

How Aging Will Reshape the Economy and Retirement Security in the 21st Century

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Aging and the Economy

The Three Stages of the Demographic Transition

- The “demographic transition” that ultimately gives rise to population aging unfolds in three stages. How demography affects the economy depends on which stage of the transition countries are traversing.

Stage 1: Declining mortality rates lead to rising youth dependency burdens and rapid population growth. Demographic trends tend to lean against economic growth.

Stage 2: Fertility rates fall with a lag. Declining dependency burdens and rising median ages open up a window of opportunity for rapid economic and social development known as the “demographic dividend.”

Stage 3: The relative growth in the number of elderly overtakes the relative decline in the number of children. Dependency burdens rise again and populations stagnate or contract. Demographic trends once again tend to lean against economic growth.

	Life Expectancy at Birth				Total Fertility Rate			
	1950	1975	2000	2021	1950	1975	2000	2021
Europe	63	71	74	77	2.7	2.1	1.4	1.5
North America	68	73	77	78	3.0	1.8	2.0	1.6
Oceania	61	69	75	79	3.7	2.9	2.4	2.2
East & South East Asia	43	61	72	77	5.6	3.7	1.8	1.5
Central & South Asia	41	52	63	68	5.9	5.5	3.5	2.3
North Africa & West Asia	42	56	69	72	6.6	6.0	3.4	2.8
Latin America	49	61	71	72	5.8	4.7	2.6	1.9
Sub-Saharan Africa	38	46	51	60	6.5	6.8	5.7	4.6

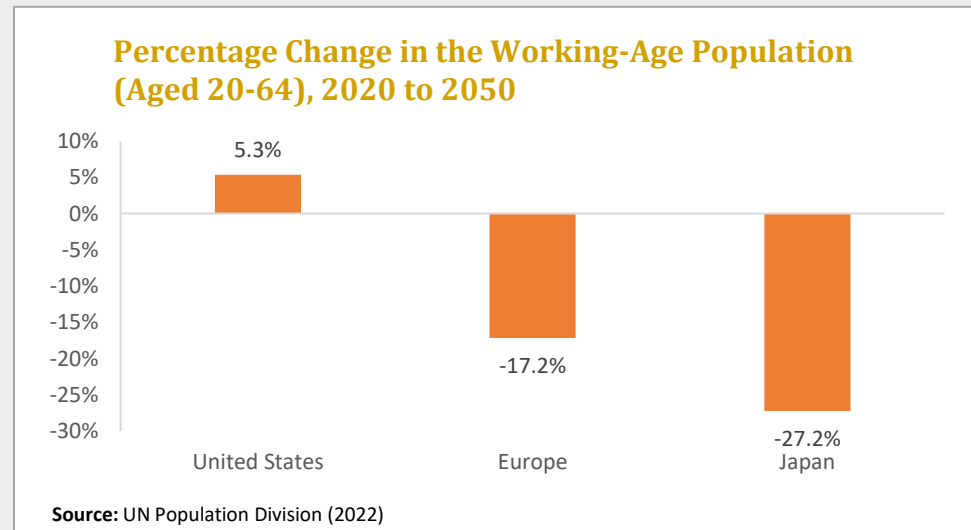
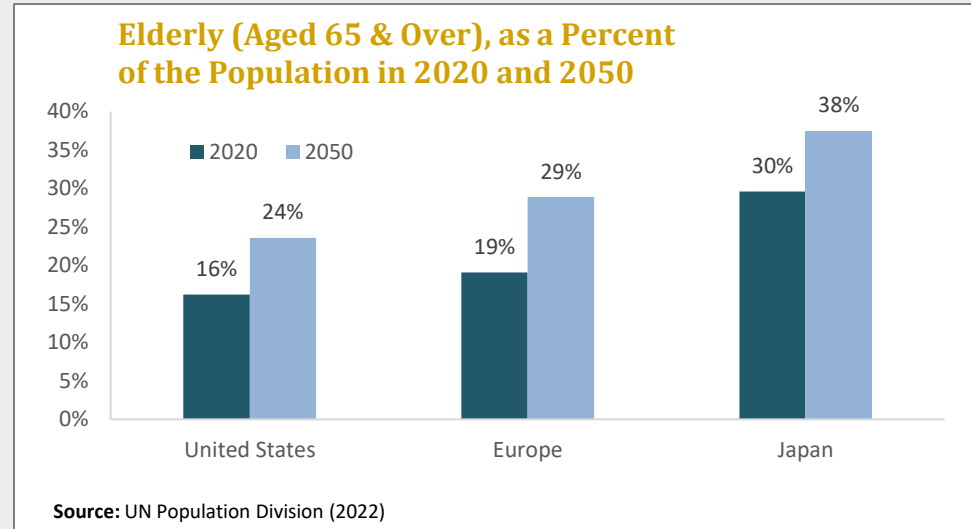
Source: UN Population Division (2022)

