female. In Ecuador, women account for roughly 50 percent of both contributors and pensioners, mirroring a similar outcome in Nicaragua, where women make up around 40 percent of contributors and 45 percent of pensioners. In Ecuador, the vesting period ranges from as low as 10 years (120 months) at age 70 to 40 years (480 months) at any age. Additionally, individuals in Ecuador can qualify for a pension at age 60 with at least 15 years of contributions; those who enroll after age 45 must have contributions for half the weeks from the date coverage began until the normal retirement age, with a minimum of only about five years.

In earnings-related DB plans, achieving similar pension benefits for men and women necessitates equal years of contribution, comparable wages and complying with a minimum contributory period. Without corrective mechanisms to enhance women's pension outcomes, disparities may persist. Conversely, in DC schemes, women's pension outcomes hinge solely on their contributions. While a minimum pension guarantee can establish a pension floor, overall risk lies with the individual, with pension amounts determined by contributions and returns, resulting in lower benefits for women on average if they tend to earn lower wages and contribute fewer years than men. Non-contributory pension plans, also known as social pensions, offer the most equitable treatment, as all eligible individuals receive the same benefit regardless of gender. These programs can also disproportionately benefit women as they do not require any contributory history, and women may have lower attachment to formal employment.

26. Counting direct beneficiaries only.

Adequacy of Pension Benefits

6.1 The Generosity of Contributory Benefits Tends to Be Larger in Less Developed Countries and in Special Regimes

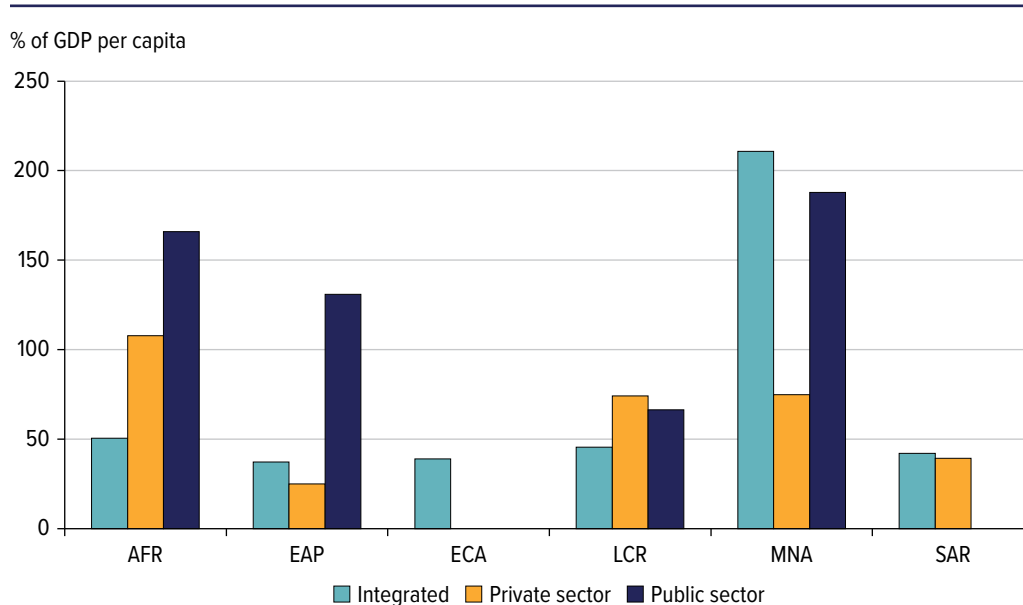
Coverage is not the only aspect that matters for pension policy. The vast majority of the population may be covered, but if benefits are low, they will not provide meaningful income protection in retirement. Therefore, the level of benefits must be 'adequate' for the needs of the population, both for preventing poverty and to smooth consumption between active career and retirement.

The level of pension benefits compared with per capita income offers a broad measure of the adequacy of the benefits provided by a pension system. We take information from 72 pension programs for which the total amount of benefits paid per year is available in the ASPIRE database and calculate the average annual benefit, dividing by the total number of beneficiaries using administrative data. This average benefit is then compared with per capita income to indicate pension adequacy at the program level.

On average, pensions are equivalent to 82.7 percent of GDP per capita across the 72 programs in our sample. The Middle East and North Africa presents the most 'generous' pension benefits with an average of 140.7 percent of per capita income, followed by Sub-Saharan Africa with 116.6 percent of per capita income. Europe and Central Asia and South Asia have the lowest levels of 'adequacy' with 39.0 percent and 40.2 percent of average income, respectively. The figure for Europe and Central Asia may be the result of the relatively higher income per capita for countries in the region, coupled with the adjustments that pension programs have had to implement to contain costs and remain sustainable. The case of South Asia is influenced by Nepal's Social Security Fund, which started operations in 2011 and just started paying benefits in 2019, so it is still far from being a mature system.

FIGURE 6.1 Generous Benefit Levels Observed in Public Sector and in Regions with Less Mature Pension Systems

