6 Pension Challenges in Aging Asia

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6.1 Introduction

Like the rest of the world, Asia is rapidly getting old. This is inevitable in a world where scientific advances have increased life expectancy and, together with changed social preferences, have reduced fertility rates and population growth. Members of the workforce behind much of Asia's rapid growth (especially in the last half of the last century) have reached, or are reaching retirement. This has implications not only for the labor force but, importantly, also for old-age income support.

This chapter discusses the impact of population aging on the macroeconomy, particularly on labor force participation, savings, growth, and productivity. Its impact on social protection, with a particular focus on the pension challenges facing countries in ASEAN+3, is also examined. In the context of regional cooperation, the chapter tackles various pension-related issues that can be discussed at the regional level, to learn practices and solutions other countries have adopted to address the aging issue. The chapter explores the link between pension systems and the financial market. It discusses how the environment of low interest rates (low-interest environment) is making pension institutions struggle to meet its future financial liabilities toward retirees and how investment in alternative assets can help. It examines the role of technology in improving the delivery of social security services and also how workers in the technology-induced gig economy could be covered adequately by existing social security schemes. Finally, it considers pension portability in the context of increasing intra-ASEAN+3 labor migration. Throughout this chapter, references are made on experiences of more developed economies that have more mature pension systems, financial markets, and that have made early strides at addressing population aging.

The next section discusses aging and its macroeconomic impact on productivity, savings, and labor force participation. Thereafter, section 6.3 dives into pension challenges of the aging population and tackles the various reform directions adopted to date, as well as the ongoing challenges to make pension systems sustainable. Section 6.4 discusses aging and pension-related issues for regional cooperation. The first subsection considers the link between pension and financial markets, highlighting the challenge of meeting pensions' fiduciary obligations in view of the persistent low-interest environment, and it examines potential portfolio diversification options, for instance investing more in "alternative" assets such as infrastructure. The second subsection considers the impact of technology, not only on pension institutions' governance and administration, but also more importantly, on the social protection of workers in the technology-induced gig economy where standard employment benefits may not apply. Finally, the third subsection discusses the portability of pension in light of the increasing mobility of workers.

6.2 Aging and the Macroeconomy

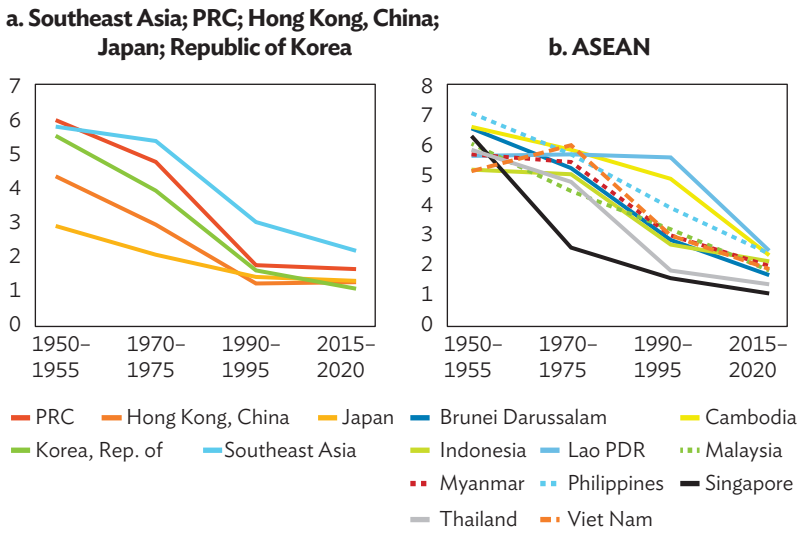
The Population Profile

ASEAN+3 is aging due to declines in population growth and longer life expectancies. Figure 6.1 shows the decline in fertility in East and Southeast Asia. From a rate of close to 6 live births per woman in the 1950s, Southeast Asia as a whole dwindled to 2.2 births per woman over 2015–2020. Among them, Singapore and Thailand have the lowest fertility rates of 1.2 and 1.5, respectively. The picture for East Asia is similar: from a relatively high fertility rate in 1950, the number has fallen below the replacement rate of 2.0. Of the three, the Republic of Korea has the lowest rate of 1.11, lower than 1.69 for the People's Republic of China (PRC). Yet, relative to other regions of the world, Asia's population is growing faster than Europe or North America, but falls far behind Africa's 4.4 fertility rate.

While fertility rates have declined everywhere, people now live longer, thanks to advances in medical technology and bioresearch. Figure 6.2 shows how life expectancies for those aged 60 have risen both in East and Southeast Asia. For example, a 60-year old person in Japan is now expected to live up to about 86 or 87; in the PRC, it will be up to 80 years old. A similar story is shown for Southeast Asia. In Singapore, old people are expected to reach 85 years. Compare this to the 1950s, when in Southeast Asia as a whole, elders were expected to live only up to 73. In general,

high-income economies such as those in Europe and North America have higher life expectancies than the rest of the world.

Figure 6.1: Fertility Rate in Selected East and Southeast Asian Economies, 1950–2020

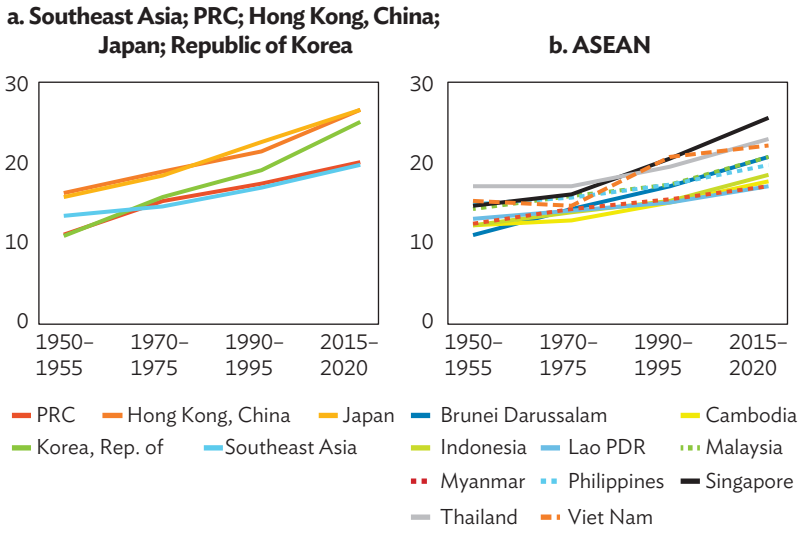


ASEAN = Association of Southeast Asian Nations, PRC = People's Republic of China, Lao PDR = Lao People's Democratic Republic.
Notes: Southeast Asia aggregation follows the definition of the source.
Source: UN 2019a. 2019 Revision of World Population Prospects Database (accessed August 2021).

The consequence of low fertility rates and higher life expectancies is a larger proportion of old people in national populations. Figure 6.3 shows that the median ages in the populations of East and Southeast Asia have generally increased. Japan's median age in 1950 was 22, while it is 48 in 2020; in the Republic of Korea it is 44, up from 19; and in the PRC, from 24 it rose to 38.

Compared to East Asia, Southeast Asia is still relatively young, however, with the average median age at 30 in 2020. Among its countries, Cambodia, the Lao People's Democratic Republic (Lao PDR), and the Philippines have the lowest average median age, at 25, up from 19 in 1950; and in Singapore and Thailand, median age is approaching that of the Republic of Korea—42 and 40, respectively. Indonesia and Malaysia are in the middle, with a median age of 30.

Figure 6.2: Life Expectancy at Age 60 in Selected East and Southeast Asian Economies, 1950–2020



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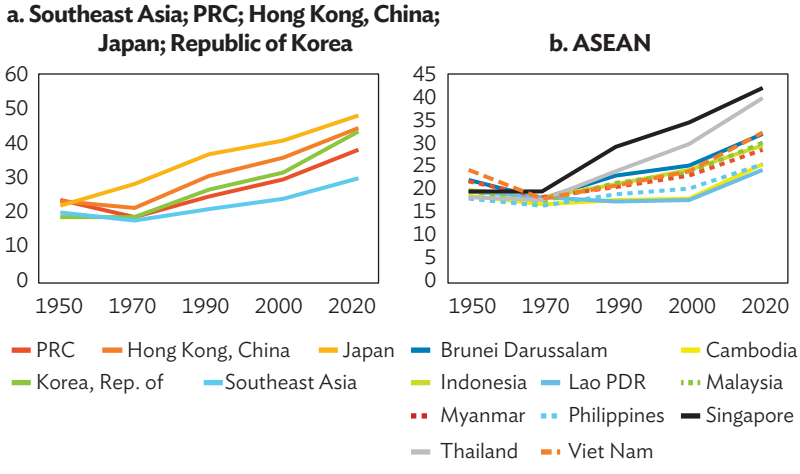
Source: UN 2019a. 2019 Revision of World Population Prospects Database (accessed August 2021).

Another important consequence of population aging, and one that has more direct relevance to pension issues, is that the old-age dependency ratio has increased, that is, the number at retirement age of 65 years and above, divided by the working-age population (20 to 64 years old).[1] This ratio is used to estimate how many old people are supported by the working population. For example, in Figure 6.4, Japan's ratio of 52 means that roughly two workers support one old person (i.e., 65 years old and above). In contrast, in Southeast Asia, eight workers support one old person. Worldwide, all countries in the world are projected to see at least a doubling of the dependency ratio by 2050 (Lee 2016).

[1] Other definition of the dependency ratio uses the population 15–64 years old as the denominator instead of 20–64 years old.

Figure 6.3: Median Age in Selected East and Southeast Asian Economies, 1950–2020



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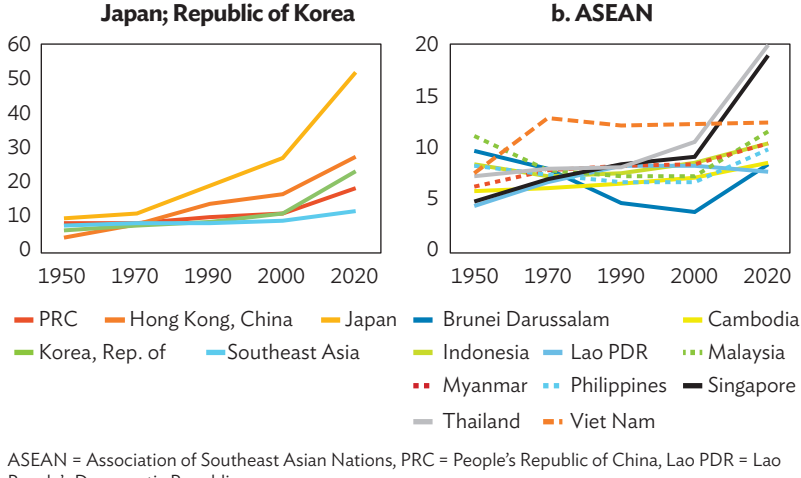
Note: Southeast Asia aggregation follows the definition of the source.
Source: UN 2019a. 2019 Revision of World Population Prospects Database (accessed August 2021).

Figure 6.4: Old-Age Dependency Ratio in Selected East and Southeast Asian Economies, 1950–2020



ASEAN = Association of Southeast Asian Nations, PRC = People's Republic of China, Lao PDR = Lao People's Democratic Republic.
Note: Southeast Asia aggregation follows the definition of the source. The data refer to the population aged 65 years and above per 100 persons aged 20–64 years old.
Source: UN 2019a. 2019 Revision of World Population Prospects Database (accessed August 2021).

How will population aging in Asia affect future growth, productivity, innovation, and the macroeconomy? Is the breakneck speed of growth in East and Southeast Asia over in light of its aging labor force (as well as the pandemic shock)? As the population ages, theory posits that labor force participation declines and economic growth drops. Furthermore, to the extent that older workers are deemed less productive than younger ones, population aging will mean a decline in productivity, which contributes to lower economic growth. Population aging also means an increase in the proportion of "dissavers" because old people tend to consume more than save, thus lowering aggregate savings in the economy. As old people cash in on their stock investments, a so-called "secular stagnation" characterized by low returns on capital due to decumulation can result. These linkages are surveyed below.

Aging and Economic Implications

Aging and labor force participation

With an aging population, labor force quantity declines but not as dramatically as the rate of aging. First, because of better health and medical services, many people remain highly functional at age 65 and above. Many who could have otherwise exited the labor force have the option to continue working, partly because many jobs are not as physically demanding as they were in the past. Second, because of policy changes by governments, for example, the removal of statutory retirement age, or anti-discriminatory policies for older workers in the workplace, older people remain employable. Open immigration policies also helped increase labor supply vitiating the dearth of labor due to the aging population. Third, technology and sociocultural values have evolved. Part-time jobs that fit older workers or work-from-home arrangements are now available, thanks to technology and the change in mindset in society that the COVID-19 pandemic accelerated. Over time, more women have also entered the work force mitigating the effect of the aging population on labor supply.

The quality of labor has, likewise, improved. Burtless (2013) notes that older workers now have higher human capital—i.e., are more educated—than the previous generation. As such, even if quantity declines, better quality workers mitigate the population aging's negative effect on the economy.

Aging, productivity, and growth

Are older workers less productive? At first brush, they may be deemed so; they may be slower to learn and to adopt new technology than younger workers. Yet, empirical evidence supporting this hypothesis is fragile. Acemoglu and Restrepo (2017), using cross-country data, find no negative relationship between aging and gross domestic product (GDP) per capita. They argue that automation technology in countries that experience demographic changes defuses the negative effect of an aging workforce. Effectively, Acemoglu and Restrepo say that labor productivity has not suffered because of the aging population; rather, projected population aging triggers a shift to new production technology, increasing labor productivity. Burtless (2013) also finds little evidence that an aging workforce lowers average productivity. He argues that productivity is a function not only of age, but also of education and experience. In this regard, many highly productive workers self-select themselves by staying longer in the workforce, while low-productivity old workers are incentivized to exit the labor force sooner. Hence, the old workers that generally remain in the labor force are the more productive ones, as shown in their wage premium relative to those of younger cohorts. The cohort in his study of 60–70 year-old retirees was productive because they were more educated than past cohorts.

On the other hand, Maestas, Mullen, and Powell (2016) find a negative correlation between population aging and growth in GDP per capita. Exploiting variability of aging across US states, they estimate that a 10% increase in the population of age 60 and above decreases state GDP per capita growth by 5.5%. Moreover, they show that, contrary to Acemoglu and Restrepo (2017), the growth slowdown results mostly from slower productivity growth (shown as slower earning growth across the age distribution) and less from slower labor force growth. The finding contrasts with Acemoglu and Restrepo's (2017) result which found no negative relationship between aging and growth across countries (instead of across US states) when the variability of technology adoption is controlled for. Hence, within an economy where states have a similar technology level, it can be surmised that aging can negatively affect growth. However, this negative effect is blunted by technology (which is productivity-enhancing) and mitigated by human capital investments.

Summing up, all else being equal, aging can lead to lower economic growth. However, since nothing is static, countries adapt new technology to augment productivity; population health improves so that even older

workers remain functional for a longer time than in decades past; and productivity increases through life-long learning as well as previous work experiences. Altogether, these explain the mixed result, so far, of the effect of aging on growth and productivity.

Aging, savings, and assets

The old generally dissave, while the young save. Hence, aging can lead to a decline in private savings. This simple generalization is actually not easy to defend. In fact, the relationship between aging and aggregate saving is not straightforward. Public savings may be more directly negatively related to aging, especially if the country has a pay-as-you-go pension system and gaps between contributions and benefits are paid out of public funds. Further, if government also funds public health services, an aging population will burden public savings because health costs typically increase as the population ages.

It is a different story, however, for private savings. A negative effect of population aging on private saving is possible because of the higher proportion of net dissavers. However, with longer life expectancies and lower fertility, the working-age population will also tend to save more to provide for longer life in retirement. Moreover, with lower fertility, less is spent on child care and education, although the increase in savings may be lessened by the young consuming more to compensate for working more. The net effect on private saving is therefore ambiguous and depends on various factors. Pension systems and the generosity of payment benefits, additionally, diminish private savings especially if pension and private savings are deemed as substitute sources of old-age income (Chai and Kim 2018).

Population aging can lead to asset meltdown when retirees or baby boomers become more risk averse and start decumulating by selling stocks and buying bonds. As the price of bonds increases with a rise in demand, low returns on capital ensue. Similarly, theory posits that returns on capital fall because as labor force participation declines with population aging, higher capital intensity results. The occurrence of this scenario, however, is deemed unlikely. First, the public sector may compete for private capital to fund public expenditures, thus raising interest rates. Second, in an open economy, higher capital intensity in one country due to population aging, can lead to export of capital, mitigating the fall in rates of return. A relatively younger economy will be a net recipient of capital, while an

older one becomes an exporter of capital. In this sense, an open economy context counteracts the effects of population aging on asset price movements (Lee 2016).[2]

6.3 Aging Asia's Challenging Pensions Environment

While connections between aging, growth, and productivity are ambiguous, an aging population creates clear challenges for pension systems. Add to longer life expectancies and lower population growth the fact that social and cultural shifts have frayed traditional family support, the result is that the elderly population has to rely even more on the formal pension system.

Pension systems would be panacea if it were not for the fact that they themselves face some challenges from the aging phenomenon. The main challenges are how to make the pension system sustainable, provide adequate benefits, and, at the same time, cover a large portion of the population.

Often, pension systems cover only those in formal employment, leaving the informal sector outside of its net. Some self-employed individuals or those in nonstandard employment (part-time, temporary, or contract workers, including "gig" workers) may enjoy some pension benefits but often these are less than what those with standard employment have (section 4.2). Some public pension systems have devised mechanisms for the self-employed or workers in the nonformal sector, for example through voluntary contributions. Despite this, by and large, pension coverage or membership remains low in Asia (Park and Estrada 2014, OECD 2018b).