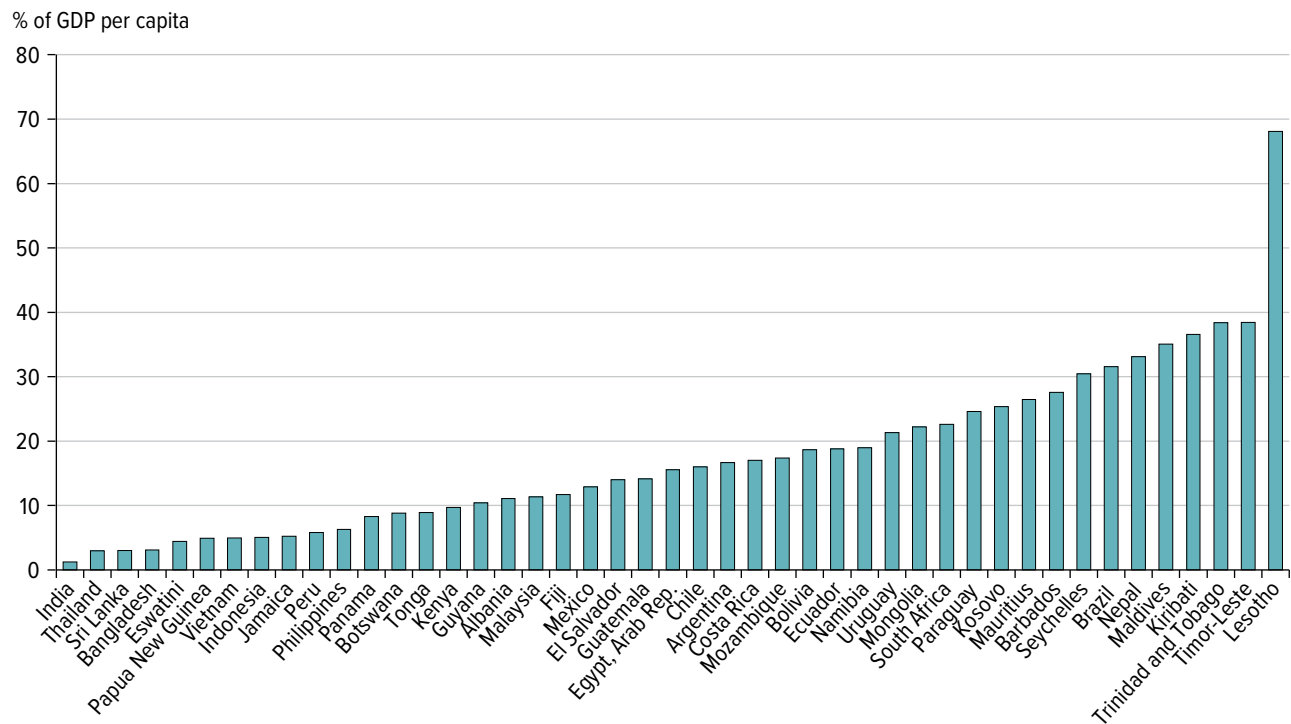
Average benefit as a percentage of GDP per capita by region and target population



Source: World Bank, ASPIRE administrative data and WDI.

Public sector schemes tend to be more generous than private sector or integrated schemes, with distributional implications. This is especially observed in Sub-Saharan Africa, East Asia and the Pacific, and the Middle East and North Africa. The higher generosity of public sector pension systems—coupled with their low coverage and the fact that many times these systems are financed by general revenues—result in likely regressive redistribution of resources through the pension system toward public sector retirees who are better-off than the general population on average.

Social pension benefits are typically more modest than the benefit levels of contributory schemes. Figure 6.2 presents the benefit level as percentage of per capita income for the countries with social pensions in our administrative database. In all cases, save Lesotho, benefit levels are below 40 percent of per capita income, and most are below 20 percent. Low levels of social pension benefits make sense if they are introduced with the objective of providing a minimum floor of income during retirement and reduce the risk of poverty in old age. However, they may fall short of providing adequate levels of income if there are no other sources of retirement income protection in place, or other costs, such as health, are not adequately covered.

FIGURE 6.2 Social Pension Generosity Is Largely a Policy Parameter*Adequacy of Social Pensions: Social pension benefit levels as proportion of income per capita (%)*

Source: World Bank, ASPIRE administrative data and WDI.

6.2 Pension Benefits Are an Important Component of Recipient Households' Welfare in Most Regions

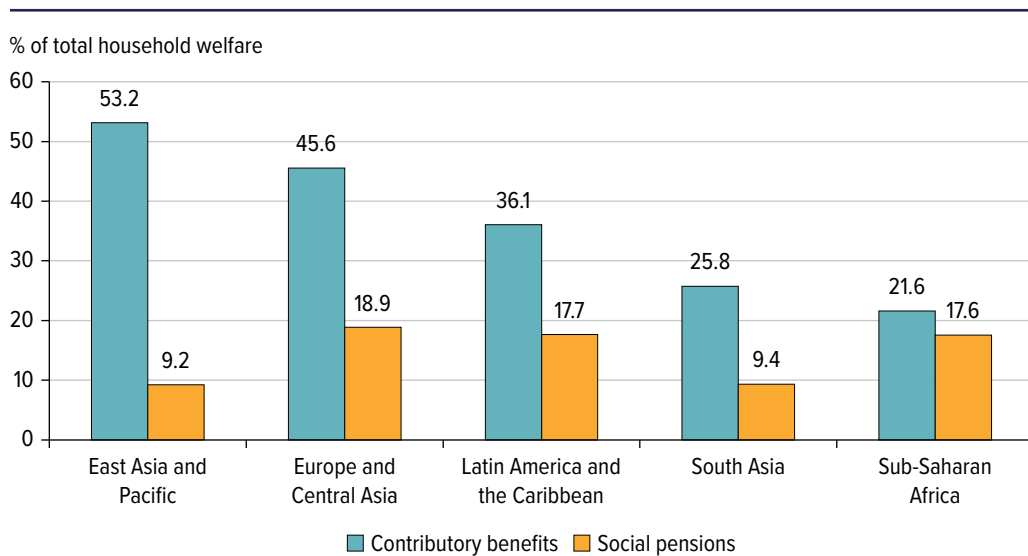
Although average benefits paid provide some information about the level of benefits for individuals, this does not reveal the relative importance of that income source at the household level. For this reason, we expand our analysis from the use of administrative data to incorporate information captured in household surveys. In particular, we use data from surveys that capture the amount of benefits received by households from different sources, including pensions, and compare with the total welfare measure (income or consumption) used at the household level.

Benefits from contributory pensions make up, on average, 33 percent of the welfare measure of recipient households. This measure is highest in East Asia and the Pacific (53 percent) followed by Europe and Central Asia (45.6 percent), highlighting the importance that pension benefits have in the income or consumption of recipient households.

Reliance on pension benefits also tends to be larger in lower-income households. While contributory pensions represent 51.0 percent of household welfare in the poorest quintile, they only represent 30.5 percent in the richest quintile on average. This pattern is most pronounced in East Asia and the Pacific (91.6 percent and 47.5 percent, respectively) and Europe and Central Asia (55.8 percent and 37.8 percent, respectively) but is seen in all regions in aggregate.

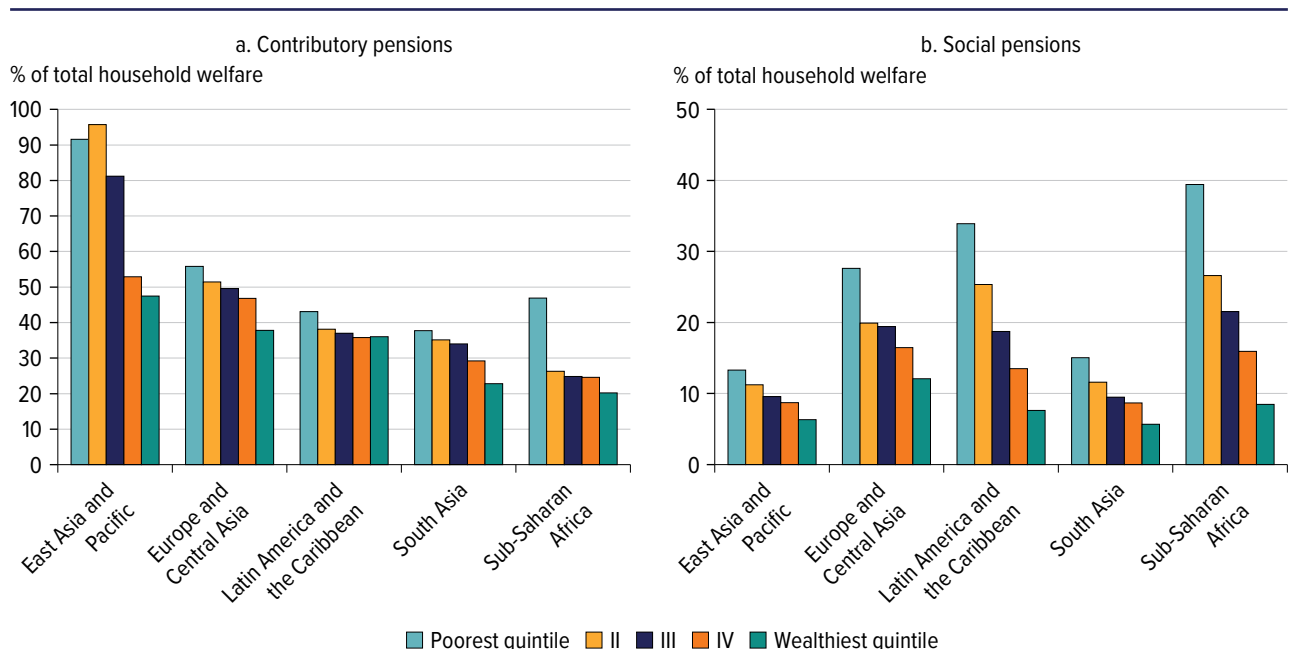
Social pensions are in general less important in household welfare than contributory pensions, except in the case of Sub-Saharan Africa. It should be noted that the sample of countries that include information that allows us to compute adequacy of non-contributory pensions in their household surveys is more limited (a total of 26 countries compared with 72 for contributory pensions). The average for Sub-Saharan Africa is based on only five countries and reflects the relatively high level of social pension benefits in these countries.

FIGURE 6.3 Adequacy of Pension Benefits: Pension Income as Proportion of Total Household Welfare



Source: World Bank, ASPIRE household survey data - <https://www.worldbank.org/aspire>.

FIGURE 6.4 Adequacy of Pension Benefits by Income Quintile



Source: World Bank, ASPIRE household survey data - <https://www.worldbank.org/aspire>.

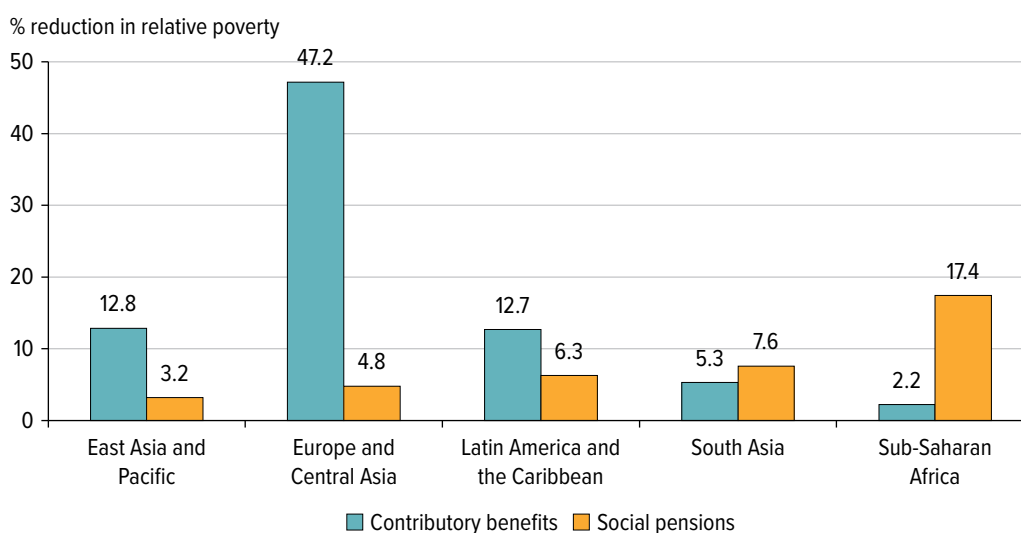
The importance of benefits from social pensions in household welfare is also declining in relation to income, especially in Sub-Saharan Africa and Latin America and the Caribbean. While social pensions in Sub-Saharan Africa make up 39.4 percent of household welfare in the poorest quintile, it is 8.5 percent in the wealthiest quintile. In Latin America and the Caribbean, they account for 33.9 percent in the poorest quintile and only 7.6 percent in the wealthiest quintile.

6.3 The Poverty Impact of Pensions Is Largest for Contributory Pensions in Europe and Central Asia and Social Pensions in the Few Sub-Saharan African Countries where they are Present

We measure the impact of pension benefits on poverty headcount in each country based on data from household surveys. The impact is shown as the percentage decrease in poverty compared to a situation in which the corresponding pension benefit had not existed. As a comparable benchmark for all countries, we start with a measure of poverty equal to the poorest quintile of the population. Hence, the poverty impact is measured as the percentage decline from a 20 percent rate because of the corresponding pension benefit.