Pension Systems Landscape

To better understand pension challenges, let us discuss the pension system landscape. Pensions are one of the pillars of social protection, which typically includes social assistance, unemployment benefits, healthcare, disability, survivorship, and other things. Often the pension system is designed such that it is so closely intertwined with other forms of social protection, especially disability and survivorship.

[2] At the individual level, increasing savings is not an issue for high-income earners, but is a challenge for low- and middle-income earners, whose savings have to be allocated into different baskets of needs—health, children education, daily consumption, etc.—with personal savings for retirement usually rated as last priority. Because savings, whether for pension or others, tend to be concentrated in high-income households, the aging economy can also exacerbate income inequality (Amaglobeli et al. 2019).

Pension systems have various "tiers." The so-called zero-pillar or zero-tier is usually noncontributory or non-earnings-related, with benefits assistance that is usually means-tested, usually based on residency, and funded fully out of the government budget. Mandatory defined benefit (DB) pay-as-you-go systems constitute pillar 1, while mandatory defined contribution (DC) schemes are under pillar 2. Pillar 3 accounts for voluntary contributions to private accounts that include pension plans or retirement savings plans, insurance, disability, death, and others, that usually act as supplementary savings. These can also be either DB or DC schemes, employer-sponsored or not, but are essentially flexible and discretionary. Pillar 4 is a nonfinancial pillar including informal support from family, as well as other formal social programs such as healthcare and/or housing, and other financial and nonfinancial assets such as homeownership and reverse mortgages (Holzmann, Hinz, and Dorfman 2008).[3]

Defined benefit, defined contribution, and other pension characteristics

Pension plans can differ in how they are financed (whether all from member contributions or partly from the government budget) or in what vehicles or institutions collect contributions and manage the assets. Some pension plans are occupational (usually set up by employers) while others are personal. Most importantly, some pension plans are either DB, where future benefits are promised based on some defined formula, usually a function of number of years and amount of contributions or earnings. Others are DC, where future benefits wholly depend on the amount of contributions and their investment returns. Public pensions are typically managed by a government-related institution, although it can outsource the investment of funds to external parties such as private pension funds, hedge funds, or investment banks. Contributions to the public system are usually mandatory, but some can be DB or DC schemes (pillars 1 and 2). Other pension plans are employer-sponsored, and can be voluntary and either DB or DC. Some pension plans are funded, that is, the assets (based on contributions from employers and employees as well as investments) pay for the benefits obligations. Other pension plans are unfunded in that assets do not fully cover the liabilities; many pay-as-you-go systems are of this type.[4] For government-run pensions systems, the gaps in benefits

[3] More details of the World Bank's five pillars of social protection are discussed in Holzmann, Hinz, and Dorfman (2008)

[4] Some employer-sponsored pension plans can also be either funded or unfunded. Funded ones are where both employer and employee contributions are separately placed outside the company books. They are unfunded when corporate funding share is through book reserves in the employer's accounts. The latter type of pension plan suffers when a company goes bankrupt.

become contingent liabilities that eventually have to be covered out of the national budget.[5] For employer or occupational pensions, the gaps may mean that employees would not enjoy the benefits promised under the pension plan (if under DB schemes). Increasingly, more pension plans are DC schemes which eliminate the underfunding problem but carry the possibility of low future pension benefits depending on the performance of the pension fund. Figure 6.5 provides a summary of some salient characteristics of public and private pensions.

Figure 6.5: Pension Landscape General Typology

System	Financing	Vehicle	Administrator (public or private entity)	Plan type (Occupational/ Personal)	Plan type (DB/DC)
Pension Plan	Funded	Pension funds	Trust, foundation, pension management company, other	Occupational	DB
					DC
				Personal	DB
					DC
		Pension insurance contracts	Insurance company	Occupational	DB
					DC
				Personal	DC
		Other	Bank, investment company	Occupational	DC
				Personal	DC
	Book reserves	Reserves in employer's books	Employer	Occupational	DB
	Unfunded	Public scheme (with reserves)	Public entity		

DB = defined benefit, DC = defined contribution.
Source: OECD (2019a).

DB pay-as-you-go systems depend on the contribution of those in the workforce to pay retirement benefits which are computed based on number of years of contributions and earnings history. Under DB systems, an increasing proportion of retirees that the system needs to support can result in failure and bankruptcy of the pension system if contributions are insufficient and timely reforms are not undertaken. Reforms and measures can include additional government funding support, increased funding

[5] The zero-pillar of pensions is social assistance that is usually funded out of the national budget as well.

through higher member contributions or a bigger number of contributors, as well as increasing the pensionable age or lowering old-age benefits. The frailty of DB systems has led some countries and some private companies that have sponsored DB retirement schemes to shift to the DC system to ensure sustainability.

Unlike DB systems, DC systems mitigate the risk of sustainability of pension institutions because the member contributions are usually reflected as individual savings accounts instead of being used to pay current retirees' benefits. Put another way, DC benefits are not predefined but depend on the amount members put in as well as its investment returns. The challenge in DC systems, however, is ensuring that the accumulated amount for retirement is adequate enough to support old-age consumption in view of longer life expectancies. This is particularly salient given recent years' low-growth/low-interest economic environment which reduces the long-term benefit of compounding investments in DC plans.[6]

Among developed economies, 58% have DB old-age pension system, 11% have DC, and 20% have both DB and DC systems. For emerging and developing economies, 64% have DB systems, 13% have DC, and 19% have both DB and DC systems.[7] Since most DB schemes are financed on a pay-as-you-go basis—i.e., current workers' contribution funds current retirees' benefits—aging's direct impact is likely to fall on public savings in case of any funding shortfall. In contrast, in DC systems, aging will not directly impact public savings but private savings (Amaglobeli et al. 2019).

Pension Systems in ASEAN+3

Table 6.1 provides an overview of the public pension systems in ASEAN+3. Almost all have DB systems, except Malaysia and Singapore, which have DC schemes. The Philippines has implemented a DC scheme starting only in January 2021, while Thailand started their mandatory provident fund in 2018. Across the region, the pensionable age ranges between 55 and 65 years. Men who reach 65 can expect to live another 14 to 24 years, which is shorter than the 18 to 29 years for women.

[6] Other variations in pension schemes include notional accounts, for example, notional defined contribution plan, whereby instead of actual investment returns from the market, what is reflected in the individual pension account is the return set by the provider, e.g., the government. Singapore is, in practice, an example of a notional DC, because the rates of return on the Central Provident Fund contributions are set or guaranteed by the government.

[7] The remaining percentage for both developed and developing economies pertain to "Other" pension systems that include only basic pension schemes (usually not based on contributions).

Table 6.1: Selected Indicators of Pension Systems in ASEAN+3

	Pension Age (years)	Life Expectancy at 65 (years)		Old-Age Support Ratio (2055)	Gross Replacement Rates (%)		Coverage (% labor force)	Type of Public Pension Plan
	Men (Women)	Men	Women		Men	Women		
PRC	60 (55)	20.1	21.6	1.9	76.0	82.6	51	DB
Japan	63	23.8	29.0	1.4	34.6	34.6	95	DB
Korea, Rep. of	65	23.1	28.1	1.5	39.3	39.3	80	DB
Indonesia	55	14.5	17.7	4.5	62.1	57.8	18	DC/DB
Malaysia	55	19.9	21.6	3.4	69.4	64.1	46	DC/DB
Philippines	65	14.6	18.4	6.2	71.9	71.9	27	DB/DC
Singapore	65	24.3	27.5	1.6	53.1	47.3	61	DC
Thailand	55	20.8	23.7	2	37.5	37.5	36	DB/DC
Viet Nam	60 (55)	21.0	25.1	2.5	75.0	75.0	22	DB

PRC = People's Republic of China, DB = defined benefit, DC = defined contribution.
Note: Gross replacement rate refers to the ratio of pension benefit to individual average lifetime earnings. Support ratio refers to the ratio of working population to old-age population. Coverage refers to the ratio of the number of members to labor force. The Philippines started the DC system in January 2021
Source: Author, based on OECD (2018b, 2019c).

The number of people covered by the pension system is between 18% and 61% of the labor force in Southeast Asia, with Indonesia, the Philippines, and Viet Nam having the lowest coverage. Japan and the Republic of Korea have achieved close to total coverage, which is the ideal for inclusivity and equity. However, whether the pension amount is adequate is another story. The computed gross replacement rates by the Organisation for Economic Co-operation and Development (OECD) of pension benefits as a percentage of average lifetime earnings is low for developed countries such as Japan, the Republic of Korea, and Singapore because of higher earnings and standards of living. For the opposite reason, replacement rates are relatively high for countries such as the PRC, the Philippines, and Viet Nam (OECD 2018b, 2019c).

Table 6.2 shows the available pension pillars in the region. All economies have multi-pillar pension approach but they differ in the details. For example, Singapore and Malaysia have the most similar DC pension systems but while Singapore's is strictly only for Singaporeans and permanent residents, Malaysia allows voluntary contribution to the Employee Provident Fund by foreign workers. Contribution rates by employer and employees also vary, with Singapore having a combined maximum contribution of up to

37% of earnings while Malaysia reaches only up to 24%. Malaysia also has a separate system for certain public sector employees and the military. For private sector workers, a social insurance system (defined benefit) exists in addition to the Employee Provident Fund.

Table 6.2: Pension Systems in Selected ASEAN+3 Economies

a. People's Republic of China

Pillars	Government Workers	Workers in Formal Sector	Informal Sector/Self-Employed	Rural and Non-Salaried Urban Residents
Pillar 0	Noncontributory system: Minimum life security system			
Pillar 1	Covered separately	Social insurance (Basic pension program) through mandatory contribution by employers: Public pension fund		
Pillar 1b	Mandatory individual accounts (Basic pension program)			Individual accounts
Pillar 3	Enterprise annuities (EA) (voluntarily set up by employers) Other schemes set up by employers not conforming to EA format (other occupational pension plans) Other tax-deferred annuities plan for individuals (commercial insurance)			

b. Indonesia

Pillars	Government Workers	Workers in Formal Sector	Informal Sector
Pillar 0	Social assistance for poor retirees		
Pillar 1	DB social insurance scheme (*Jaminan Pensiun*) administered by BJPS Ketenagakarjaan started in 2015		
Pillar 2	Special system for public sector	Provident fund—JHT *Jaminan Hari Tua* or Old Age Security; Mandatory life insurance	Voluntary coverage in provident fund; Mandatory life insurance
Pillar 3		Occupational pension funds (either DB or DC)	
Pillar 3	Personal DC scheme		

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Table 6.2 (continued)

c. Japan

Pillars	Government Workers	Workers in Formal Sector	Informal Sector/ Self-Employeda
Pillar 0	National Pension Insurance (basic income)		
Pillar 1	Mutual Aid Association (eventually subsumed under EPI)	Employee Pension Insurance (EPI)[b]	
Pillar 3		Corporate or Occupational Pension (DB/DC);	National Pension Funds Association; Small Enterprise Retirement Allowance Mutual Aid Plans
Pillar 3	Individual pension plans (DC)		

d. Republic of Korea

Pillars	Government workers	Workers in formal sector	Informal sector/ Self-employed
Pillar 0	Social assistance		
Pillar 1	Government Employees Pension Scheme; Military Personnel Pension Scheme	National Pension Service	
Pillar 1		Private school teacher pension scheme	
Pillar 3	Personal pension schemes (tax-favored) Corporate pension		

e. Malaysia

Pillars	Government workers	Workers in formal sector	Informal sector
Pillar 0	Social assistance/welfare benefits for the poor		
Pillar 1	Special system for certain public sector employees and military	Social Security Organization (DB social insurance system)	
Pillar 2	DC scheme for armed forces personnel	Employee Provident Fund (*Kumpulan Wang Simpanan Pekerja* (KWSP))	Voluntary coverage in the Employee Provident Fund
Pillar 3	Private retirement schemes	(Private-sector run DC schemes)	

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Table 6.2 (continued)

f. Philippines

Pillars	Government workers	Workers in formal sector	Informal sector
Pillar 0	Social assistance		
Pillar 1	Government Service Insurance System	Social Security System (SSS)	SSS but can be voluntary
Pillar 2	PAG-IBIG Fund; Mandatory Provident Fund		
Pillar 3	SSS P.E.S.O. Fund (Personal Equity and Savings Option) PERA (Personal Equity and Retirement Account) Private pension plans and various pre-need products (acting as supplementary savings)		
	Occupational pension and provident funds [c]		

g. Singapore

Pillars	Government workers	Workers in formal sector	Informal sector/ Self-employed
Pillar 0	Social assistance		
Pillar 2	Central Provident Fund (CPF)		CPF (with reduced contribution rate for low-income earner)
Pillar 3	Supplementary retirement schemes; Personal pension/insurance schemes; employer-funded pension		

h. Thailand

Pillars	Government workers	Workers in formal sector	Informal sector
Pillar 0		Old-age allowance	
Pillar 1	Old civil service pension	Social security fund (sec 33) [d]	Social security fund (sec 39/40) [d]
Pillar 2	Government pension fund	National saving fund	
Pillar 3	Retirement mutual fund and pension insurance		
		Provident fund	

DB = defined benefit, DC = defined contribution.
Note: Pillar 0—social assistance; Pillar 1—mandatory defined benefit pay-as-you-go schemes; Pillar 2—mandatory defined contribution; Pillar 3- voluntary/ supplementary saving schemes, occupational or personal.
[a] National Pension Funds Association for self-employed and for employed but whose companies do not have corporate pension plans. Smaller Enterprise Retirement Allowance Mutual Aid plans are specifically for small businesses.
[b] Employees Pension Fund can substitute EPI (if company opts out of EPI and provides more than 50% higher benefits than EPI).
[c] A portion is mandatory lump-sum retirement benefit equal to one-half of monthly wage multiplied by number of years of service (mandatory retirement benefit is provided by employer); provident funds are voluntarily set up by companies.
[d] Social Security Fund sec 33 and 39 differ in the maximum salary on which contribution is based: B15,000 for sec 33 and B4,800 for sec 39. Sec 40 has different minimum number of years of contribution and amount.
Source: Author, based on various sources.

Indonesia, the Philippines, and Thailand have systems to cover government workers separately from the social insurance system for private sector workers. Indonesia, the Philippines, and Thailand have both DB and DC schemes. Indonesia started its DB system in 2015, and before then had a provident fund and mandatory life insurance. Thailand is the reverse: it had a DB scheme and introduced a voluntary DC scheme, the National Saving Fund, only in 2011 and a mandatory one in 2018. The Philippines also just introduced a mandatory DC system (pillar 2) in January 2021, but it has private and corporate provident funds for supplementary savings as well as tax-favored voluntary retirement savings schemes.

Japan's pension system is unique in that it allows some companies to opt out of the national insurance scheme as long as its benefits exceed that of the Employees' Pension Insurance benefits by more than 50%. Otherwise, corporate pension plans, just like in other countries, serve only as a supplementary source of retirement income. For companies that do not have corporate pension plans, its employees can join the National Pension Funds Association, which also caters to the self-employed, for supplementary savings.

Similarly, for the Republic of Korea, a separate pension scheme is designed for teachers in private schools, excluding them from the National Pension Service that serves all other workers in the formal sector. Unlike in Japan, there is no opt-out option for corporates from the National Pension Service.

The PRC's pension system is more complicated than those of the other ASEAN+3 economies. It is fragmented and organized at the provincial or municipal level, although efforts are afoot to make it more centralized. Its social insurance system in urban areas is an unfunded system with contributions from employers up to 20% of payroll. Employees contribute 8% of the previous year's average monthly earning to a separate mandatory individual account. The latter is supposed to be fully funded (akin to a provident fund) but, in reality, its assets are largely notional, because the funds have been used to pay current retirees' unfunded liabilities. The minimum vesting period is 15 years. Rural areas are covered by a separate pension system, largely noncontributory, along with individual accounts.

The pension systems in Cambodia, the Lao PDR, and Viet Nam are still nascent and are described in Box 6.1.

Box 6.1: Pension Systems in Cambodia, the Lao People's Democratic Republic, and Viet Nam

Cambodia, the Lao People's Democratic Republic (Lao PDR), and Viet Nam have very young pension systems. In all three countries, laws governing social security exist, but are only recently being implemented. In Cambodia, the National Social Security Fund, which started in 2008, appears to have provisions at the moment only for maternity and sickness, as well as for work injury, and none yet for pension and old age. The Lao PDR passed the social security law in 2013 and started implementation in 2014, while Viet Nam passed the pension law in 2009. Of the three countries, Viet Nam has the biggest contribution rate, at 22%, which bodes well for sustainability. It also mandates payment for social security in Viet Nam by all foreign employees, for as long as they have more than 1-month work contract in the country.