Contributory pensions have a strong poverty reduction effect in Europe and Central Asia, an indication of the importance of contributory pensions in the social protection landscape in the region. Contributory pensions reduce poverty by 47.2 percent on average in the 14 European and Central Asian countries in our sample, a result of their large coverage and importance for household incomes at all levels of income. They are also relatively important for poverty reduction in East Asia and the Pacific and Latin America and the Caribbean, with 12.8 percent and 12.7 percent average reductions in poverty, respectively, because of contributory pensions.

FIGURE 6.5 Average Poverty Reduction Effect of Pensions by Region



Source: World Bank, ASPIRE household survey data - <https://www.worldbank.org/aspire>.

Social pensions play an important role in reducing poverty in the five Sub-Saharan African countries in our sample, with an average poverty reduction of 17.4 percent. In contrast, contributory pensions reduce poverty by only 2.2 percent on average in our sample of 23 Sub-Saharan African countries with information on contributory pensions.²⁷ The only other region in which social pensions have a stronger impact on poverty reduction than contributory pensions is South Asia, where the average among the three countries with social pensions is a 7.6 percent reduction compared to a 5.3 percent reduction in the five countries with contributory pensions. The poverty reduction of social pensions in Latin America and the Caribbean is 6.3 percent (n = 10) and in East Asia and the Pacific is 3.2 percent (n = 3), which might be explained by the low level of benefits that these programs provide in general in these regions.

27. Mauritius is the only country with information on both social pensions and contributory pensions in our sample of Sub-Saharan African countries. In Mauritius, poverty is reduced by 16.6 percent by contributory pensions and 40.8 percent by social pensions.

Sustainability of DB Schemes: Parametric Imbalance in Most Regions Increases the Need for Reforms

Given that pension programs provide long-term benefits and mature over a long period of time, it is necessary to evaluate their financial sustainability, beyond coverage and adequacy, to have a complete assessment of their performance. DB schemes—and unfunded or partially funded schemes in general—can be financially unsustainable if there is an imbalance between the amount of contributions that they collect (the financial asset of PAYG systems) and the benefits they provide and promise to pay (liabilities).

Financial sustainability is usually assessed using an actuarial valuation of the pension program. However, that type of model requires detailed information on pension participants, earnings, contributions, age profile, and so on. For this reason, the World Bank has developed a simplified methodology to analyze a specific aspect that may affect pension sustainability: parametric balance in the design of pension programs.

Using a simplified actuarial calculation methodology, we can analyze if the level of benefits promised in DB schemes are in balance with the level of contributions and revenues that the schemes can collect. A relevant imbalance is a strong indicator of sustainability problems that the system will need to address, either by parametric reforms, increases in outside sources of revenues, or more drastic systemic reforms.

This methodology generates a succinct quantitative indicator that measures the imbalance and potential sustainability issues of pension regimes. The result of the indicator is a simple ratio that measures ‘contributory balance’, as it compares the present value of expected benefits with the total value of accumulated contributions at retirement.

The approach used is to calculate the required contribution rate to fund promised benefits for a new entrant earning the average wage, hired at the average age of entry to the labor market and retiring at the standard retirement age. The required contribution rate to finance all benefits is then compared to the actual contribution rate to determine the degree of sufficiency or insufficiency of the current required contribution rate. The extent of the deviation from the actual rate measures the degree to which the pension system is likely to have long term problems with the fiscal sustainability of its pension system.

In the very long term, the parametric balance ratio can be considered a measure of fiscal sustainability because it shows whether current contribution rates are sufficient to pay for the benefits being promised to new entrants. In the shorter term, the pension index model can be

viewed as a measure of what the current cost (also sometimes referred to as the normal cost) of a plan would be on a funded basis.

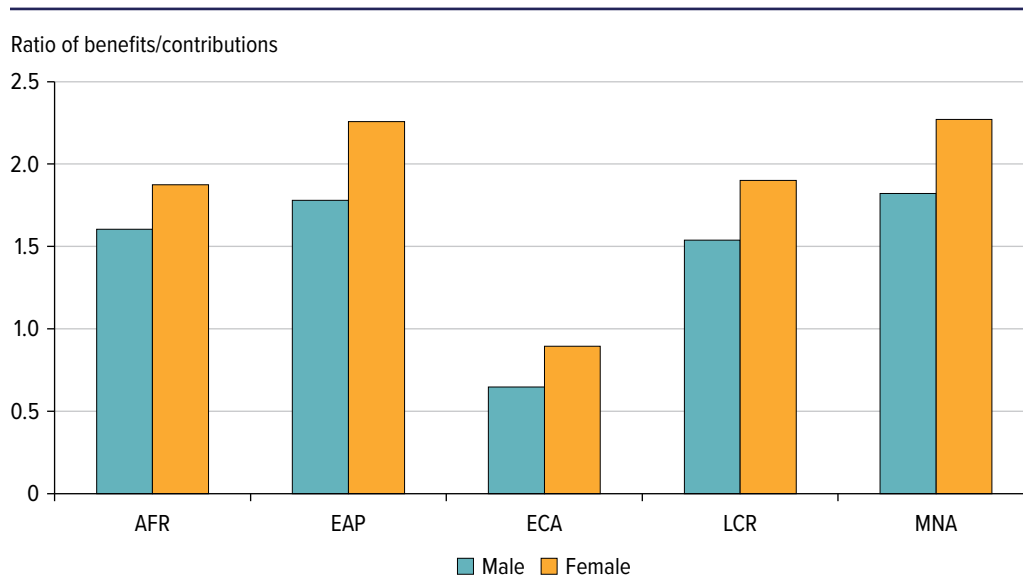
Using data from the ASPIRE administrative database, we calculated the parametric balance ratio for a total of 64 DB pension programs in 47 countries. The administrative data on retirement ages, contribution rates, benefit formulas, and minimum pensions from ASPIRE are coupled with data on average wages from the International Labour Organization Department of Statistics (ILOSTAT) and mortality profiles from the United Nations Department of Economic and Social Affairs Population Division for each country for the calculation of the ratio. As some variables—such as retirement ages, average wages, or mortality profiles—differ by gender, the ratio is calculated separately for males and females.