The challenges in these new social security systems differ from those of other ASEAN+3 economies. In particular, with respect to private sector pension liabilities, a funding gap issue does not exist as yet. Instead, the challenge is in the efficient functioning and administration of the system itself as well as collection and payment compliance by enterprises. Establishing an accurate database of workers and compensations to base projections of collections is one hurdle for the social security institution. Likewise, securing personal documents and difficulty in registration and document verification is another impediment for members. Basic institution building, digital support, and financial education, rather than strategies for sustainability and adequacy, should be priorities for capacity building in these economies (table).

continued on next page

Box 6.1 (continued)

Statutory Provisions of Social Security Schemes

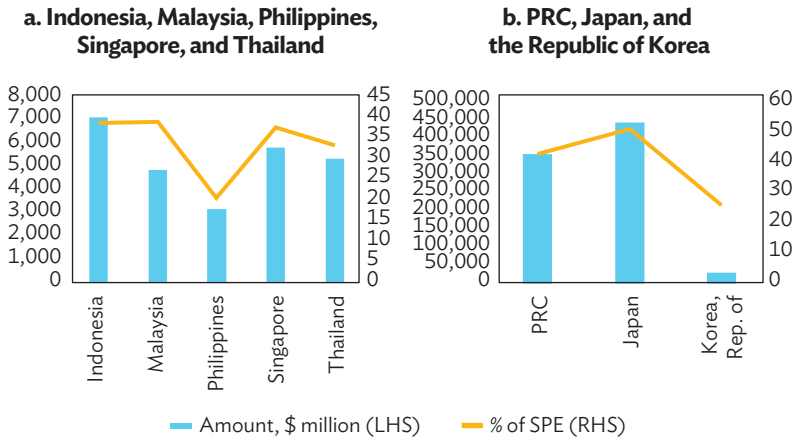
Country	Pension Age	Coverage	Contribution Rate	Social Security Law
Cambodia	No provision	Private sector employees; special systems for public sector employees	2.6% of covered earnings to be paid by employer; with minimum and maximum earnings for contribution calculation	2002 (social insurance) implemented in 2008 but has no provision for old age, only maternity and sickness; work injury
Lao PDR	60 years old (men); 55 (women); at least 15 years of contributions	Employees of private and public sector; Voluntary for self-employed	5% (2.5% each for insured and employer) of gross monthly earnings. Minimum and maximum earnings exist for contribution calculation	New law in 2013; implemented in 2014
Viet Nam	60 (men); 55 (women) with at least 20 years of contributions	All employees (private and public); Voluntary for self-employed	22% (8% insured person; 14% employer) of monthly covered earnings; has minimum and maximum earnings for contribution calculation	2009 (for old age); 2014 (social insurance)

Lao PDR = Lao People's Democratic Republic.
Source: Government of the United States, Social Security Administration (2019) (accessed May 2021).

Pension expenditures

Pension expenditures in Southeast Asia range from $3 billion (Philippines) to $7 billion (Indonesia), constituting between 20% and 39% of each country's social protection expenditures. In East Asia, pension expenditures are starkly higher, from $30 billion (Republic of Korea) to $450 billion (Japan). Pension spending in Japan is 51% of social protection expenditures, while in the PRC its share is 43%, and in the Republic of Korea it is 26% (Figure 6.6).

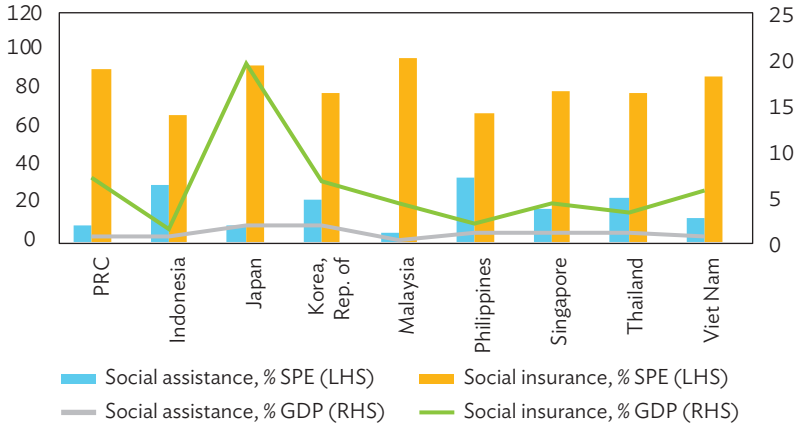
Figure 6.6: Pension Expenditures in Selected ASEAN+3 Economies, 2015



LHS = left-hand scale, PRC = People's Republic of China, RHS = right-hand scale, SPE = social protection expenditures.
Source: Author, based on ADB Social Protection Indicator Database (accessed March 2021).

While Table 6.2 shows that Asian countries have zero-pillar social protection or social assistance, their share in social protection expenditures is low. Social insurance, comprising pensions, health, and other social insurance, constitutes at least 60% of social protection expenditures across all countries (Figure 6.7). Among social insurance expenditures, pensions take an average of 46%. In Japan, social insurance takes close to 20% of GDP, the highest ratio among Asian economies.

Figure 6.7: Social Insurance and Social Assistance Expenditures in Selected ASEAN+3 Economies, 2015

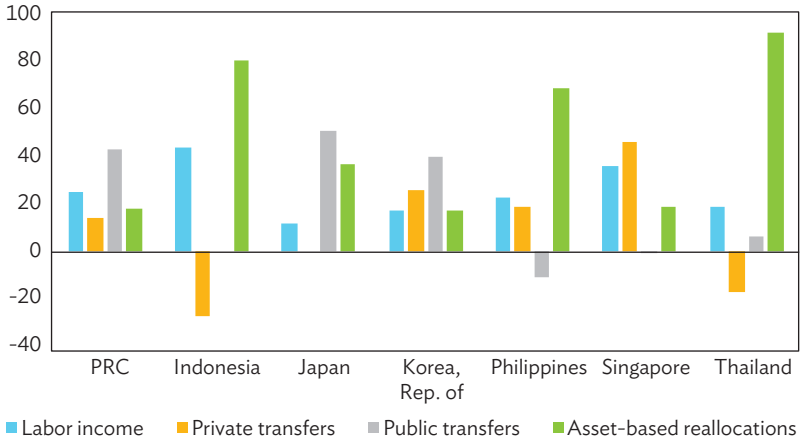


LHS = left-hand scale, PRC = People's Republic of China, RHS = right-hand scale, SPE = social protection expenditures.
Source: Author, based on ADB, Social Protection Indicator Database (accessed March 2021).

The low share of social insurance expenditures in ASEAN+3 is supported by the UN 2019 World Population Highlights Report findings that the majority of elderly consumption, especially in Indonesia, the Philippines, and Thailand, is funded out of asset reallocations (Figure 6.8). This is along with private transfers (from family and friends).[8] In these countries, public transfers are close to nil, while in the PRC, Japan, and the Republic of Korea, they remain an important source for funding for old-age consumption.

[8] In the PRC, anecdotal evidence shows the increasing difficulty of sourcing family support from grown-up children, first because the single-child policy makes the burden of parental support too heavy for one person; and second, the rising urban cost of living that has made sending extra money to families in the rural areas increasingly more difficult (Cai 2018). This evidence of declining family support is not unique to the PRC. In other countries too, internal migration and declining household size have reduced the ability of children to care for parents. Among developed countries, where marriage instability is more widespread and more children are born outside of marriage and stable family units, Cherlin and Seltzer (2014) see the number of Americans, for example, willing to bear the burden of family hardship support of elderly parents waning. In Japan, the emergence of people committed to living single—*ohitorisama*—is helping change social dynamics. In Canada, solo households make up 28% of the total, and 34% in the European Union. In Europe, secularism is displacing Christianity and affecting community and family ties (Ernst and Young 2020). These sociological changes add salience to the public provision of adequate retirement income for the elderly.

Figure 6.8: Financing Elderly Consumption in Selected ASEAN+3 Economies, Latest Data from 1998 to 2015
(%)



PRC = People's Republic of China.
Source: United Nations (2019b).

Pension–Savings Gap

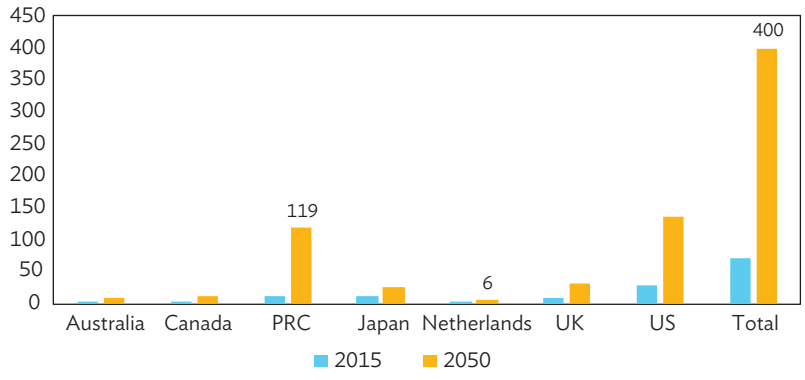
The challenge of old-age support is an intergenerational issue if it is assumed that the old population requires transfers from the young through, for instance, their contribution in pay-as-you-go pension systems or government taxes. The problem is less stark if the old population has sufficient accumulated asset income and high private savings. Unfortunately, this is not the picture even in countries where savings rates were historically high. A World Economic Forum (WEF) report, for example, shows a $400 trillion gap by 2050 for the eight economies in its study, with the PRC and Japan among them.[9] The calculation is based on funding from government-provided first-pillar systems and public employee systems, the funding of employer-based systems, and the levels of individual pension savings, compared with expected average annual retirement income needs and life expectancies (assuming 70% income replacement rate).

[9] Refer to Figure 8 in World Economic Forum (2017a).

In the WEF computation, the PRC and Japan both have an $11 trillion retirement savings gap in 2015 which is estimated to grow by 7% and 2%, respectively. At this growth, by 2050, the PRC's pension savings gap will be $119 trillion while Japan's will be $26 trillion. WEF (2017a) also shows that 61% of Japan's pension saving shortfall is due to unfunded government pension liabilities, while 37% comes from low individual savings. For the PRC, the percentage shares are 72% from unfunded pension and 28% from low private savings.

Figure 6.9 underscores the urgency for strengthening pension institutions and undertaking reforms to bridge the public pension gaps. It also highlights the need to promote higher personal savings for retirement. Significantly, WEF (2017a) finds low financial literacy among workers, an important condition, especially for DC systems where responsibility rests heavily on individuals, who are their own investment managers, actuaries, and insurers. Another difficulty is the lack of easy access to pensions, especially in places where majority of workers are in the informal sector. For DC systems to generate decent returns on retirement, a target of 10%–15% savings rate is recommended but WEF (2017a) finds that savings rates are usually below this target. Another issue is low future investment returns (currently 5% for equities, 3% for bonds) which is currently below historic average. The section on pensions and financial markets looks closer at the problem of a low-interest environment for pension institutions.

Figure 6.9: Retirement Savings Gap in Selected Economies, 2015 and 2050
($ trillion)



PRC = People's Republic of China, UK = United Kingdom, US = United States.
Note: The sum of the individual economies may not equal the total, due to rounding.
Source: World Economic Forum (2017a).

Reform Directions

To increase private savings for old age and to avoid unfunded pension systems going bankrupt, many countries have embarked on reform programs. For instance, to increase individual private savings, some countries have adopted supplementary DC pension systems on top of existing DB pension schemes (such as the Philippines and Thailand). Some DC systems are mandatory, with individual and employer contribution (pillar 2); others are voluntary (pillar 3) but are incentivized by favorable tax (only if withdrawn upon retirement and not earlier). Other countries have also tried to expand financial products that could be vehicles for retirement savings, such as life insurance or reverse mortgages on purchased properties during retirement (pillar 4). In the 1990s, some countries, especially in Latin America, privatized their systems to remove the pension burden from government.

Institutional and parametric reforms

For public pension systems, various reforms include parametric changes in the system, such as increasing contribution rates by employees and employers, expanding the number of contributors, raising the retirement age, or adjusting the benefit formulas and reducing monthly benefits payout to extend pension benefits over a longer period. Some have curtailed early retirement options and tightened eligibility rules for other benefits. Reduction of benefits, however, can worsen poverty in old age, especially in countries where pension benefits are not high to start with.

Some countries have adopted deeper institutional pension reforms by shifting from DB to DC pension systems. The shift has aimed to make systems sustainable and put most responsibility for old age on individuals instead of governments. Funding transitions from DB to DC systems, however, has proved difficult, since a generation of workers could end up paying for their own retirement needs and those of the generation ahead of them. The upfront transition cost also put significant pressure on existing public savings. Further, significant financial education is usually required in the shift to a DC system as individuals will have to manage their future income trajectories, given that many people are ignorant of financial products and their appropriateness for financing old age (WEF 2017a). In addition, costs associated with pension investments, such as commissions and fees to asset managers, can be costly and eat up workers' meager retirement savings. Fully funded DC systems are also subject to

potential market risks that may leave retirees with little asset value if they retire during an economic down cycle.

Another structural reform has tried to increase coverage (defined as the ratio of pension system contributors to the size of the labor force) to expand total contribution in the pension fund.[10] This aims to help workers in nonstandard employment and those in the informal sector obtain retirement benefits through the public pension scheme. Park (2012) suggests that Asian pension systems need to improve governance and to lower operating costs to improve public trust in pension system institutions which, in turn, would help attract members, increasing pension coverage.

Flanking labor policy changes

Pension system reforms are also helped by labor policy changes. For example, flexible employment policies such as work-from-home arrangements or more part-time jobs allow more retirees to remain in the labor force. Making child care accessible and affordable also helps increase female participation in the workforce. For various reasons, women typically have lower income in retirement on average (Box 6.2). Still another useful labor policy, albeit politically sensitive, is open migration policies which support economic growth. High economic growth, in turn, makes the weight of supporting the old population easier.

Summing up, reforms adopted in many countries do not differ much, whether advanced or less advanced economies. Rather, the difference depends more on whether they have aging or young populations, and whether their social security institutions are nascent or mature. Table 6.3 summarizes examples of the reforms around the world, as discussed above.

[10] Sometimes working-age population, 15–64 years old, is used as denominator for coverage computation, instead of labor force.

Box 6.2: Why Women Have Less Retirement Savings?

Generally speaking, women have less retirement savings than men. The difference (as a percentage of male retirement earnings) can range between 17% (for Singapore) and 46% (for Malaysia). Several reasons explain this gap.

First, historically, women have been paid lower than men. Since retirement benefits are usually linked to earnings, the wage gap in women's working lives is reflected in retirement income.

Second, because of caring responsibilities (either for children or elderly parents), women tend to have shorter careers and years of contribution to the pension system. In some cases, because of these shortened work lives, women are unable to meet the minimum vesting period for retirement benefits.

Third, more women also work in part-time work or in the informal sector than men. Since many pension schemes do not cover informal sector workers, this affects future retirement income of women.

Fourth, women tend to be more risk averse than men. For a defined contribution scheme's accumulation phase, women tend to invest in low returns but safer assets, such as money market funds, while men invest more in stocks and mutual funds, which have higher returns but higher risk.[a]

[a] Marsh and McLennan Companies Asia Pacific Risk Center and Tsao Foundation's International Longevity Centre (2018).
Source: OECD (2019a).

Table 6.3: Summary of Pension Reforms

	Aging Population	Young Population or Nascent Institution
Advanced economy	• Shift to defined contribution (DC) from defined benefit (DB); or introduce DC pillar on top of DB • Increase retirement age • Increase contribution rates • Lower benefit formula • Restrictions on early withdrawal of benefits • Add voluntary savings tier • Digitalization • Privatization of social security to ease fiscal burden • Remove retirement age in labor force; subsidy in keeping older workers • Increase coverage (especially for gig workers) • Expansion of financial products as retirement vehicles	• Most advanced economies are aging
Less advanced	• Mostly same as above except expansion of financial instruments due to regulatory inadequacies or lack of supervisory capacity or unsophisticated financial market • Increase coverage (informal sector) • Improving trust on institution • Financial literacy education	• Improve administrative efficiencies/collection • Improving trust on institution • Financial literacy education • Policies on valid documents/identity cards

Source: Author.

Adequacy and Sustainability of Asia's Pension Systems

Adequacy and sustainability of retirement income are the most important features of pension systems. How do Asian pension systems rate on these qualities? In Asia and the Pacific, the problem of adequacy of retirement income is dire for four main reasons (OECD 2008). First, the low coverage of pension systems leaves a large sector of the population with little or no income to depend on in old age. Second, withdrawal of savings before retirement is allowed, which results in people having inadequate savings left at retirement. Third, absence of annuitization instruments[11] and a prevalence of lump-sum payments does not alleviate the risk of people outliving their savings. Fourth, although ad hoc benefits adjustments take place, some pension systems do not feature automatic adjustments of benefits to reflect changes in living cost.

[11] These are contracts or financial investments which pay out a fixed income stream at a later date.