The results of the calculation show that in all regions except Europe and Central Asia, the value of promised benefits on average is larger than the value of contributions into the system, indicating potential sustainability issues in these pension schemes. The average of the ratio in all regions except Europe and Central Asia is above 1.5, meaning that benefits promised in these DB systems are on average 50 percent higher than the contributions the systems collect to fund those benefits. Without accumulated reserves, systems with long-term imbalances like these need to receive government subsidies to finance the contributory gap, incurring fiscal costs.

The result for Europe and Central Asia might be explained by the adjustments that pension programs have had to make to achieve balance and is consistent with the previous indicator on adequacy obtained using administrative data.

FIGURE 7.1 DB Pension Systems Promise Benefits that Cannot be Totally Financed by Contributions

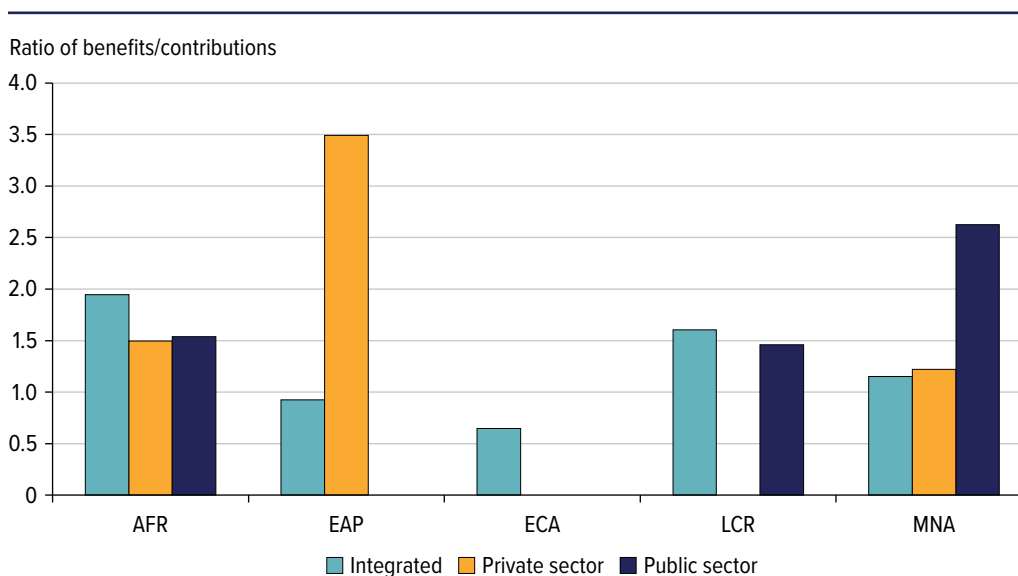
Parametric balance ratio by region



Source: Based on World Bank, ASPIRE administrative data, ILOSTAT, and United Nations (2022).

FIGURE 7.2 Highest Parametric Imbalance in Less Developed Regions and in Pension Systems Covering Specific Populations

Male contributory equilibrium ratio by type of pension schemes and region



Source: Based on World Bank, ASPIRE administrative data, ILOSTAT, and United Nations (2022).

The level of imbalance between contributions and benefits is higher on average for special pension systems for private or public sector workers than for integrated systems. The average ratio for males is 1.7 for both private sector schemes and public sector schemes, while it is 1.4 for integrated schemes across all regions.²⁸ At the regional level, this pattern is clearer in the Middle East and North Africa, where the average ratio for public sector schemes is 2.6, while it is 1.2 for both private sector and integrated schemes. These results suggest that public sector pension schemes in the Middle East and North Africa are particularly generous and may face a greater sustainability challenge if these imbalances are not resolved.²⁹

While these are initial results using a new methodology applied to a set of countries with available information, they are indicative of persistent design imbalances in pension programs, especially in those cases that have not adapted to changing economic or demographic conditions. Some pension programs are designed without adequately aligning the balance between contributions

28. The results for females are similar: 2.00 for public sector, 1.95 for private sector, and 1.86 for integrated schemes.

29. It should be noted that this analysis only includes mandatory systems for which a contribution rate exists. However, there are several earnings-related schemes for public sector workers that are non-contributory and fully financed by general revenues. The sustainability and equity concerns are, of course, even more relevant in these systems.

and benefits promised for technical or political reasons.³⁰ In other cases, conditions change or are in practice different from what was anticipated, and appropriate adjustments are not made. This is the case, for example, in pension programs that maintain a fixed retirement age despite increases in life expectancy at retirement or do not adjust contribution rates to labor market conditions that affect participation in covered employment.

30. The extreme case would be public DB systems that do not take contributions from participants and are purely financed by general revenues.

Conclusions

Most countries have established programs that seek to provide some level of income protection in old age. Contributory or earnings-related pension systems have been adopted in all regions of the world. Although this paper has focused on countries that present more complete recent data, our administrative database records the existence of at least one contributory pension program in 121 out of 145 countries that are World Bank clients. In addition, countries have introduced or expanded non-contributory social pensions, providing a layer of basic income protection in old age, sometimes only to the extreme poor and in other cases to all above a certain age threshold.

The performance of contributory schemes varies widely depending on the countries in which they are implemented, with labor informality being one of the main challenges to reaching high coverage levels. Regions with high formal employment like Europe and Central Asia and some countries in Latin America and the Caribbean have reached high coverage through their contributory systems. Countries in which informality is prevalent, like most of Sub-Saharan Africa, have limited coverage, usually higher among higher-income households. While contributory pensions (partially financed by general revenues) are an effective income protection mechanism in Europe and Central Asia, they fall short in most other countries.

Population aging will be the main driver for the evolution of pension systems in the coming decades. The increase in the elderly population will put pressure on systems that are currently spending significant amounts on pension benefits, and threaten the sustainability of contributory pension systems. It will also limit the extent to which non-contributory pensions could be used to improve coverage or adequacy, as it will increase the fiscal costs of providing these benefits. At the same time, an increasingly aged population will start to demand more and better income protection at old age, putting pressure on countries to increase the coverage and improve the adequacy of pension benefits.