The New York-based firm, Mercer, the Chartered Financial Analysts (CFA) Institute, and the Monash Centre for Financial Studies (2020) compared the sustainability and adequacy of 37 pension systems by constructing an index based on indicators deemed important for sustainability and adequacy. Eight of 37 pension systems in the sample were ASEAN+3 countries, and worthwhile to compare with those of other countries. Figure 6.10 shows that most developed economies, especially Northern European welfare economies, have the "best" pension systems in overall sustainability. Among Asian economies, Singapore and Malaysia are above the average while six other Asian countries in the study rank at the bottom, meaning that these systems have major weaknesses or lack specific features that help establish sustainability.[12,13]

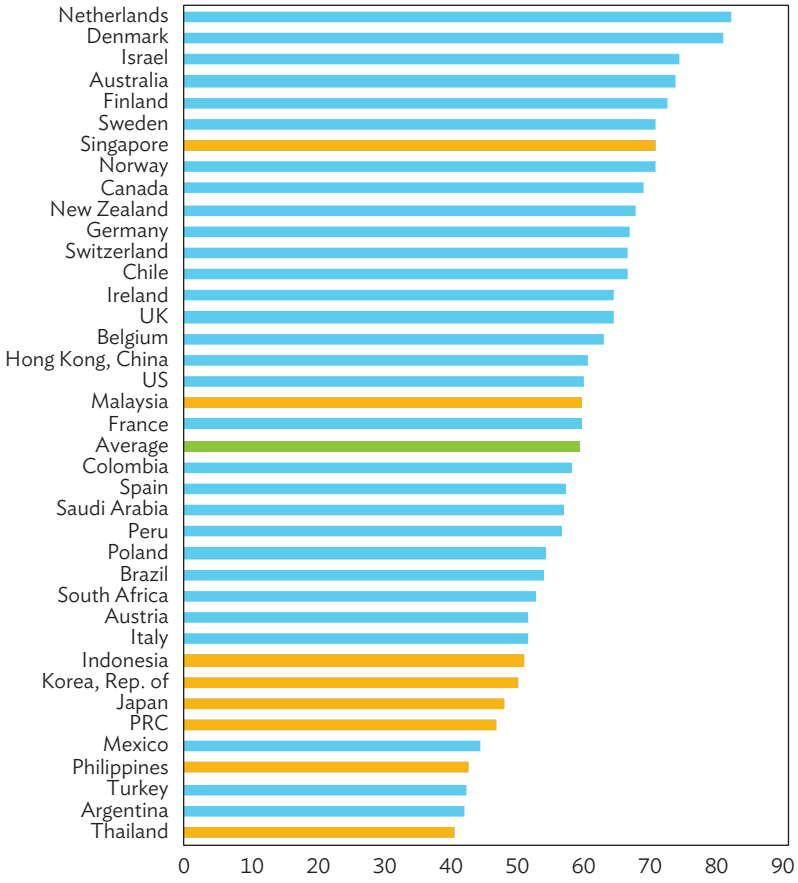
The Global Pension Index study finds that, for Thailand, the weakest element is the adequacy of retirement finance, while pension sustainability is the major weakness of the PRC, Japan, and Singapore, largely because of demographic factors. Malaysia and the Republic of Korea are also relatively weak in providing adequate pensions. It is also tempting to attribute the relatively high score of Malaysia and Singapore to their DC systems, as compared to DB schemes in other countries, but this idea fails given that top-ranked Netherlands has a DB pay-as-you-go pension system.

The Melbourne–Mercer-CFA study (Mercer, Monash Centre for Financial Studies, and the State Government of Victoria, Australia 2019) is useful in comparing the systems of various countries with respect to pension adequacy and sustainability. However, it shares the weakness emblematic of indices—opacity. It is difficult to agree or disagree with this index ranking without access to the data used—a lot of them proprietary. It is also difficult to replicate and assess for a subgroup of countries such as ASEAN+3 without access to all the study's data. Instead, partly guided by the discussion in the Global Pension Index study, publicly available information that relates to either adequacy or sustainability of pension are gathered. In a limited way, these data corroborate the Global Pension index and provide details unavailable from indexed information.

[12] It does not measure the overall living standard of the elderly—for that, one needs to account for other factors such as health services and elderly care.

[13] Mercer's sustainability index uses 50 indicators to compare pension systems. It has three major components or subindexes: the adequacy subindex, sustainability subindex, and integrity subindex, with respective weights of 40%, 35%, and 25%. Each subindex is constructed based on the values of selected indicators or answers to specific questions on pension system characteristics that improve adequacy or sustainability or integrity.

Figure 6.10: Global Pension Overall Index, 2020



PRC = People's Republic of China, UK = United Kingdom, US = United States.
Note: The data refer to the Mercer CFA Institute Global Pension Index.
Source: Mercer, CFA Institute, and Monash Centre for Financial Studies (2020).

Factors affecting adequacy

Table 6.4, for example, shows factors that relate to the actual amount of benefit and other factors that help increase future income. Column 2 shows minimum earnings-related pension (as opposed to noncontributory or social assistance), which provides an idea of financial support for pension members in the lowest earnings bracket. It shows that, as a percentage of average wages, pension benefits in developing countries such as the PRC, Indonesia, and the Philippines are relatively higher than

those in developed countries. This result is not surprising considering that average wages in less developed economies are lower.

Column 3 shows that pension benefits are adjusted to either wages or prices or both. In some countries, such as the Philippines, the adjustment is not automatic but periodic and ad hoc. Benefit adjustment is important for adequacy assessment because the value of benefits upon retirement can easily lose value over time with price and wage inflation. Computed OECD net replacement rates (column 4), defined as pension benefits over average pre-retirement earnings, are also relatively high for developing countries compared to developed economies for the similar reason that pre-retirement earnings in developed countries (the denominator) are very high relative to average retirement benefits.

Other relevant factors that contribute to increasing pension savings are incentives such as tax deductions for voluntary contributions to supplementary private pension. On this, all countries provide tax exemption either at the contribution or withdrawal phases or both. Pension benefits are not the only source of old-age savings. Other assets also contribute to financing elderly consumption. One important factor for adequacy assessment is the level of homeownership. However, Table 6.4 only provides data for Singapore at 91%, along with Japan and the Republic of Korea. Finally, how the voluntary pension assets are invested contributes to the growth of future pension benefits. The last column shows that Singapore and Japan both have relatively high shares of pension assets invested in equities and alternative assets, considered as growth assets, compared to cash, bank deposits, or even government-issued fixed-income securities.[14,15]

[14] Not shown in the table is the household debt-to-GDP ratio, which is another indicator for future adequacy of old-age benefits. High household debt can reduce the remaining value of future pension benefits used for consumption. Among Asian countries, the Republic of Korea has the highest household debt as a percentage of GDP at 96%, followed by Thailand (69%) and Malaysia (68%).

[15] The Mercer, CFA Institute, and Monash Centre for Financial Studies (2020) study considers other factors such as whether withdrawal of accrued benefits has a minimum age requirement or whether there are tax disincentives for early withdrawal. These factors ensure that retiree's benefits are not prematurely spent, because otherwise little might remain of the retiree's benefits when the time comes to exit the workforce. Indonesia has relatively strong measures that prevent early dissipation of retirement benefits, with limits on early withdrawals as well as incentives for annuitization. The possibility of annuitization of accrued benefits or converting part of it into a tax-favored income stream is another important factor to ensure accrued benefits can last a retiree's lifetime. Except for Indonesia and Singapore, however, all countries have no avenues for annuitization of retirement benefits.

Table 6.4: Factors That Affect the Adequacy of Pension Benefits

	Factors Related to Received Amount			Other Factors That Help Increase Future Income		
	Minimum pension (% average wage)[a]	Adjustment of benefits	Net replacement rates (%, Male/Female)[b]	Tax deduction or exemption of voluntary pension contribution to funded plans and investment income	Home ownership (%)[c]	Proportion of private pension assets invested in growth assets[d]
Effect on adequacy	+	+	+	+	+	+
PRC	40–60	Indexed to wages and prices	83/72	yes		
Indonesia	20.6	Indexed to wages and prices	66/62	yes		26.6
Japan	12.0	Indexed to wages and prices	40/40	yes	61.7	59.7
Korea, Rep. of	5.0	Indexed to wages	45/45	yes	58	31.7
Malaysia	9.7	Index to prices	86/79	yes		
Philippines	17.8	Index to prices but only periodic	88/88	yes, specific funds		
Singapore		Index to prices	59/52	yes	91	96.8
Thailand	4.2–5.6	Index to prices	39/39	yes		18

PRC = People's Republic of China.
[a] The Mercer, CFA Institute, and Monash Centre for Financial Studies (2020) study considered the noncontributory part of pension system, while the figures in the table are the lowest pension benefit from the earnings-related system.
[b] Refers to the individual net pension benefits over average net pre-retirement earnings.
[c] Singapore's data are as of December 2018, Japan's are as of December 2013, and the Republic of Korea's are as of December 2019 (tradingeconomics.com).
[d] Share of equities and other (alternative) assets in private pension investments.
Source: OECD (2018b, 2019c); Trading Economics (accessed May 2021); and the Government of the United States, Social Security Administration (2019) (accessed March 2021).

Factors affecting sustainability

Factors relevant to the sustainability of pension income are those related to the scheme itself, such as coverage and contribution, and, more importantly, demographic factors and economic growth prospects.

On growth, developing countries can bank on higher prospects based on past GDP growth rates. Developed countries such as Japan, as well as the Republic of Korea and Singapore, project lower GDP growth because their GDP base is already large. High growth bodes well for the sustainability of pension.[16]

Japan has an almost universal pension coverage at 95%, way above the OECD average of 86%. Pension coverage in developing Asian countries are still low, ranging from 18% of the labor force in Indonesia to 46% in Malaysia (Table 6.5). The higher the coverage of the population means a bigger pool of contributors and the higher the likelihood that the retirement income system will be sustainable.

The amount of contribution and retirement age are other useful indicators for sustainability of pension systems.[17] The retirement age, especially in Indonesia, Malaysia, and Thailand, is low. These countries still have room to improve the sustainability of their pension schemes. Maximum combined mandatory contribution from both employers and employees is high in Singapore, but very low in the Republic of Korea and Thailand.

Demographic factors are critical in assessing sustainability. In this regard, Japan, the Republic of Korea, and Thailand score low in the sustainability subindex in the Global Pension Index study (Mercer; Monash Centre for Financial Studies; and the State Government of Victoria, Australia 2019) because of their low fertility rates and aging populations. For example, the dependency ratio in Japan is 58%, with the elderly making up the majority of the population. Despite its aging population, Singapore still has a high sustainability index value because of the factors related to its DC scheme such as large assets or high contribution rates and coverage.

If labor policies are sufficiently flexible to allow the older population to continue working, the sustainability problem can be alleviated. Flexible employment of the elderly and their continued contribution to the pension system, even as they start to enjoy part of their retirement benefits, help make retirement funds last longer. In Singapore, the government has

[16] Another factor that affects sustainability but is not shown in the table is the level of government debt to GDP. The lower it is, the greater the capacity of the government to help fund gaps in pension. In this, Japan also scores low because of its high domestic debt. In contrast, the PRC's modest public debt earns it high scores on the sustainability subindex of the Global Pension Index (Mercer, CFA Institute, and Monash Centre for Financial Studies 2020).

[17] Retirement age across Asia is shown in Table 6.1 as pension age.

provided incentives for companies to hire older workers. Other countries are following suit to allow older workers to participate in the labor force.

Finally, the longer the years after retirement up to death, the more funds need to be set aside to support the elderly. As life expectancy increases, the policy indicator that a government can adjust is the pensionable age. As discussed above, there seems to be scope for adjusting the pensionable age, especially in Indonesia, Malaysia, and Thailand.

Table 6.5: Factors That Affect Sustainability of Pension Benefits

	Factors Related to Pension Scheme		Demographic Factors			Economic Growth
	Coverage (% labor force)[a]	Maximum mandatory contribution (% of wages)[b]	Estimated years in retirement[c]	Labor participation of elderly (> 65 years old)[d]	Dependency ratio in 2030[e]	Based on past 4 years and projected growth
Effect on sustainability	+	+	-	+	-	+
PRC	51	28	16.7	21.1	27.4	High
Indonesia	18	8.7	6.5	43.7	15.4	High
Japan	95	18.3	19.5	25.3	57.7	Low
Korea, Rep. of	80	9	17.8	35.3	41	Average
Malaysia	46	27	21.1		16.4	High
Philippines	27	13	6.1	32.9	13.3	High
Singapore	61	37	18.8	28.7	36.6	Average
Thailand	36	6	21.9	24.4	32.3	High

PRC = People's Republic of China.
[a] Refers to the number of members of mandatory pension scheme over labor force.
[b] Refers to the combined employer and employee contribution to mandatory pension schemes (both social insurance and provident fund).
[c] Refers to life expectancy at birth less retirement age.
[d] Refers to 2019 data except PRC 2010.
[e] Refers to 65 years old and older population over 20–64 years old population.
Source: National social security organizations (accessed March 2021); OECD (2018b, 2019c); and the Government of the United States, Social Security Administration (2019) (accessed March 2021).

6.4 Pensions and Regional Cooperation

Although all Asian countries face aging-related challenges in their pension systems, there is little discussion about pension issues, except among academics and researchers and a few policy makers, at the regional level. In ASEAN, social protection is a topic under the Senior Officials Meeting

on Social Welfare and Development.[18] Pension issues are deemed as under the banner of national initiatives and no concrete substantive pension-related regional programs have ever been launched. Only a few programs related to health cooperation or social assistance to migrants have been agreed.[19]

However, to the extent that labor mobility within ASEAN intensifies as a result of mode-4 services liberalization (movement of natural persons) under economic community building, international coordination of pension systems, such as regional pension portability, will be necessary.

In addition, in theory, if pension challenges become a future fiscal crisis because governments run deficits and accumulate debts to service their contingent retirement liabilities, a country's pension problem and its consequent macroeconomic and financial impact may have spillover effects to other Asian countries. Therefore, while pension challenges are "only" national concerns, these also have potential regional dimensions. This link, however, seems tenuous because of the lack of empirical studies globally that show a pension crisis actually graduating to a fiscal crisis.[20]

Perhaps more important for the regional significance of pension challenges is pension systems' potential role in developing the financial markets in the region. Pension funds and other institutional investors can create demand and liquidity in the regional bond markets. Thus, they can be critical players in the development of Asian regional financial markets. More regional conversations on pension issues would benefit Asian countries. Exchanging experiences and best practice policies that help solve pension challenges is always valuable.

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[18] In turn, the Senior Officials Meeting on Social Welfare and Development is under the ASEAN Socio-Cultural Community, one of three major pillars of the ASEAN Community, the other two being political-security community and economic community.

[19] For example, see the Senior Officials Declaration of the Special ASEAN Summit on Coronavirus Disease 2019, which calls for strengthening public health cooperation measures, intensifying cooperation for adequate essential medicine provision, commitment to collective action to mitigate economic and social impacts of the pandemic, etc. Another example is the ASEAN Declaration on Strengthening Social Protection 2013, which seeks to foster minimum social protection. The declaration mentions principles on extension of coverage to migrant workers and on the availability, quality, equitability, and sustainability of social protection (ISSA 2017).

[20] While some studies trace the effects of financial and macroeconomic crisis on pensions, such as lower long-term investment returns, no research exists that empirically finds pension crisis graduating to a fiscal and cross-border macroeconomic crisis. That pension crises can become fiscal crises is only a theoretical possibility. This is perhaps because many governments made policy changes and institutional reforms precisely to prevent pension crises becoming full-blown macroeconomic crises with cross-border implications.

The rest of this section focuses on three trends and issues that have significant impact on pension policies. The link between pension and financial markets in the context of pension asset investments to fund retirement benefits is discussed. The chapter goes on to tackle issues over the growth of technology-induced nonstandard employment and its implications for pension and other social protection benefits. Finally, in the context of growing labor migration in Asia, the discussion moves to pension portability.

Pensions and Financial Markets

Pension organizations invest members' contributions and other assets to pay for future retirement benefits. Any pension institution, whether it be under DB or DC scheme or whether it is occupational or personal, private or public, needs to invest the contributions collected. Therefore, it should have an investment strategy that seeks returns that match its future liabilities.[21] In the past, it was easy to pay future benefits by investing in government-issued debts and securities. But to optimize potential returns and minimize risks through portfolio diversification, social security institutions should not only rely on government securities but also need a broad and deep financial market. This applies to whatever existing schemes, whether DB or DC schemes, because both need sufficient returns to achieve either target earnings (in DC schemes) or promised benefits (in DB systems). Thus, the financial market is important for pension institutions.

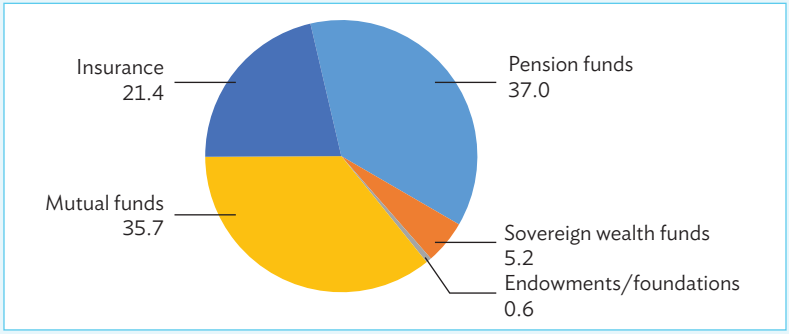
Likewise, pension institutions are critical for financial markets' growth and development and improve the depth and liquidity of the capital market. With huge assets under management (Box 6.3), pension institutions are a major source of investment funds that generate liquidity and demand for financial products, enhance competition, and promote financial innovation. For example, in the context of the Asian Bond Markets Initiative, pension organizations can be a source of demand for local currency bond issues. Since pension organizations have long-term horizons, they help in the stability of financial markets as compared to short-term speculative capital. As institutional investors, pension funds and institutions also influence good corporate governance through their vote in corporate boards, in the process, enhancing trust in the financial market (Meng and Pfau 2017).

[21] For DB schemes, liabilities are the fixed benefits promised to members; for DC schemes, usually a minimum return guarantee, if it exists, in the pension contract. Even without a minimum return guarantee, DC schemes still seek to maximize investment earnings for members within an acceptable level of risk.

Box 6.3: The Pension Funds Industry: A Quick Survey

Pension funds constitute the largest of total global assets under management, accounting for 37% or $57 trillion in assets, followed by mutual funds (36%) and insurance (21%) (first figure).

Total Global Assets Under Management, Share by Asset Owners
(%)



Source: Thinking Ahead Institute (2021).

Studies of global pension funds industry show that, in terms of assets, some pensions funds in ASEAN+3 rank among the top (table). Japan's Government Pension Investment Fund is consistently ranked first. The Republic of Korea's National Pension is third, although far in terms of absolute amount of assets. The PRC's National Social Security and Singapore's Central Provident Fund are also in the top 10, while Malaysia ranks 12th.

Top Asian Sovereign Pension Funds, 2019
($ million)

2019 Rank	Fund	Market	Total Assets[a]
1	Government Pension Investment Fund	Japan	1,555,550
3	National Pension	Korea, Rep. of	637,279
7	National Social Security	PRC	361,087
8	Central Provident Fund	Singapore	315,857
12	Employees Provident Fund	Malaysia	226,101
13	Local Government Officials	Japan	224,006

PRC = People's Republic of China.
[a] PRC's data are an estimate. Data are as of 31 December 2019.
Note: Sovereign pension funds are established by national governments to meet pension liabilities (Thinking Ahead Institute 2021).
Source: Willis Towers Watson (2020).

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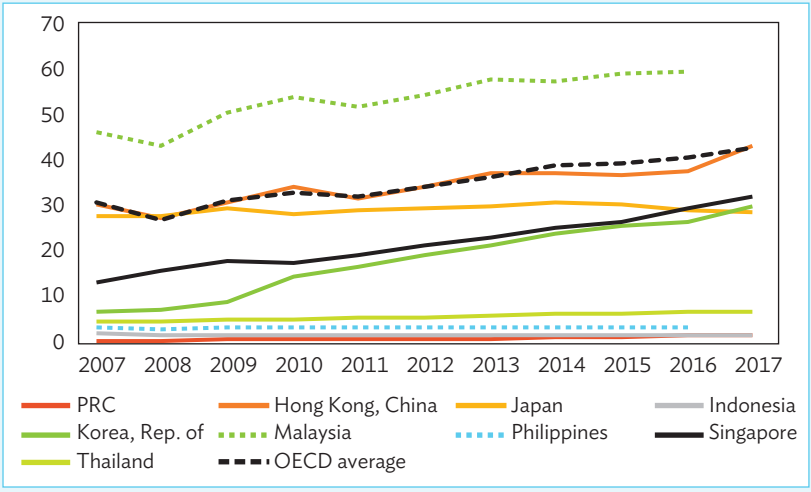
Box 6.3 (continued)

However, on pension assets' ratio to GDP, an indicator of pension system strength, ASEAN+3 shows considerable diversity. The next figure shows that while shares of pension assets in Hong Kong, China; Japan; the Republic of Korea; Malaysia; and Singapore compare relatively well with the Organisation for Economic Co-operation and Development (OECD) average of 43% in 2017, the rest of the ASEAN+3 economies do not exceed 10%. The comparison is even more stark for individual developed economies (see figure on Pension Funds Asset in Selected Economies). Australia, Canada, and the United States all have pension assets exceeding the size of their respective gross domestic products. This shows that the pension industry in the region still has large room for growth.

Pension Fund Asset in Selected ASEAN+3 Economies
(% of GDP)



PRC = People's Republic of China, GDP = gross domestic product.
Note: The Organisation for Economic Co-operation and Development (OECD) average refers to the simple average of the 38 member economies.
Source: World Bank, Global Financial Database (accessed August 2021)

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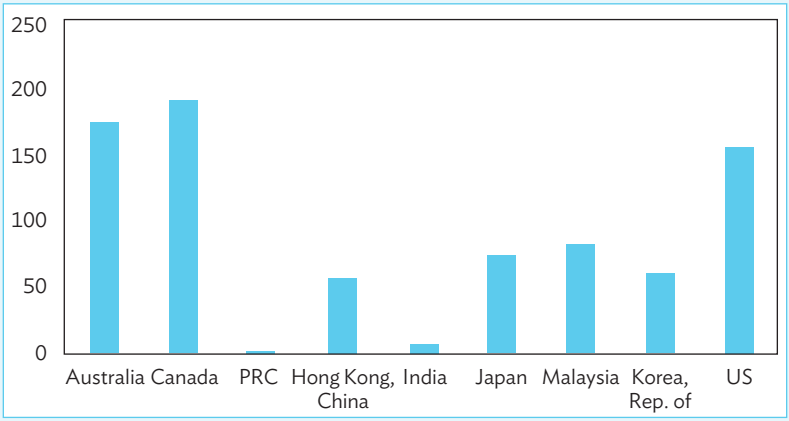
Box 6.3 (continued)

Pension Fund Assets in Selected Economies, 2020
(% of GDP)



PRC = People's Republic of China, GDP = gross domestic product, US = United States.
Source: Thinking Ahead Institute (2021).

Fortunately, Asia and Pacific pension assets are growing, and posted their highest annualized growth from 2014 to 2019 (figure below). Recent research shows that the fastest-growing pension markets are in the People's Republic of China (21%); the Republic of Korea (12.3%); and Hong Kong, China (8.4%) (Thinking Ahead Institute 2021).[1] Like Japan, which has large fund assets but slow growth, North America also has the largest fund assets compared to Asia and the Pacific and Europe, constituting 44% of top pension fund assets, but growth was below 3% over the 5 years from 2014. Europe's is 26%, close to Asia and the Pacific's 27%, and its assets grew 5%.

Asset allocation of top pension funds shows a reduction in home bias in equities, falling from 67% of domestic equities in total equities in 2000 to 38.5% in 2020. Japan's share of domestic equities is below 40%, down from around 60% in 2000. The same downward trend in domestic bond holdings can be observed, but overall allocation remains high. Among the major economies (Australia, Japan, the Netherlands, Switzerland, the United Kingdom, and the United States) average allocation of domestic bonds to total bonds was 71% in 2020, down from 80% in 2000. Japan's drop was relatively more pronounced from around 80% to less than 60%.

[1] This is based on a 10-year compounded annual growth rate (CAGR) from 2010 to 2020.

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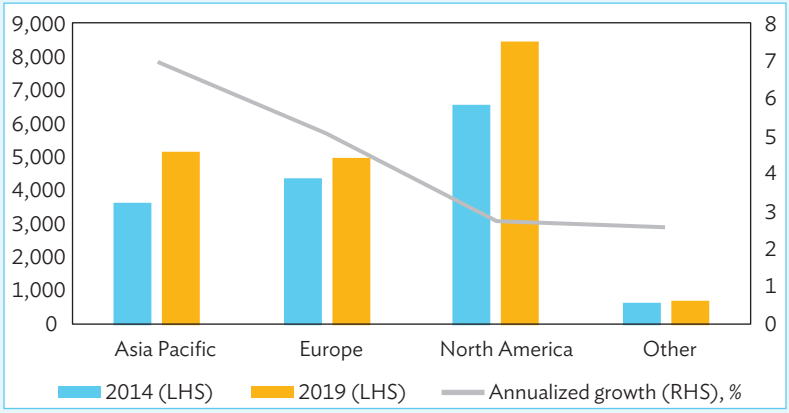
Box 6.3 (continued)

Growth of Fund Assets, 2014 and 2019
($ billion)



LHS = left-hand scale, RHS = right-hand scale.
Note: The country groupings are based on the definitions of the source.
Source: Thinking Ahead Institute and Pensions & Investments (2020).

Sources: Thinking Ahead Institute (2021); Thinking Ahead Institute and Pensions & Investments (2020); Willis Towers Watson (2020).

Effects of low-interest environment

Global market conditions after the global financial crisis, however, have been challenging for pension institutions. The low-interest environment has made investment in risk-free government assets inadequate for pension institutions to meet benefits obligations or provide adequate returns for members. And in reallocating more of portfolio to other financial assets such as equities or alternative assets, or alternatives such as real estate or infrastructure financing, pension organizations also face the challenge of increased portfolio risk.

A related problem is longevity risk and how a deep and vibrant market for financial instruments that accounts for longevity risk can develop. Some private pension or insurance companies put a cap on the number of years of payouts to protect themselves from this risk, but this strategy comes at the expense of retirees who risk outliving their savings and pension benefits. This section first discusses factors and issues that affect the investment returns of pension institutions, particularly highlighting the increasing role of alternative assets, such as infrastructure financing.

In the past, adequate earnings from pension assets were relatively easier to achieve with minimum risk. This was because returns from government, as well as corporate bond rates, were high enough to help meet payout obligations. Before the global financial crisis, bills and bonds took more than half of the investment portfolio of pension funds in the OECD. In a low- interest environment, such as the present US 10-year Treasury note hovering around zero percent, pension institutions can no longer depend on this low-risk strategy. With interest rates across the globe at rock-bottom, pension institutions have difficulty earning enough to meet retirement liabilities.

Various responses to low interest rates include a reduction of DB's promised benefits or increasing members' contribution rates to help pay for retirement benefits in a pay-as-you-go system. For individuals, poor returns on pension contributions discourage supplementary retirement savings. For companies, shifts from DB to DC schemes have put the burden of low future benefits on individuals rather than on company balance sheets. Some have removed employees' pension benefits altogether to avoid contingent liabilities.

A low-return environment also has disparate effects on different age cohorts (Byrne and Reilly 2017). Generations retiring in the near term have lived through previous periods of strong market returns and high interest rates during their asset-accumulating stage. Additionally, even as they face increased longevity, many of them have DB entitlements, because the shifts to DC happened more recently and affect the later generation more. In contrast, younger generations are likely to earn lower investment returns on their pension contributions than the older ones.

Investments in "alternatives"

Thanks to higher share prices, pension funds have been able to maintain reasonable returns by reshuffling their asset allocation. Because sovereign bonds can no longer give the returns necessary to meet pension promises, long-term institutional investors (insurance and pension) increased their holdings of corporate credit, equities, and structured products. In 2008, equities took 18% of OECD pension funds' portfolios. In 2018, that share increased to 24%. As long as the equity markets remain in bullish territory, meeting pension liabilities is manageable even in the low-interest environment. However, when equity markets turn bearish while interest rates remain low, the pension challenge will grow. An even more diversified portfolio beyond stocks and fixed-income securities is thus needed.

As a diversification strategy, many large pension institutions have invested in "alternatives" such as private equity,[22] real estate, and infrastructure finance (Table 6.6). Alternatives refer loosely to anything other than bonds, stocks, or cash. In theory, it can include, art, wine, precious metals, commodities, cryptocurrencies, etc. For most pension funds, alternatives refer to real estate, private equity, infrastructure finance, and hedge funds.

The average pension portfolio of the top pension funds includes a fifth of investments in alternative assets, more than 40% in equities, and the rest in bonds. North American pension funds are the most bullish, with alternatives having 35% of their investment allocation. This is in stark contrast to Asian pension funds, with only 7% going to nontraditional investments, and more than 50% of portfolios going to fixed-income securities. This investment allocation partly reflects the innate conservatism of Asian pension funds (Table 6.6).

Table 6.6: Investment Allocation of the Largest 300 Pension Funds, 2017
(% share)

Region	Equities	Bonds	Alternatives and Cash
North America	48	18	35
Asia and the Pacific	41	53	7
Europe and others	53	33	14

Note: The country groupings are based on the definitions of the source.
Source: Lynn (2018).

In Asia, Japan and the Republic of Korea have relatively more allocation in alternative assets (as shown in the "other" category in Table 6.7). The other category includes loans, real estate, insurance contracts, hedge funds, private equity funds, structured products, and other mutual funds (not invested in public equities or bills/bonds or cash/deposit). In ASEAN, alternatives investment is small, ranging between 1% (Thailand) to 10% (Indonesia). This is likely to increase as investment regulations of pension institutions become more flexible. In fact, in Thailand, investment in alternatives was only 0.1% in 2008 but increased to 1% by 2017. In contrast, the average share of investments in alternatives in the OECD in 2018 was 15%. Singapore investments recorded in the "other" column

[22] This refers to investment in companies not publicly traded. Some private equity funds take direct equity stakes in these private companies, new and start-up companies with significant growth potential, to gain control or influence in operations. Private equity has a longer investment horizon and benefits hugely when a company goes public.

in Table 6.7 is actually not, properly speaking, investment in alternatives. Rather, it is the allocation the Central Provident Fund (CPF) places in risk-free Special Singapore Government Securities. The government, in turn, uses the funds from the special securities' sales to invest in various types of assets, some possibly alternatives.[23]

Table 6.7: Asian Pension Funds' Allocation of Assets, 2017
(% share)

Economy	Equity	Bills and Bonds	Cash and Deposits	Collective Investment Schemes[b]	Other
Japan	8.1	31.6	8.7	...	51.6
Korea, Rep. of	2.7	42.5	18.5	7.2	29.0
Indonesia	16.9	45.9	27.5	...	9.7
Malaysia[a]	9.4	79.5	6.6	1.5	3.1
Singapore	0.2	...	3.2	...	96.7
Thailand	16.9	58.7	10.1	13.2	1.0
OECD	24.4	44.9	7.6	8.0	15.1

... = nil, OECD = Organisation for Economic Co-operation and Development.
[a] From OECD (2018a)
[b] Collective Investment Schemes are indirect investments in equities, bills and bonds, cash, and deposits.
Source: OECD (2018a, 2019a).

Judging from a 10-year performance of asset returns, alternatives yields are definitely higher than government securities and publicly traded stocks returns, which have an average yield of 5% (Table 6.8). Investment in private equity gives the highest return of 9.3%, followed by infrastructure financing at 8%.

Table 6.8: Pension Assets Returns, 2008 to 2018
(annualized, %)

Pension Asset	Annualized Return (%)
Private debt (alternative)	7.5
Infrastructure (alternative)	7.9
Private equity (alternative)	9.3
Public equities	4.8
Hedge funds (alternative)	3.7

Source: World Economic Forum (2019), citing various sources.

[23] Essentially, with the purchase of Singapore government securities, the CPF board gives the Singapore government flexibility to invest where it wants, while it, in turn, provides a guaranteed return. Thus, despite being a defined contribution scheme, CPF is effectively more like a notional defined benefit system (Asher 2002). This strategy allows Singaporeans to earn up to 6% return, with a guaranteed minimum interest return of 2.5% a year (Government of Singapore, Central Provident Fund n.d., accessed May 2020).

Besides having relatively higher returns, another favorable characteristic of alternatives is their low correlation with traditional financial assets. Their long-term tenure, especially with respect to alternatives such as infrastructure finance and private equity, also matches the long-term liability structure of many institutional investors, such as pension funds. The downside is that it requires very high investment expertise, which not many pension institutions have, let alone those in developing countries. The market for alternatives also has relatively little historical data of risk and return to base decisions on. Further, the market is relatively illiquid, making exit strategies difficult when investment sours.[24]

Infrastructure financing

Among alternatives, infrastructure financing is especially attractive, because of its long maturity, which matches pension funds' long-term liabilities. It also has a developmental impact: a way for pension institutions to channel funds toward developmental projects while at the same time earning sufficient returns, having predictable and stable cashflows over the long term, and delivering adequate pensions to members. In many developing countries and even in developed ones, major investments are needed in transport, energy, resource management, telecommunication, and healthcare infrastructure, to cite a few. As banks increasingly shy away from investing in these long-term projects because of capital requirement regulations, institutional investors, including pension funds, can fill the gap.

Like other alternative assets, infrastructure investment is countercyclical. While financial assets sync more with the economic cycle, infrastructure investment does less so. Once the project has matured, it provides a stable cash flow, because infrastructure projects tend to operate like natural, regulated monopolies/oligopolies. The lack of competition in markets where these infrastructure projects operate also results in stable asset values (Alonso, Arellano, and Tuesta 2016). In healthcare infrastructure, for example, while aging and longevity risks are a bane to pension funds' sustainability, they are a boon to the healthcare industry. Healthcare is a growing industry and can generate high investment returns, especially as populations age and require more care. Healthcare investment, for example in modern hospitals, is thus a natural hedge for pension funds.

[24] In other words, they face liquidity and market risks. Liquidity risk because the investment is tied up for several years; and market risk because, especially for private equity, many companies are unproven and can fail. For example, a new product or promising technology can easily become obsolete due to competition, leading to huge losses for private equity investors.

However, like other alternatives, perhaps especially more so, infrastructure investing is not for the unsophisticated. Infrastructure financing involves risks including political and operational risks, construction delays and cost escalation, as well as the challenge of balancing the interests of multiple stakeholders involved in a project. Usually, each project requires different expertise, because infrastructure assets are supported by physical installations that have varied characteristics.[25] Building a toll road, for example, is not the same as building a hospital or telecommunication towers. Greenfield infrastructure investments are different from maintenance and repairs. For example, pension funds can engage in direct investments to finance the infrastructure construction itself through loans or project bonds or an equity stake in infrastructure assets. It can also do so indirectly, usually through a financial vehicle such as an investment fund, or through equity stakes in companies involved in infrastructure development. Direct and indirect investments have different levels of risks and returns.

The whole range of possibilities for infrastructure investment is constrained by regulations and institutional mandates.[26] Countries that have positive pension experiences with infrastructure financing usually have a liberalized capital account and a large share of nonfinancial bonds issues to total outstanding bonds. Infrastructure investment is also positively associated with a good number of securitization deals that help spread the risk to more people (Alonso, Arellano, and Tuesta 2016). In sum, infrastructure financing needs deep financial markets and proper institutional and regulatory frameworks.

On the supply side, an important element for pension funds to invest in infrastructure is the availability of fundable and sustainable infrastructure projects. It is possible that, especially in developed countries, the more profitable infrastructure projects have already been completed, while projects that remain in need of funding and investments are riskier, with uncertain profitability. In projects with high positive externalities but low financial return, the government may need to provide a guaranteed minimum level of earning for pension funds to meet fiduciary responsibilities. What cannot and should not happen is that public

[25] In some countries, the institution that invests the money of pension institutions has a well-developed in-house expertise in various alternative asset investments, including infrastructure—Canada is an example of how pension contribution investments are outsourced to a pension fund and how the pension fund uses a prudent person rule instead of quantitative controls on investment managers (Box 6.4).

[26] In Mexico, to comply with investment regulations and institutional mandates, a special purpose financial vehicle was developed so that pension funds could invest in infrastructure projects.

pension institutions be coerced into funding government infrastructure projects without regard for its own fiduciary responsibilities toward its contributing members.