Countries should address aspects such as the fragmentation of the pension system and the design of the payout phase to improve their performance. The data show that systems with restricted target populations, such as the public sector, tend to be more expensive and regressive than integrated systems. Countries should aim to establish systems that are as inclusive as possible and that adapt to the realities of employment in the country. Additionally, some systems, such as provident funds, only provide a lump sum at the time of retirement, leaving an increasing number of years during retirement unprotected, as the vast majority of beneficiaries opt not to

annuitize their payouts. The design of the payout phase in DC systems will become an increasingly important dimension in the coming years.

Pension systems should adapt to the changes of the environment over time and to the characteristics of the countries in which they are implemented. Unfortunately, the history of contributory pensions is filled with examples of pension systems that have been implemented as a carbon copy of existing systems in other countries, without adapting to the local conditions of the economy, labor markets, or demography, resulting in lack of coverage, adequacy, or affordability. Just as social protection in general should adapt to the evolving nature of shocks that affect its performance (for example, those due to climate change), pensions and social insurance in particular should adapt to the challenges posed by demographic and economic development (such as aging, the changing nature of work, and technological change). International benchmarking and continuous monitoring of key performance indicators can inform countries on the evolution of their pension systems and the discussion on policy changes to their retirement income support systems. This report, and the data associated with it, is a contribution to that discussion.

Annex 1

Inventory of Earnings-Related Pension Programs, by Target Population and Type

Region: AFRICA	Income group	Target Population/Type		
Country		Integrated	Private sector	Public sector
Benin	Lower middle	—	DB	DB
Botswana	Upper middle	—	—	DC
Burkina Faso	Low	—	DB	DB
Cabo Verde	Lower middle	DB	—	DB
Cameroon	Lower middle	—	DB	DB
Central African Republic	Low	—	DB	DB
Chad	Low	DB	—	DC
Congo, Democratic Republic of	Low	—	—	DB
Cote d'Ivoire	Lower middle	—	DB	DB
Eswatini	Lower middle	—	DC	DB
Ethiopia	Low	—	DB	DB
Gabon	Upper middle	—	DB	DB
Gambia, The	Low	—	DC	DB
Ghana	Lower middle	Hybrid	—	—
Guinea	Lower middle	—	DB	DB
Guinea-Bissau	Low	—	DB	DB
Kenya	Lower middle	DC	—	DC
Lesotho	Lower middle	—	—	DC
Liberia	Low	DB	—	DB
Malawi	Low	DC	—	—
Mauritania	Lower middle	—	DB	DB
Mozambique	Low	—	DB	DB
Namibia	Upper middle	—	—	DB

(continued)

Region: AFRICA		Target Population/Type		
Country	Income group	Integrated	Private sector	Public sector
Niger	Low	DB	—	DB
Nigeria	Lower middle	DC	—	—
Rwanda	Low	DB	—	—
Senegal	Lower middle	.	DB	DB
Seychelles	High	DB	—	—
South Africa	Upper middle	—	—	DB
Togo	Low	—	DB	DB
Uganda	Low	—	DC	DB
Zambia	Lower middle	—	DB	DB
Zimbabwe	Lower middle	—	DB	DB

Region: EAST ASIA AND THE PACIFIC		Target Population/Type		
Country	Income group	Integrated	Private sector	Public sector
Cambodia	Lower middle	—	—	DB
China	Upper middle	Hybrid	—	—
Indonesia	Upper middle	—	DB, DC	DB
Lao People's Democratic Republic	Lower middle	DB	—	—
Malaysia	Upper middle	—	DC	DB
Mongolia	Upper middle	DB, NDC	—	—
Myanmar	Lower middle	—	—	DB
Philippines	Lower middle	—	DB	DB
Thailand	Upper middle	—	DB	DB, DC
Tonga	Upper middle	—	DC	DC
Viet Nam	Lower middle	DB	—	—

Region: EUROPE AND CENTRAL ASIA		Target Population/Type		
Country	Income group	Integrated	Private sector	Public sector
Albania	Upper middle	DB	—	—
Azerbaijan	Upper middle	NDC	—	—
Bulgaria	High	DB, DC	—	—
Czech Republic	High	DB	—	—
Estonia	High	DB	—	—
Georgia	Upper middle	DC	—	—
Hungary	High	DB	—	—
Kosovo	Upper middle	—	DC	—
Kyrgyz Republic	Lower middle	Hybrid	—	—
Latvia	High	DC, NDC	—	—
Lithuania	High	DB	—	—

(continued)

Region: EUROPE AND CENTRAL ASIA		Target Population/Type		
Country	Income group	Integrated	Private sector	Public sector
Montenegro	Upper middle	DB	—	—
North Macedonia	Upper middle	DB, DC	—	—
Romania	High	DB, DC	—	—
Serbia	Upper middle	DB	—	—
Slovak Republic	High	DB	—	—
Slovenia	High	DB	—	—
Tajikistan	Lower middle	DB, NDC	—	—
Türkiye	Upper middle	DB	—	—
Ukraine	Lower middle	DB	—	—
Uzbekistan	Lower middle	DB, DC	—	—
Region: LATIN AMERICA AND THE CARIBBEAN		Target Population/Type		
Country	Income group	Integrated	Private sector	Public sector
Argentina ³¹	Upper middle	DB	—	—
Bolivia	Lower middle	Hybrid	—	—
Brazil	Upper middle	—	DB	DB
Chile	High	DB, DC	—	—
Colombia	Upper middle	DB, DC	—	—
Costa Rica	Upper middle	DB, DC	—	DB
Dominican Republic	Upper middle	DC	—	DB
Ecuador	Upper middle	DB	—	—
Grenada	Upper middle	DB	—	—
Guatemala	Upper middle	—	DB	—
Guyana	High	DB	—	—
Honduras	Lower middle	DB	—	DB
Jamaica	Upper middle	DB	—	DB
Mexico	Upper middle	—	DB, DC	DC
Nicaragua	Lower middle	DB	—	—
Panama	High	Hybrid	—	DB, DC
Paraguay	Upper middle	DB	—	DB
Peru	Upper middle	DB, DC	—	—
St. Lucia	Upper middle	—	DB	—
Trinidad and Tobago	High	DB	—	—
Uruguay	High	Hybrid	—	DB

(continued)

31. In the case of Argentina, the 'Moratorium' program is considered part of the integrated system and categorized as contributory.