Investment Restrictions, Policy Changes, and Increased Risk

Among major difficulties that pension funds face are strict regulatory or investment restrictions that constrain their flexibility to place investments where they deem fit and which could generate adequate returns. Typical restrictions relate to the type of asset, geographic location, or type of project or institution. Even developed countries have restrictions on pension institutions' investments. Some have quantitative limits on portfolio allocation into different assets such as equities, real estate, corporate and government bonds, loans, and deposits. Some also place quantitative limits on investments abroad or specify that foreign investments only be in developed markets or within a specific region, such as only within the European Economic Area. Occupational pensions sometimes have specific restrictions such as quantitative limits on own employer or single-user securities, and general requirements for diversification. Among OECD countries, those without investment restrictions for their pension funds are Australia, Ireland, Japan, Luxembourg, the Netherlands, New Zealand, and the US. The UK also has no restrictions, except on related lending.

To ease investment in alternative assets, including in sustainable infrastructure, governments need to provide broader investment policy guidelines. Asset managers of pension funds have to be given flexible and broad mandates to adopt appropriate investment strategies while carrying them out with prudence. Developing countries in Asia should consider Canada's experience of flexible regulations and use of the "prudent person rule," instead of strict quantitative limits and restrictions (Box 6.4). It lays the responsibility of making risk assessment of projects on more knowledgeable asset managers themselves, while aligning compensation incentives toward a more long-term objective.

Besides greater flexibility, regulatory changes are sometimes needed to allow or increase pension fund investments in infrastructure, including "green" infrastructure, as well as alternatives such as private equity or cryptocurrency or hedge funds, which expectedly have higher risks but also higher returns. Restrictions on infrastructure investment can sometimes be surmounted by designing special financial vehicles used for infrastructure

projects which satisfy pension institutions' investment criteria for risk and returns. The presence or absence of flexible investment guidelines as well as good regulations encourages or discourages investments by pension funds in infrastructure.

Box 6.4: Prudent Person Rule, Green Finance, and Investment Policies

The Canada Pension Plan Investment Board, the entity that invests the funds of the Canada Pension Plan, enjoys maximum freedom in putting funds into different investments. Its remit is simple: to maximize returns without undue risks loss. Put differently, Canada applies the "prudent person rule" in pension investments, a guideline for making financial decisions using a prudent person's common sense that does not preclude taking reasonable risks.

Canada removed strict quantitative limits on investments in different assets to give greater flexibility to managers in handling their portfolios. Its risk focus is the overall total risk over the long-term instead of short-term results. It can hold investment assets such as infrastructure for more than 20 years, or core real estate for around 18 years.

Since it changed its focus, the pension fund has become more diversified. In 2000, more than 80% of its investments were in Canada. Now, the proportion is reversed, with the majority invested outside Canada. It also has more diversified assets, with over 50% placed in "alternatives" such as private equity, infrastructure, hedge funds, natural resources, and real estate. In 2000, 95% of investments were in fixed income, but by 2016, that share was reduced to only 26.9%, with the remaining portion invested in equities and real assets.

The Canada Pension Plan Investment Board boasts of a strong internal expertise in various investments and compensation incentives that align with a long-term focus rather than short-term returns.

Similarly, the Hong Kong Mandatory Provident Fund, a fully funded privately managed pension scheme, provides investment flexibility for trustees and fund managers. They are allowed to invest globally and in different financial instruments, including financial derivatives. For supervision, it puts its accent on transparency of the fund portfolio composition, performance, fees, and others, for members to make their own choices on where to put their contributions.

continued on next page

Box 6.4 (continued)

All Mandatory Provident Fund trustees have to be approved in coordination with the Hong Kong Monetary Authority based on capital adequacy, capability, fitness and propriety of controllers, skill, knowledge, experience and qualification of directors and chief executive officers, and internal control standards. Approved investment schemes, nevertheless, have to be authorized by the Securities and Futures Commission.

Is the prudent person rule compatible with taking into consideration economic, social, and governance criteria (ESG) for investments? In particular, should pensions be tasked to help with green financing as part of "responsible" investment practice?

The most common concern in green financing and ESG investing, in general, is its impact on investment performance and thus its interaction with the fiduciary duty of pension institutions toward its members. While a few studies find that firms with "high sustainability" (accounting for issues of governance, culture, and performance) outperform "low sustainability" firms over the long term (18 years in the study) (Eccles, Ioannou, and Serafeim 2011), there are difficulties with applying ESG criteria. First, how long is the "long term"? Second, there is no standard metric to evaluate ESG and sustainability. In fact, there are concerns about falling victim to greenwashing as the global issuance of green, social, and sustainability bonds has surged. Without a common industry standard, issuers of green bonds can make false promises. The investment jargon in this area is also not so transparent. ESG can sometimes lead to exclusion of some companies from the fund portfolio, achieve lower performance than a benchmark index in the short term, or exhibit higher volatility because of a smaller number of stocks.

Some developed economies, however, have already started to require consideration of ESG issues in the management of pension assets, or to mandate disclosure of how pension funds' investment guidelines address social and environmental issues (Caplan, Griswold, and Jarvis 2013). In the United States, ESG considerations are not mandatory but can be considered part of a prudent investment plan. But if they affect estimates of value, risk, and return, then ESG is advised to form part of the investment decision-making process.

Sources: World Economic Forum (2017b); Cumbo (2021); and Caplan, Griswold, and Jarvis (2013).

Partly due to low yields on fixed securities and partly to an evolving appreciation for equities and alternative assets, pension funds and insurance, including conservative Asian funds, are increasingly venturing into alternatives, as well as into foreign investments (Table 6.9). For example, in over a decade, the Republic of Korea increased its investment limit in indirect investment in securities from 30% to 50% and increased its total for investment risk assets to 70% (such as equities, bonds, real estate investment trusts [REITs], investment funds, etc.). It also allowed investment in REITs listed in regulated markets and abolished the extra investment limit in foreign bond fund. Similarly, Indonesia permitted loans up to a maximum of 20% of the portfolio from zero previously, and allowed pension fund investment in asset-backed securities, derivatives, REITs, medium-term notes, and repurchase agreements. Permitted investment in property was increased from 15% to 20%, and up to 5% of the pension fund portfolio was allowed for direct investments abroad.

Table 6.9: Pension Investment Restrictions

Economy	Equity	Real Estate	Bonds/Bills (public)	Retail Investment Funds	Private Investment Funds	Loans	Deposits
Japan	None	None	None	None	None	None	None
Korea, Rep. of – DC	0	0	None	70% (bond fund: no restriction)	0	0	None
Korea, Rep. of – DB	70% (only listed companies)	0 (direct) but 70% for REITs	None a	70%	70%	0	None
Korea, Rep. of – personal pension trust	None	None	None	None	None	None	None
Korea, Rep. of – personal pension insurance	None	25%	None	None	None	None	None
Indonesia	None; [5%, only direct equity]	20%; [0]	None; [0]	None; [0]	15%; [5%, should be approved by OJK]	10%, medium-term notes; [0]	None; [0]
Thailand	None; [None, but with restrictions on type of securities and certification of exchange]b	0 (direct) but indirectly through REITS of infrastructure funds, no restriction	None; [None if foreign government bond has 2 highest credit rating; 35% otherwise]	None; [Permitted only in 15 countries specified]	-	0	None

DB = defined benefit, DC = defined contribution, REIT = real estate investment trust, OJK = *Otoritas Jasa Keuangan* (the Indonesian Financial Services Authority).
[a] Private corporate bonds with BBB- investment grade or higher: 70%; The combined total of investments in equity, REITs, private bonds, retail, and private investment funds should not exceed 70% of portfolio assets.
[b] Securities should be regulated by an International Organization of Securities Commissions (IOSCO) member regulator and listed in an exchange that is a full member of World Federation of Exchanges.
Note: None means no restrictions; figures in brackets [ ] apply to foreign assets.
Source: OECD Survey of Investment Regulations of Pension Funds and Other Pension Providers Database (accessed March 2021).

Thailand has also given its provident fund greater investment flexibility and adjusted its regulations in line with international standards. Its civil servant pension fund, together with Malaysia's provident fund, has announced more upcoming investments in foreign assets. Thailand plans to invest in private equity, such as the development of multi-family residential real estate projects in a foreign country. To eliminate many risks involved in foreign investments, it will co-invest with a local partner that will oversee the investments.[27] Thailand is also looking into investing in other ASEAN countries, especially in Malaysia and Singapore, as well as in developed markets. Malaysian pension funds are also proposing to increase foreign asset allocation in their portfolio but this is still subject to central bank approval. In Thailand, the increase in foreign investments syncs with the central bank policy of weakening the baht by allowing greater capital outflows.

Pension institutions' diversification strategies definitely carry more risk. Foreign investments, for one, need to be hedged for exchange fluctuations. They also require expertise and knowledge about the foreign market, industry, and the intricacies of various investment instruments. Even investments in publicly traded equities expose pension funds to greater market risks than investments in government bonds. Default or bust in asset prices can lead to insolvency of private pension funds.[28] Unlike banks, pension funds and insurance companies are not subject to runs on the basis of suspicions of insolvency, but they can still go bankrupt through investment errors. For DC pension funds with no guaranteed returns, all risks are passed directly to the household sector through either low or negative returns on their contributions.

With large institutional investors shifting from fixed-income instruments to other assets, there is also the risk of price bubbles. More funds flowing into property investments, for example, have historically led to higher risk-taking and large property price swings.

Annuities for the aging population

While high return-high risk assets exist, low-risk ones that give payouts throughout the lifetime of retirees are few, if not nonexistent. The argument is that few financial institutions are willing and able to offer decumulation

[27] See Man (2020).

[28] Besides exposure to more market risk, the pension fund also errs in promising higher guaranteed returns (or benefits) based on wrong mortality projections.

products with fixed payment promises over a very long time, because of the difficulty of hedging longevity and other price risks (inflation, interest rates) associated with long-term payment promises (Schich 2009). The obstacle lies in the supply side of financial market instruments.[29] Some argue that governments should facilitate the development and expansion of markets by helping develop financial instruments and associated infrastructure.[30] As more retirees take out pension savings to buy annuity-like products, a market for hedging longevity and other risks needs to be developed to spur supply of these financial instruments.

Annuitized products, for example, inflation-indexed and ultra-long-term fixed-income securities, are useful as payout instruments but are undersupplied or nonexistent because of difficulties in developing these products. These include entrenched advantages of more traditional financial products, the difficulty of measuring and pricing extreme longevity risk, the relative and limited depth and breadth of mortgage markets, and the limited financial sophistication of the average household (OECD 2008). Government is important in supplying or facilitating the supply of such financial products for retirees. Box 6.5 shows an example of how the public sector can facilitate.

Box 6.5: Singapore's Annuity Scheme

In 2009, Singapore introduced CPF LIFE, a national annuity scheme that stands for Central Provident Fund Lifelong Income for the Elderly. CPF members can pay for the annuity out of the retirement balance in their CPF fund. By providing them with lifelong retirement income, CPF LIFE is meant to address the problem of Singapore residents outliving their savings because of increase in life expectancy.

The lack of opportunity to convert the lump-sum savings into a lifelong stream of income is a particular challenge for the elderly in Singapore and across the world. CPF LIFE offers this opportunity. Prior to CPF LIFE, Singapore residents were expected to have pension payouts that lasted about 20 years before their

continued on next page

[29] For example, the policy proposal of annuitizing parts of retirement wealth so it lasts until the end of the retiree's life span requires an entity willing to take the other side of the transaction (Schich 2009).

[30] The issue of government involvement is not simple. For example, by providing guarantees on ultra-long-term fixed- income securities, the risk is brought back again to the government, which had, over the years, already pushed those risks to the individuals through shifts from DB to DC and other institutional reforms.

Box 6.5 (continued)

savings were exhausted. With CPF LIFE, they can receive at least the total amount of their savings as payouts and bequests (if money remains in their CPF balance when they die).

CPF LIFE has very interesting features. First, residents can choose the desired amount of payout. They can choose to have a bigger payout and leave less for beneficiaries (the Standard Plan); or have less payout to leave more as bequests (Basic Plan). They can also opt to top up their retirement account to pay for a higher CPF LIFE premium or transfer some of their CPF savings above a specific threshold to their non-working spouse. Second, members are eligible to receive pension starting age 65 but can opt to receive it later, with the government incentivizing such option through up to 7% higher payouts for every deferred year. CPF LIFE also introduced the Escalating Plan to index payouts to the rising cost of living. The plan offers benefits that increase annually by 2% in return for a lower initial amount. At the same time, the government has programs to encourage re-employment of older workers through wage subsidies and other incentives to employers.

To help those with low savings, the government invests means-tested grants, funded through the government budget, into CPF savings of low-income households for them to save enough to take advantage of the benefits of CPF LIFE. These grants are in the form of an earned income tax credit which flows into eligible member's retirement savings or medical savings account. The grants can also come as generous subsidies for homeownership. Members can also opt to unlock part of their home equity to purchase CPF LIFE. In addition, members' CPF savings returns are guaranteed by the government, unlike other defined contribution pension schemes where all risks are on individuals. For members with lower balances, the guaranteed interest rates are higher. For the first S$30,000 of a member's CPF LIFE monies, a 6% interest is earned annually, while the next S$30,000 earns 5%, and the remaining balance earns only 4%.

Sources: World Economic Forum (2017b) and Government of Singapore Central Provident Fund (n.d.) (accessed May 2021).

Summary

This subsection has discussed the symbiotic relationship between pension systems and financial markets. Both need each other: pension institutions with their huge asset holdings spur growth of financial markets, while financial markets help pension institutions earn returns to pay benefits to its members.

But the post-global financial crisis low-interest environment has put pension institutions in a precarious situation of being unable to meet future liabilities to retirees. Risk-free government fixed-income securities are no longer the dependable sources of pension earnings they once were. The situation highlights the need to deploy more of members' contribution and pension assets to alternatives, and more Asian pension funds are gearing up for these to earn more.

Infrastructure financing is one type of pension investment worth considering because of its developmental impact, particularly on Asian economies. Alternative investments, however, expose pension assets to higher risk from market volatilities as well as other types of risks such as liquidity and bankruptcy. Unfortunately, it is difficult to measure the investment volatility of alternative investments because unlike financial assets such as listed equities and securities, alternative assets have no publicly available historical prices.

Asian pension funds are conservative in their investments compared to peers in North America and Europe. This is partly because Asia follows stringent quantitative limit restrictions on pension investments, often specifying allocations of portfolio investments into specific types of assets. Asia can consider the prudent person rule for investments that is practiced in other developed economies which provide greater flexibilities to asset managers in managing their portfolio while still having control over their investment behavior. In practice, a combination of both quantitative restrictions and the prudent person rule works in many countries.

Pensions and Technology

The digital revolution is transforming many facets of life. It is also taking place at the same time as demographic aging and other social changes, such as migration and declining family ties. How does the digital transformation impact social security systems, designed as an automatic

stabilizer to smooth out consumption over life's many uncertainties as well as certainties such as old age? This section discusses the many applications of new technologies in social security governance and administration. It then highlights technology's impact on employment arrangements and their effect on pension and other social security benefits.

Impact of Technologies on Social Security

Digital technologies have improved ways of doing business. They have enhanced service quality, decreased cost, and improved the integrity of business processes. Their applications in social security are likewise pervasive: from contribution collection to service delivery to financial planning, digital technologies are utilized by both public and private pension institutions, albeit in varying degrees across countries. In the past, complex registration procedures, geographical barriers, and costs of compliance were obstacles to the formalization of informal workers. With technology, informal activities are able to enter the realm of the formal economy—think Uber for example—thus increasing the coverage of social security systems, and consequently, improving the financial sustainability of pension systems (ISSA 2019b).

Uses for social security administration and governance

Digitalization improves social security administration and governance. It can simplify registration and improve contribution collection. Big-data analytics applied to social security can help predict and detect complex fraud activities and prevent error. It improves modeling, making scenario analysis and forecasting and obtaining accurate actuarial projections and analyzing risk and cost. It helps increase the overall quality of service delivery by helping monitor internal culture, behavior, and employees' compliance with customer protection processes.

The provision of timely, transparent, and efficient service through the use of platforms increases people's trust in social security institutions. Along with social media which can be utilized for financial education, platforms allow experts to answer questions on financial planning. User-friendly interfaces also improve users' compliance and lowers administrative burdens.

There are also regulatory technologies (regtech) that facilitate regulatory compliance. Embedded in regtech are "smart contracts" or computer protocols that can self-execute, self-verify, and self-constrain the

performance of a contract, reducing the need for some areas of supervision (ISSA 2019b). All these potential reductions in compliance cost contribute to overall lower operational cost for both pension providers and members.

Improved customer service

Financial products, including for retirement, are made more accessible and comprehensible through financial technology (fintech). With the use of data analytics, financial product designs become more personalized. Robo-advice which is cheaper than human advice can make financial planning more accessible. These are very useful especially for DC plans where members are bombarded with a myriad of financial options. Pension dashboard and platforms make one's investments and future pension finances transparent and easy to track even if placed in multiple schemes (occupational, personal or public schemes). The new technologies also help providers manage financial risks.

Table 6.10 gives examples of the applications of digital technologies in social security system governance, administration and customer service. Although these applications have been applied mostly in more developed countries, they provide a kind of "wish list" for pension systems in developing Asian countries that would like to modernize their systems.

Risks of technology

Technology, nevertheless, has to be used with caution because despite its usefulness, there are risks and challenges. For example, data can be mismanaged or hacked resulting in huge losses from fraud and cybercrime. The unequal access to technology due, among other things, to income inequality, can also lead to exclusion of certain portions of the population, for example, the less educated or less well-paid workers.

While fintech start-ups create additional competition for financial organizations and result in lower prices for consumers, they can also complicate financial regulation. Fintech firms are nimble because they are not burdened with an infrastructure legacy that is very costly to upgrade. But if allowed to cherry-pick some aspects of pension provision, these unregulated entities can leave traditional players with less profitable businesses and create incentives for them to take on higher risks.

Table 6.10: Examples of Technology's Social Security Applications

Artificial intelligence (AI)	• Improve customer services through e-services and intelligent chatbots • AI-based image recognition automate administrative processes by recognizing documents • Together with data analytics, predict customers' debt risks and eligibility assessment for additional social security benefits
Data management and analytics	• Apply discovery and profiling techniques to detect evasion and fraud in contribution collections and benefits delivery (particularly complex fraud operations) • Help develop preventive approaches, program, and services improvements
Digital identity, biometrics, and e-government	• Development of new generation value-added personalized customer services • Validate identity and perform proofs-of-life for pensioners • Pay benefits directly to or collect contribution from biometric smart cards • Secured online transactions • E-government facilitates coordinated public services, one-stop shop for contributors and for beneficiaries, facilitating interaction with various public and private services
Blockchain	• Re-engineer paper-based information flow through secured, paperless, and traceable system • International data exchange to implement social security agreements and enforce integrity controls related to the life status of pensioners • Traceability whether information requests were responded to within agreed time periods
Fintech and regtech	• Fintech increase accessibility for paying contributions or investing in private pensions to a broad consumer base • Increase efficiency of operation of pension schemes through risk management applications, automation of investment processes and facilitation of regulatory compliance • Enhance engagement; reduce compliance costs • Robo-advice can help members with financial planning

Source: ISSA (2019b) and OECD (2017).

Technology, Labor, and Social Protection

Technology not only disrupts competition in financial organizations, but it also has profound impact on labor markets. While technology creates new jobs, it makes many current jobs and tasks redundant. Job destruction and reallocation have been part of development and growth for a long time, but their rapid pace in the age of digital technology creates challenges. The discussion below of how developed countries are grappling with "fair" determination of employment status, particularly of platform workers to improve their social protection, provides insights and useful policy options if and when similar challenges become more pervasive in Asia.

Nonstandard employment and social protection

One example of a technology-related challenge is social protection. The new work arrangements that technology has facilitated result in a fundamental rethinking of appropriate social protection designs, particularly for nonstandard employment. Social protection systems were designed around traditional forms of employment, but these may not apply, at least not to the same extent, to workers with nonstandard contracts (OECD 2019b).

Nonstandard employees are either engaged in independent work or short-duration or part-time employment.[31] They may have fixed-term contracts, voucher-based contracts, zero-hour contracts, or work with temporary labor agencies. Generally, most are self-employed and do not have the same level of social protection as employees. During an "out-of-work" spell,[32] they are 40% to 50% less likely to receive any form of income support and if they do, the benefits are lower than for standard employees (OECD 2019b). They also tend to contribute less for their retirement and can opt out of mandatory contributions. Consequently, their pension entitlements are lower. In theory, unlike the self-employed, part-time and temporary workers are still covered by mandatory social protection. In practice, they struggle to meet minimum contribution requirements or earnings thresholds, partly due to career discontinuities or periods when they are in between temporary jobs.

Some of the new forms of employment emerged because of changes in preferences, innovations in business models and work organizations, technological developments, and policy choices. Some workers do well and prefer the independent arrangement, which perhaps explains the rise in the number of people in nonstandard employment. In the OECD, they already constitute a third of employment (OECD 2019b).

[31] Companies prefer employees to contractors, according to the Coasian explanation, because of the high transaction cost to specify and monitor all contingencies in a service contract. However, since technology now enables companies to efficiently contract with external parties, it has also lowered the transaction costs that previously induced companies to prefer employees to contractors. This partly explains the rise in nonstandard employment with advances in digital technology.

[32] Today, especially in gray zone employment arrangement discussed below, there is also a blurred distinction between in-work and out-of-work categories. It is difficult to distinguish whether a self-employed person prefers to voluntarily not work or he/she is affected by lack of demand or price fluctuations of his/her service. Unlike for standard employees who have an employer to confirm a layoff, the self-employed has to demonstrate that his/her business is no longer operational.

The rise in self-employment, in some countries, has also been policy-induced. Often, to spur entrepreneurship, besides being given many tax incentives, the self-employed are exempt from paying most social security contributions and nontax compulsory payments. They are supposed to self-insure by purchasing private insurance, but many do not.

There is concern that some nonstandard employment may be false self-employment, arranged only to circumvent paying for legally mandated benefits for employees or to avoid regulations on taxes and unionization—in other words, a form of employment arbitrage. Others are in a legal "limbo" or a gray zone, especially those in the platform economy, because their work has characteristics of full-time employment and independent contractorship.[33]

The online "gig economy" and gray employment relationships

Prior to the digital economy, "employees" and "independent contractors" were distinct. Employees enjoy a range of legally mandated benefits and protections not available to independent contractors. These included right to organize and collectively bargain for compensation, insurance coverage, overtime pay, and others (Harris and Krueger 2015). But workers in the online gig economy can neither fit in neatly as employees nor as independent contractors. Often, gig economy work consists of paid micro tasks,[34] which means no payment between tasks (ISSA 2019a). Such an arrangement, while acceptable to some who merely use their gig work as a supplement to their main source of income (usually from standard employment), can result in inadequate income for others.

Online gig workers typically work with platforms or intermediaries that match workers to customers. A known example is the ride-hailing companies, such as Uber, Lyft, Grab, and Go-Jek. The relationship between the platform and the worker (driver, in this case) has some elements of an arms-length business relationship similar to that of an independent contractor. For example, they can choose how much and when to work, or can work simultaneously with different intermediaries, characteristics

[33] Netherlands gives an example of an effort to try to address possible labor arbitrage by putting the burden of declaring workers as employees or contractor on the employers (for example, the platform operator), instead of based on the self-declaration of the worker. If the employer misclassifies, it is liable for all insurance and tax payments. Adverse reaction, however, arose from various stakeholders including from those which the law purportedly wanted to protect, e.g., the gig workers themselves (OECD 2019b).

[34] Arguably, the fragmentation and individualization of work result in information and power asymmetry between platform workers and employers because the workers have few opportunities to share useful information and common concerns.

similar to the self-employed. At the same time, they also have some elements of an employee relationship. Their intermediaries have control over work performance through set fees, rating systems, or control of customer information; the worker does not set his/her own rates. The intermediary may also deactivate their accounts removing access to the platform, an action akin to firing traditional employees (Harris and Krueger 2015).

For the moment, best-practice regulation to address the gray area in employment relationship is still emerging. The State of California has passed a "gig law"" to force technology companies to provide social protection and provide the same employee benefits to platform workers. The law gives clear conditions about when to consider the arrangement a standard employment relationship. However, it was overthrown through a public referendum sponsored by platform operators, Uber, Lyft, and others. So far, the US and the European Union court decisions appear inconsistent (OECD 2019b) but are possibly converging to a similar outcome (Box 6.6). In Canada, determination of whether standard or nonstandard employment exists is decided case by case. While this approach is more flexible, it nevertheless gives large discretion to adjudicators, resulting in uncertainty and possibly inconsistent decisions.

Box 6.6: Uber and Lyft: Are Platform Drivers Employees?

Platforms such as Uber and Lyft argue that their service is to provide the infrastructure that matches workers and clients; that they are in the technology, not transport, business. Thus, drivers that use their platform cannot be their employees.

The court in California, on the basis of the newly passed "gig law," disagreed and ruled that they are in the business of "selling rides." They were therefore asked to provide drivers standard employee benefits, including paid leave.

Although the two companies lost their argument in court, they won their case in the November 2020 referendum which approved Proposition 22 exempting platform providers from providing employee benefits to gig workers, except if the company sets drivers' hours, requires acceptance of specific ride and delivery requests, or restricts working for other companies. Gig workers, considered as independent contractors, are not covered by state employment

continued on next page

Box 6.6 (continued)

laws such as minimum wage and unemployment insurance, but are entitled, under Proposition 22, to healthcare subsidies, vehicle insurance, medical coverage for on-the-job injuries, and minimum earnings.

In contrast, in the United Kingdom (UK), the Supreme Court decided unanimously to consider platform-using drivers as workers not as independent contractors, making them eligible for minimum wage, vacation leaves, pension benefits, rest breaks, and protection against unlawful discrimination. Significantly, "workers" under British law are a distinct class that falls between employees and independent contractors.

The difference between the outcomes in California and in the UK may, ultimately, be small depending on how they are applied. In both, drivers obtained some but not all benefits that standard employment provides.

Source: Author, based on Siddiqui (2020) and Hiltzik (2021).

Making social protection future-ready

How can social security be future-ready? How can social security programs be redesigned to address the needs of nonstandard workers?

For those easy to identify as self-employed, independent contractors, and part-time or temporary workers, solutions are afoot. Some countries have adjusted contributory programs to accommodate career discontinuities by lowering thresholds for eligibility.[35] Other solutions include deferral of contributions during crises or non-work, using broad income bands taking into consideration interruption in contribution periods for the determination of contribution levels. Social assistance, usually unrelated to work histories but based on residence, is also available in many countries, sometimes as zero-interest loans to bridge temporary out-of-work or low-income periods (OECD 2017).

[35] Earnings-related pension benefits usually have minimum vesting periods. Meeting minimum contribution requirements is often difficult for some types of nonstandard workers. A 10-year out-of-work spell combined with a late career start reduces pension entitlements by 20% on average (OECD 2019b)

Other reform options include making entitlements portable between social insurance programs intended for different labor market groups.[36] In some sectors, governments may need to intervene to curb the monopsony power of some companies in hiring labor. The power asymmetry affects not only those working in the platform economy but also own-account workers and on-call labor. Worse, antitrust regulations prohibit self-employed workers from collective bargaining, obviating the possibility of equal bargaining positions.

For those in the employment gray zone, to ensure access to labor and social protection, a step would to be clarify their classification and employment status—whether they are contractors or employees or belong to a separate employment category altogether (next subsection). This is salient because as more platforms or intermediaries arise that match different services and customer needs, this type of employment will likely increase in future.

Some countries use tests to determine worker status based on actual working relationship rather than on the employment contract per se. There is a presumption of employee status if the tests which examine the worker's financial independence plus elements of worker subordination and control from the client are met. The assessment is based on the worker's integration in the organization; the extent of worker's control of his/her condition of work, including place and time of work; who provides the tools, materials, or machines used at work; regularity of payments; extent to which the worker takes on financial or entrepreneurial risk; and whether the work must be carried out personally by the worker (OECD 2019b). Once employee status is determined, there is another question on who the employer is, especially in triangular employment arrangements, i.e., where there is an intermediary and worker used by him to provide services to a user-firm (client) within its premises. The question is important because it determines whether the intermediary or client (or both) is obliged to pay for all the taxes and social protection contributions.

"Independent worker" status

Harris and Krueger (2015) suggest a social protection compromise by defining a different employment category called "independent worker," a hybrid of independent contractor and employee. In their proposal,

[36] What is ordinarily preferable is to have programs to help nonstandard workers become employees if they wish to, by providing training and re-training programs. Some governments, Singapore for example, sponsor vouchers for adult learning and continued education to make the labor force adapt to new trends in the labor market.

independent workers receive some social protections and benefits, such as the right to organize, paid employer share of social security and medicare, tax withholding, and employer share for payroll taxes. However, because it is difficult to attribute work hours to any single intermediary, they would not qualify for overtime payments nor minimum wages. Moreover, since independent workers have a difficult time qualifying for unemployment insurance benefits in any case (because they have discretion over how much time to work, when and with whom), neither should they be required to contribute to unemployment programs.

Platforms/intermediaries can also help lower the cost of paying for social protection benefits. By pooling independent workers for purchasing and providing insurance and other benefits, they can negotiate more efficiently for lower fees with insurance/pension providers. This would be a win-win situation if governments were to allow intermediaries to negotiate on behalf of "independent workers" without risking that the relationship be turned into an employment relationship. In this way, most (though not all) legal benefits and protections in standard employment relationships can be extended to independent workers, preserving the social compact that has protected both workers and employers over the centuries (Harris and Krueger 2015).

Countries such as the UK and Italy that have defined an intermediate category of workers, however, show potential danger in the approach. The UK defined "worker" status, while Italy has "semi-subordinate worker" status with the intention of extending social protection to the new distinct class of workers (OECD 2019b). But when boundaries are vaguely defined because they are difficult to define in the first place, the new classification creates opportunities for employers to classify some who would have been employees as workers or semi-subordinate workers The new classification is therefore a vehicle for taking away rights and protections from those who would have had them had there been no intermediate worker category.

Paying for social protection

If employers were to pay for more social protection benefits to "independent workers," the cost would likely be partly shifted anyway to workers in the form of lower net fees or compensations, while the intermediary takes higher commissions to pay for worker benefits. However, to the extent that the intermediary may have more bargaining power with insurance/pension providers, the cost could be overall lower

than if workers were left to purchase insurance on their own. The surplus could be shared between workers and employers, resulting in less than full shifting of the cost to the workers (Harris and Krueger 2015).

Through agreement with digital platforms, some private insurance companies support gig and nonstandard workers by tailoring products to their needs. For example, Axa-Uber provide drivers (in Europe) with benefits such as parental leave, sickness and injury compensation, and childbirth allowance (ISSA 2019a). Though limited in scope compared to comprehensive social protection, it nevertheless provides some of social protection needs of platform workers.

Another challenge in the gig economy is how to tax the increasing number of nonstandard workers. Some fail to report income from the gig economy partly because declaring self-employment income could often be cumbersome. By doing so, however, pension benefits are also diminished. Tripartite agreements between platforms, financial institutions, and social security or labor institution provide possible models that can facilitate tax and contribution collections as in Indonesia and Malaysia (Box 6.7).

Box 6.7: Facilitating Tax Payments

In 2017, to simplify registration of drivers and contribution collection procedures, Indonesia's National Social Security Administering Body for Employment (BJPS Ketenagakerjaan) agreed with Gojek, a ride-hailing on-demand service provider, and Bank Mandiri, to require online registration in a website developed by BJPS Employment and Gojek. Every month, drivers' contributions to cover accident and death insurance are automatically withdrawn from their Gojek accounts. With this simple procedure, more Gojek drivers have registered with social security and are able to pay contributions monthly.

Similarly, in Malaysia, the Social Security Organization (PERKESO) together with Grab, another ride-hailing company, required drivers to register and pay contribution as a condition to obtain or renew their Public Service Vehicle licenses and be authorized as Grab drivers. The amount of contribution deducted from the driver's account varies depending on the plan signed up for.

Source: ISSA (2019a).

Pension Portability

As migrant workers in Asia have increased, another important issue for ASEAN+3 is the portability of pensions. All over the world, more and more workers stay part of their working life abroad because of globalization. Some move to another country as students or interns. When they start working, they can be transferred within the firm to another country or else move across firms for career advancement. Many move to different countries as migrant labor, and eventually return to their home country or to a third country for many reasons, including possibly for tax arbitrage. Within ASEAN, greater mobility of skilled workers is also part of its economic integration objectives, which is expected to deliver more worker migration.

When workers move to another country, they usually acquire pension rights as well as other social benefits such as healthcare and others in their host country. It helps if, when they return home or move to another country to work or reside, they do not lose at least their pension rights, along with survivor and disability and other social security benefits to which they have contributed part of their earnings while in the host country.[37]

Portability of social security refers either to cross-border portability or cross-firm portability within country. In this section, portability refers more to cross-border portability understood as "a migrant's ability to preserve, maintain, and transfer both acquired social security rights and rights in the process of being acquired from one private, occupational, or public social security scheme to another, independent of nationality and country of residence" (Holzmann and Jacques 2018).

Compared to defined benefit (DB) schemes, define contribution (DC) schemes are more portable because these are like individual savings accounts that can be withdrawn and exported. Even if at times there can be a minimum holding period or tax implications, these are not major obstacles for portability of DC benefits. Portability in a DB pension system, however, is more complicated. Preserving and maintaining social security rights in the context of DB schemes means that the migrant worker does not lose his/her contribution because he/she is unable to complete the minimum number of years to qualify for benefits because of transfer to

[37] Noncontributory social security benefits, for example, minimum income guarantees for low-income individuals, are usually funded out of the government budget. These social protection benefits are usually, and understandably, not portable across countries.

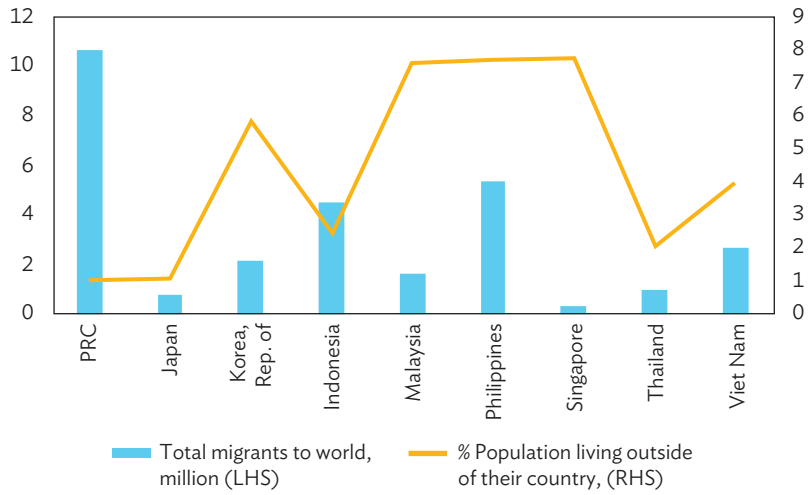
another country. Even when the migrant worker has fulfilled the qualifying condition, exporting his/her social security benefits is also not so simple although less problematic.