Region: MIDDLE EAST AND NORTH AFRICA		Target Population/Type		
Country	Income group	Integrated	Private sector	Public sector
		Egypt, Arab Republic of	Lower middle	DB
Iran, Islamic Republic of	Lower middle	—	DB	DB
Iraq	Upper middle	—	DB	DB
Jordan	Lower middle	DB	—	—
Lebanon	Lower middle	—	—	DB
Malta	High	DB	—	—
Morocco	Lower middle	—	DB, DC	DB, DC
Saudi Arabia	High	—	DB	DB
Tunisia	Lower middle	—	DB	DB
West Bank and Gaza	Upper middle	Hybrid	—	DB

Region: SOUTH ASIA		Target Population/Type		
Country	Income group	Integrated	Private sector	Public sector
		Bangladesh	Lower middle	—
Bhutan	Lower middle	—	DC	DB
Maldives	Upper middle	DC	—	—
Nepal	Lower middle	—	DC	DB, DC
Pakistan	Lower middle	—	DB	DB
Sri Lanka	Lower middle	—	DC	DB

Note: Where more than one type of pension program is mentioned, there is more than one program covering this category of the population. In some cases, they might be legacy programs not open to new participants but still providing benefits to retirees. DB= Defined Benefit, DC=Defined Contribution, and NDC=Notional Defined Contribution.

Annex 2

Country Examples of Voluntary Pension Programs for the Informal Sector

Rwanda - Ejo Heza

Managed by the Rwanda Retirement and Social Security Board (RSSB), the Ministry of Economy and Finance provides fiscal support to Ejo Heza by financing the operational costs of the scheme and matching contributions and insurance premiums for members who meet the eligibility conditions. Ejo Heza offers a range of flexible features designed to meet the diverse needs of its participants. Short-term withdrawals become available once individuals accumulate a minimum of RWF 4 million (US\$3,701) in savings, providing a practical solution for immediate financial requirements. Upon reaching the pension eligibility age of 55, beneficiaries have the option of selecting lump sum and/or scheduled withdrawal methods during the payout phase. Alternatively, they can opt to retain their savings in the account, allowing for withdrawals at a later date. This scheme extends its inclusivity to formal sector workers contributing to the RSSB pension scheme, enabling them to enhance the adequacy of their retirement income. With no minimum contribution requirement, participants have the flexibility to determine both the frequency and the amount of their contributions. Notably, Ejo Heza welcomes even children under the age of 16, utilizing temporary IDs from the National Identity Agency (NIDA) and linking their accounts to their parents' national ID numbers. The scheme also incorporates targeted matching contributions, along with life and funeral benefits, ensuring a comprehensive approach to financial security. Balancing retirement goals with the need for liquidity, Ejo Heza allows partial access to funds, specifically earmarked for education and housing needs. Emphasizing digital efficiency, the scheme operates on an interoperable platform that integrates seamlessly with the government's national ID and social safety net databases, fostering a modern and inclusive approach to pension planning.

India

India has three voluntary pension schemes: National Pension System (NPS) Swavalamban, Atal Pension Yojana (APY), and Pradhan Mantri Shram Yogi Maan-dhan (PM-SYM). The objective for all schemes is old-age income security for those in the unorganized sector.

NPS Svamlamban. Launched in 2010, this voluntary savings scheme requires a minimum monthly contribution of INR 100 and caps it at INR 1,000. From 2010 to 2014, an annual matching of INR 1,000 (US\$13) was deposited into every eligible account. Although early withdrawal is permitted before the age of 60, members are obligated to annuitize at least 80 percent of their accumulated savings at the time of withdrawal. If the expected annuity falls below INR 1,000, the entirety of the savings will be annuitized. Operating on the NPS platform developed in 2004 for collecting civil servants' contributions, the scheme employed two outreach models: one through aggregators like micro-finance institutions, nongovernmental organizations, and self-help groups and the other through Points of Presence appointed by the Pension Fund Regulatory and Development Authority (PFRDA). In fiscal year 2021, the coverage stood at 4.2 million members, approximately 0.9 percent of the labor force, with assets totaling around US\$542 million. Despite a drop in coverage after 2014, it remains unclear how much can be attributed to the withdrawal of matching and how to the introduction of APY (see the next paragraph). Notably, the annual average contribution per subscriber reached INR 6,802 (US\$91) in 2021.

Atal Pension Yojana (APY). Introduced in 2015, the voluntary contributory scheme is a DB design and is exclusively accessible through participating banks. To qualify, individuals must fall within the age bracket of 16 to 40 and possess a bank account linked with their unique identity number, or Aadhar. Contributions to the scheme can be made on a monthly, quarterly, or half-yearly basis. The scheme offers contributors the flexibility to choose from a range of DB pension amounts, ranging from INR 1,000 to INR 5,000 (US\$13–65). Withdrawals are prohibited before the age of 60, except in cases of death or terminal illness. Notably, the Government of India provides a fiscal incentive by matching contributions, amounting to 50 percent of member contributions, up to an annual maximum of INR 1,000, for five years into all accounts registered in 2015. This scheme is structured to provide financial security and incentivize long-term savings for eligible individuals. Administered by the PFRDA, the APY utilizes the NPS platform established in 2004 for managing contributions and data requirements. In 2020, over 70 percent of active APY accounts were channeled through public sector banks, followed by regional rural banks at 19 percent, and private banks at 7 percent. Interestingly, a higher proportion of APY subscribers are concentrated in non-metro cities, accounting for 67 percent of all NPS subscribers in non-metros, while 54 percent of all NPS subscribers in metro cities are from the APY. The average annual contribution reached INR 5,137 (US\$69) in 2021, reflecting the scheme's affordability and accessibility. The assets under management for the APY in 2021 amounted to INR 158.87 billion (US\$2.1 billion). Managed by three public sector pension fund managers approved by the PFRDA, APY subscribers do not have the option to choose the investment pattern of the Pension Fund. To enhance communication, subscribers receive periodical mobile alerts regarding subscriptions, balance, and credits, ensuring transparency and informed financial decisions.