There are various options for making benefits portable, but signing social security agreements is, at this time, taken as the best option, especially for public pensions (Genser and Holzmann 2019).

Labor Migration in Asia

Before discussing pension portability, it is worth taking a look at the status of migration from and into Asia. Figure 6.11 shows that among Asian countries, the PRC is the biggest labor exporter, with more than 10 million Chinese workers abroad. But its share of the working population is a minuscule 1%.[38] As a share of working population, Singapore, the Philippines, and Malaysia are the countries with the highest percentage, even though, for Singapore, its expatriate workers only number more than 300,000. The Philippines and Indonesia are the highest labor exporters among ASEAN countries.

Figure 6.11: Migrants from Selected ASEAN+3 Economies and Their Share in the Population Living Outside of Home Country, 2019

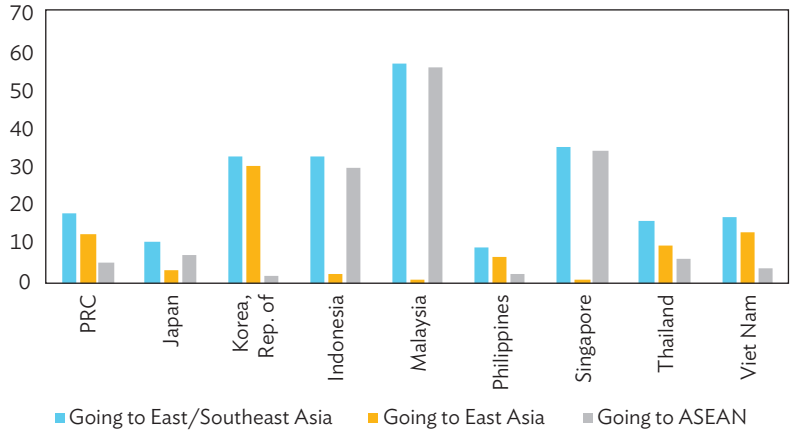


LHS = left-hand scale, PRC = People's Republic of China, RHS = right-hand scale.
Source: Author, based on UN International Migrant Stock 2019 Database (accessed March 2021).

[38] This refers to population age 15 to 64 years old.

Most Asian migrants go outside Asia. However, Malaysians go mostly to Singapore. For Indonesia and Singapore too, most of their migrants work only within ASEAN. The Philippines, which exports close to 8% of its working population, only has 2.5% of them going to ASEAN and 7% to East Asia. The Republic of Korea, Thailand, and Viet Nam have a greater proportion of migrants going to East Asia than ASEAN (Figure 6.12).

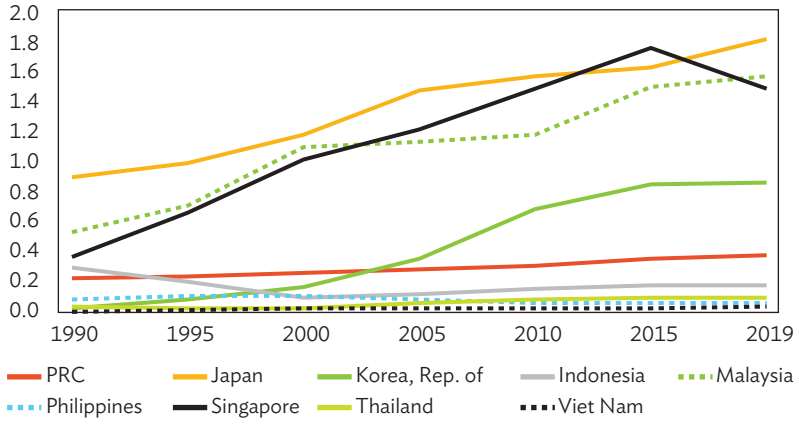
Figure 6.12: Destination of Migrants from Selected ASEAN+3 Economies by Origin, 2019
(% share)



PRC = People's Republic of China.
Note: East and Southeast Asia groupings are based on the definitions of the source.
Source: Author, based on UN International Migrant Stock 2019 Database (accessed March 2021).

The growth of migrants from ASEAN+3 working within ASEAN+3 has been fast for Japan, Malaysia, and Singapore, while it is moderate for the PRC and the Republic of Korea. The number of migrants to Indonesia, the Philippines, and Viet Nam has not changed considerably over the years (Figure 6.13).

Figure 6.13: Migrants from ASEAN+3 Economies by Destination, 1990–2019
(million)



PRC = People's Republic of China.
Note: The reporting ASEAN+3 economies are the PRC, Indonesia, Japan, Malaysia, the Republic of Korea, the Philippines, Singapore, Thailand, and Viet Nam.
Source: Author, based on UN International Migrant Stock 2019 Database (accessed March 2021).

Migration and Pensions

The growing number of migrants in Asia begs the question about what happens to their social security rights if they make contributions in their host countries.[39] There are usually various issues to consider. First, if they return home or move to another country assignment, what happens to their social security contribution if they have not fulfilled the qualifying requirements (if such exist)? The same goes for any other retirement accounts including occupational pension, private pension, and other private retirement savings instruments? Second, if they have satisfied the qualifying requirements, are the benefits exportable to their home countries or to any other country where they may choose to reside? Third, what are the pension taxation issues to consider? Fourth, do international agreements such as the World Trade Organization-General Agreement on Trade in Services (WTO-GATS) carry implications for social security rules and bilateral or regional social security agreements because the GATS requires national treatment and most-favored-nation obligations?

[39] Box 6.8 illustrates that the problem of portability is not only between countries but can also be within country if the social security scheme is highly fragmented, as in the case of the PRC.

Box 6.8: The People's Republic of China's Hukou System and Pension Portability

Rural migrants in the People's Republic of China (PRC), under the *hukou* system, are like foreigners in their own country. *Hukou* is the PRC's system of population registration that helps control internal migration. In particular, rural migrant workers do not enjoy the same social protection as urban residents because of the peculiarities of the PRC's social security scheme.

The PRC's mandatory pension system is composed of two parts. One is a social insurance pooling system where employers contribute up to a maximum of 20% of wages, and the other is an individual account where employees' maximum contribution of 8% is placed. The first operates on a pay-as-you-go basis, meaning that current employer contributions are used to pay current retirees. The second operates akin to a provident fund which, unlike the first, should, in theory, be highly portable.

Because social security is not centralized but managed by local/city authorities and transfer of the pooled funds is difficult, migrant workers do not get their full retirement benefits compared to their urban counterparts. While the government had changed the law to allow greater portability of social security benefits if workers transfer work or retire in another province, in practice, the administrative hoops to be able to do so make pension portability difficult.

Source: Author.

Portability of supplementary personal pensions

Migrant workers may contribute to a statutory public pension scheme, which can be either mandatory or voluntary. Aside from the statutory ones, there are also occupational pensions that are usually managed within the company, as well as other retirement savings instruments (or private pensions) sanctioned by different countries and privileged with some tax benefits. These supplementary schemes are particularly useful for self-employed people, as well as others looking to supplement their retirement savings. The complications for pensions, particularly if they are country-specific, begin when the migrant worker leaves either for another assignment, or employment, or retirement to another country.

Supplementary personal retirement savings instruments that citizens invest in are usually regulated differently according to different national rules. In some countries, there are conditions regarding transfers of such schemes to another country, some of which, legitimately so—for example, to ensure that the tax-exempted contributions in occupational or personal pensions remain only for retirement purposes. While there are bilateral or multilateral social security agreements for public pensions, arrangements are slightly complicated for supplementary schemes primarily because of tax issues.[40]

The crux of the problem is that personal pension savings instruments are designed to cater to specific country regulations to benefit from tax exemption and fiscal incentives. If there were a pension product that satisfied all features necessary to qualify for fiscal benefits in each country, and countries had bilateral social security agreements that covered supplementary retirement savings, then that product would be easily portable across these countries. Savers could then simply continue contributing to the same pension product provider even when they moved to another country without significant tax complications. In the European Union (EU), the Pan-European Personal Pension Product (PEPP), a pension product that can be marketed throughout the EU, is supposed to be, in theory, just such a "super-pension" product. It can be accessed online, transparent with respect to fees and costs, portable across the EU, consumers can easily switch PEPP product providers or investment options free of charge, has flexible payouts (whether annuities, lump sum, regular drawdowns) at the decumulation phase. In Asia, no product similar to PEPP exists. However, the PEPP's rollout success remains to be seen, as the first PEPPs will come out in late 2021 or early 2022.

At the moment, it is not certain if PEPP will receive the same tax incentives as local products by EU member states, yet it will be competing with these local pension products. It is argued that PEPP may be more relevant in EU countries with less-developed pensions systems, and less so in others with already a wide range of personal pension products. If so, in Asia where personal pension products are just emerging, PEPP-like products may hold enormous promise. Thus, this new EU experiment on PEPP will be worth

[40] Tax issues aside, granted that portability of personal pension product is possible, the exit fees and the cost of the transfer process can also be expensive. The reason is that pension savings are supposed to fund long-gestation, often illiquid, projects like infrastructure or private equity and, in return, receive an illiquidity premium. However, if workers are able to switch easily and freely at any time, the illiquidity premium would be difficult to justify, resulting in lower returns for savings invested in a personal pension product. A middle ground is to allow a switch between pension products and providers but with minimum years of holding period.

watching and, if successful, can be replicated in ASEAN+3 region. It will encourage an increase in supplementary pension savings especially for migrant workers in Asia by assuring them of a portable source of old-age income wherever they decide to retire in the region. It will also be attractive to self-employed individuals or gig workers who do not have occupational pension benefits. It will also help develop a regional market for capital in the ASEAN+3. However, as with most policies, success lies in the details of the regulations and their implementation. The EU's experience of PEPP's success or failure can provide some guidance in the future for Asia.

Exportability of benefits and tax issues

If the worker chooses to retire in his/her home country or another country, his/her pension benefits can be exported. The issue is whether the benefits are going to be taxed in the origin or destination country, or both. If benefits are taxed at the origin and again at destination, savers are disincentivized to move retirement locations. Some countries have double taxation treaties to deal with situations such as these, but if the origin–destination country pair do not have such treaties, the pensioner will be doubly taxed.

The issue of taxation is very complex, especially because of its diversity. Some countries tax during decumulation (or payout stage), others during accumulation and contribution phase (Genser and Holzmann 2016). Countries have different permutations and combinations of exempt (E) and tax (T). The Republic of Korea, for example, taxes the contribution, exempts the accumulation or returns, and again taxes the payout (TET), while Japan has an EET regime whereby it exempts the contribution and accumulation of returns but taxes the payout (OECD 2018c). Even within these permutations, there are variations. For example, the tax at payout may be levied only for lump-sum withdrawal above a certain threshold, while below it is tax-free; annuities are also more favorably taxed than other types of payout. In others where progressive taxation is maintained, public pension income is exempt depending on the total income of the pensioner.

Portability of public statutory schemes through bilateral social security agreements

Social security agreements between countries significantly help achieve portability. Most such agreements are bilateral, although these can also be multilateral as in the EU case. Although in theory, bilateral social security agreements (BSSAs) can cover all aspects of (usually public statutory)

social protection including healthcare benefits, most BSSAs focus on long-term benefits (old age, survivor's, and disability pension).

Comprehensive BSSAs usually include agreements on definition or coverage of social benefits that will be coordinated, time-limited exemption from contribution; exportability benefit calculation, disbursement, service delivery, and administrative support and coordination. The agreements usually aim at equality of treatment, something akin to the national treatment principle in trade agreements which prohibit discrimination between domestic and foreign. An important part of the BSSA is the totalization of benefits which sums up the periods of employment in both countries for determination of the qualifying period. Without it, the worker risks not meeting the minimum vesting period requirement and loses his/her social security benefits as he/she moves from one country to another. Under the BSSAs, civil servants (those with temporary posting in embassies) are exempted from paying into the host country's social security schemes. BSSAs also avoid double coverage for a period of time because of exemption of having to pay social security taxes in both the host and home countries for the same earning.

The principles of the BSSA are largely observed across agreements but the content and implementation across countries are variable (Holzmann and Jacques 2018). It is also mostly present among developed countries with developed social security schemes. A critical element for BSSAs with developing countries is a well-functioning social security scheme (usually in the labor sending country), as well as a significant number of bilateral migrant flow. Otherwise, the resource-intensive negotiation and development of a BSSA outweigh its benefits. Some countries can also take unilateral action to make eligible benefits fully portable without need for bilateral agreement. Likewise, statutory pension schemes designed as account-based, as most DC schemes are, are usually more portable. For example, Singapore allows permanent residents who choose to retire in their home country to withdraw all their Central Provident Fund (CPF) savings lump sum.

Globally, 23.3% of worldwide migrants in 2013 live in countries that have BSSAs between home and host countries (Holzman and Jacques 2018). The majority (more than 53%) live in countries where social security benefits are not necessarily portable but are exportable and where countries have no BSSAs. The remaining 23% either live in countries where migrant workers have no access to social security (9.4%) (they neither contribute

nor receive benefits from social security) or else they live as informal workers and thus get no social security benefits to take home (14%).

In Asia, 2.1 million migrant workers are in countries that have BSSAs. These are workers from East Asia moving around the region, since only Japan, the Republic of Korea, and the PRC have BSSA between each other.[41] They constitute 32.2% of the total Asian migrant workers to Asia. Another 2.9 million or 45% of Asian expatriates go to countries where migrant workers have access to social security but their countries have no BSSAs. Finally, 1.5 million from Asia (23%) go to Singapore where access is not allowed in the CPF unless they have become permanent residents (Table 6.11). Expatriate workers, however, are allowed up to S$5,000 tax-deductible annual contribution to a personal life insurance which is considered as retirement savings. If permanent residents decide to return to their home country, they can opt to bring home all their CPF savings or let it stay in Singapore while still being able to collect annuities income outside the country.

Table 6.11: Social Protection for Asian Migrant Workers

Social Protection Regime	Intra-Asia Migrant Stock (million)	% of Intra-Asia Migrants	Global Comparative Figure
I. With access to social protection and social security agreement	2.1[a]	32.2	23.3
II. With access but without social security agreement	2.9	44.8	53.3
III. Without access to social protection	1.5[b]	23	9.4
IV. Undocumented migrants	...	...	14

... = not available.
[a] Bilateral migrant worker flow between the Republic of Korea, Japan, and the People's Republic of China.
[b] Asian migrants to Singapore.
Note: The aggregation of Asian migrants is based on UN DESA's country grouping and data. The global figures were obtained from Holzmann and Jacques (2018).
Source: UN International Migrant Stock 2019 Database (accessed March 2021); and Holzmann and Jacques (2018).

[41] These BSSAs have limited coverage, mainly on temporary exemption from contribution to the host country's social security system in the first x years of expatriate work. They do not contain agreement on totalization and exportability.

WTO-GATS and social security agreement

As a bilateral international agreement, BSSAs grant benefits to partner countries but not to others. The question is whether benefits granted under the social security agreement, particularly the portability features, are supposed to be extended to other member countries of the World Trade Organization (WTO) under the most-favored-nation commitment that countries agreed to under the General Agreement on Trade in Services (GATS).[42]

It appears that the answer is no. The reason is that GATS exempts public social security or national pension schemes operated by a public institution, and BSSAs are mostly about public social security. Likewise, the Annex on Financial Services to GATS explicitly excludes social security from its scope on the basis that it constitutes a "service supplied in the exercise of governmental authority." The gray area, however, is when private service providers are tapped for outsourcing by the government, for example, pension funds that carry out investments on behalf of the public institution; or with respect to personal pension plans offered by the private sector. The introduction of a private element in public services may render the scheme subject to most-favored nation rule and other obligation (Olivier 2018). The consequence can be that the supply of social security services can become open to competition if committed for liberalization under the country's GATS commitments, for example the provision of personal pension products or retirement savings instruments. It is an issue that is worth looking into if ASEAN adapts personal retirement savings products for the region that are akin to the EU's PEPP.

6.5 Conclusion

Aging impacts the economy through labor participation, productivity, and savings. Its effects are still ambiguous, based on various empirical research that account for technology and human capital quality. Aging also affects pension sustainability and adequacy. The pension savings gap is getting bigger largely because of unfunded public pensions as well as low personal savings for retirement. Many countries have undertaken pension reform but more need to be done.

[42] The most-favored-nation provision essentially prohibits discrimination between countries, hence any favor given to one has to be given to all.

Pension issues are considered a national concern. But some pension issues can be discussed at the regional level; for example in ASEAN or ASEAN+3 processes, even for just an exchange of experiences. Pension issues link closely with the financial market, which is discussed in the regional meetings. Experiences on lifting some investment restrictions on pension funds can likewise be regionally relevant, together with knowledge sharing on investments in alternative assets such as private equity and infrastructures.

Digital technology has also entered the realm of pensions. Advances not only impact the governance and administration of pension institutions but also labor employment arrangements that have repercussions for future pension income. In particular, workers in nonstandard employment arrangements, gig workers, and platform workers will have less old-age retirement benefits if nothing is done to address the effect of technology on the world of work and social protection. Regional discussions and exchange of experiences about what countries in Asia have done to address the pensions issue for nonstandard employment workers are warranted. What is different among ASEAN+3 countries' categories of labor employment and how gig workers are classified can be added to the conversations.

Finally, considering increasing migrant labor in Asia, the issue of portability also merits discussion, especially if foreign workers contribute to pension schemes in host countries in Asia and later retire in their home countries. It is an issue that touches upon equity and fairness.

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