Pradhan Mantri Shram Yogi Maan-dhan (PM-SYM). Under this scheme, the central government shoulders 50 percent of the required contribution. To qualify, individuals must be unorganized workers ages 18–40, with monthly incomes below INR 15,000, and not affiliated with formal sector pension schemes. On reaching the age of 60, beneficiaries are entitled to a monthly pension of INR 3,000. If both spouses enroll in the scheme, they jointly receive INR 6,000, inclusive of a spousal benefit equal to 50 percent of the pension. PM-SYM also permits early withdrawal; if a subscriber exits within 10 years of joining, only his/her contributions are returned with a savings bank interest rate. For those exiting after 10 years but before reaching 60 years of age, the

subscriber's contributions are returned with the higher of the interest earned on the fund or the savings bank interest rate. As of December 2020, the scheme has garnered a substantial coverage of 4.5 million individuals, reflecting its impact on providing financial security to unorganized workers.

Viet Nam - Voluntary Pension Scheme

The Vietnamese Social Security Agency (VSS) manages five Compulsory Social Insurance Funds and the Voluntary Social Insurance Fund (VSIF)—all of which are DB. Under the VSIF scheme, coverage is limited to old age and survivorship, with maternity benefits having been recently added. The contribution rate for VSIF is same as that of the compulsory scheme—that is, 22 percent of salary—but in the case of VSIF, workers must pay the entire amount by themselves, as they do not have registered employers to share the contribution burden. Participants in the voluntary social insurance scheme can, however, choose their monthly income subject to a minimum and social insurance contributions and benefit amounts are calculated based on their chosen income amount. The eligibility conditions for retirement under VSIF are the same as for the current private sector workers in the compulsory scheme. In December 2019, about 563,776 individuals contributed to VSIF and the numbers had increased to 1,917,000 by December 2023. Despite the impressive growth in coverage even as COVID-19 was spreading, VSIF coverage continues to remain low, at around 4 percent of the labor force.

China - Rural and Urban Resident Scheme (RURS)

About 25 percent revenue in the RURS comes from individual contributions and the rest from national and subnational government subsidies. The matching subsidies to individual accounts come from local governments. In 2023, around 25.8 million workers had their full contributions paid by the central government.

Thailand

Thailand has three main voluntary pension schemes: the voluntary program administered by the Social Security Office under Article 40 of the main pension scheme law, the National Savings Fund (NSF), and the Retirement Mutual Fund (RMF). Coverage rates among informal sector workers remain low despite matching contributions offered by the government. All three schemes are DC design.

Kenya

There are currently two main initiatives of pension coverage focusing on the informal sector in Kenya: Mbao (led by the private sector) and National Social Security Fund (NSSF) Haba Haba (pilot pension savings scheme for informal sector workers).

Haba Haba. The NSSF-administered scheme was launched as a pilot in 2019. Haba Haba allows for easy, anytime, anywhere savings by informal economy workers. The program provides flexibility as to when and how much an individual contributes. The recommended saving is KES

25 (US\$0.17) a day, so that a monthly minimum of KES 400 (US\$2.73) can be achieved. There is no penalty if individuals fail to meet this target. However, if they do not meet the monthly minimum targets, they will not be eligible for short-term withdrawals under Haba Haba. If they meet the annual minimum, they can withdraw up to 50 percent of the fund balance after five years of contribution. The remaining balance can only be withdrawn as a lump sum on reaching the retirement age of 55. Each month, an individual's account balance is credited with the investment return declared by the NSSF for Haba Haba. Participants can access their contribution history and fund balance by logging into their account or via WhatsApp/USSD³² using their NSSF ID number. Since its inception in 2019, 538,373 individuals are estimated to have registered in Haba Haba, with 102,405 (19 percent) having active accounts—that is, they have made at least one contribution. The average annual contribution per individual in Haba Haba is estimated to be KES 9,000 (US\$61.35).

The Kenya Retirement Benefits Authority (RBA) and the National Federation of Jua Kali Associations collaborated to establish an appropriate retirement benefits scheme that would cater for people in the informal sector.

Mbao. The 'Mbao' Pension Plan was officially launched in 2011, for the micro, small, and medium enterprises (MSMEs) sector and to help members of various Jua Kali Associations to save regularly to provide a long-term and reliable income when they retire from their jobs or business.

The Mbao Pension Plan is a voluntary individual account savings plan to which all workers in Kenya may contribute without regard to income or age. It is designed to provide a program that is suitable for the unique nature of the informal sector and to encourage a savings culture for those workers. The name 'Mbao' refers to the amount—KES 20—which is the minimum daily contribution that members can make. Members can join and pay KES 100 as a registration fee and then commit to saving at least KES 20 a day, KES 100 a week, or KES 500 a month. The key innovation is that low-income workers can easily make small contributions at relatively low cost, considering the small contributions and small account balances. Participants can conveniently make contributions anytime and anywhere using their mobile phones.

Pakistan - Voluntary Pension System (VPS) and BISP savings scheme pilot

The VPS is a tax-advantaged, self-contributory DC pension scheme open to all adult Pakistanis with computerized national identity cards (CNICs). It has been established under the Voluntary Pension System Rules, 2005, under which employed and self-employed individuals can voluntarily contribute to a pension fund during their working life to provide regular income after retirement

The BISP savings scheme has two unique features. First, the government provides matching contributions to incentivize savings. Second, the scheme is built upon the existing infrastructure of the social registry (the NSER). This means that the savings scheme is essentially part of the

32. Unstructured Supplementary Service Data. A USSD code is an alphanumeric number of up to 12 digits long that can operate on all networks and is used for mobile-based services between a customer and a business.

broader social protection system, allowing for integration and continuum of social protection at the operational level linked to the financial sector. This unique combination allows the BISP savings scheme to benefit from the investments made by the government in both the social protection sector and the financial sector infrastructure.

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ABSTRACT

This report examines the state of pension and social insurance systems globally, focusing on old-age income protection. It analyzes expenditure, coverage, adequacy of benefits, and sustainability of both contributory and non-contributory pension schemes. The report highlights the impact of population aging on pension systems, emphasizing the need for reforms to ensure fiscal sustainability and adequate benefits. It also explores the challenges of extending coverage to informal sector workers and the importance of gender equity in pension provision. The report concludes with recommendations for adapting pension systems to evolving economic and demographic realities, emphasizing the need for inclusive and sustainable solutions.

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KEYWORDS

Pension system, sustainability, coverage, aging, non-contributory pension, social pension, social insurance, retirement policies.

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