	Median Age				Total Dependency Ratio			
	1950	1975	2000	2021	1950	1975	2000	2021
Europe	28	31	37	42	75	77	65	68
North America	29	28	34	38	74	83	69	70
Oceania	26	24	30	32	81	93	77	75
East & South East Asia	21	19	28	36	102	114	71	61
Central & South Asia	20	18	21	27	108	124	104	76
North Africa & West Asia	19	17	20	26	116	136	106	81
Latin America	18	18	23	30	120	127	92	69
Sub-Saharan Africa	18	16	16	18	124	137	141	126

Source: UN Population Division (2022)

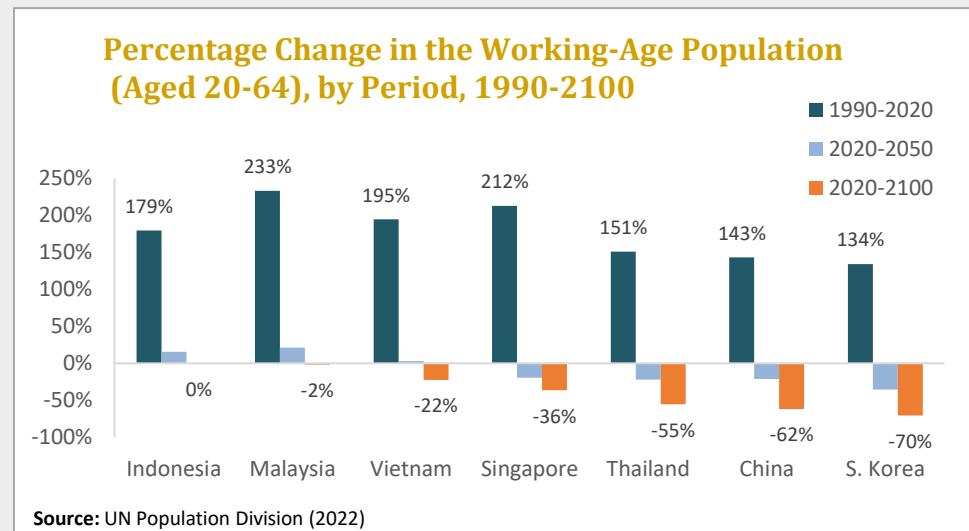
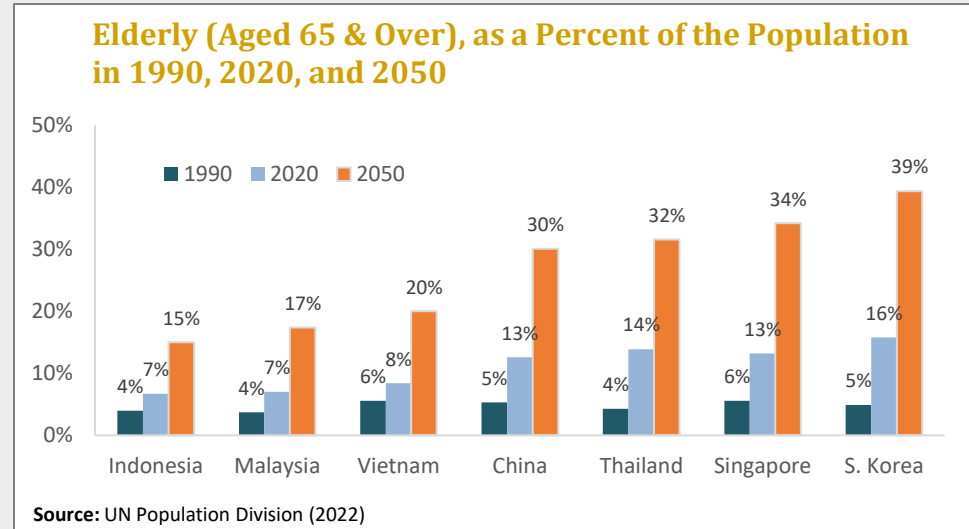
The Developed World: Only Shades of Gray

- ❑ The entire developed world has by now entered the third stage of the demographic transition in which rapid population aging tends to lean against economic growth.
- ❑ The extent of population aging varies greatly from country to country, mainly because fertility rates have fallen much further in some than in others.
- ❑ Yet to a greater or lesser degree, all developed countries face the same challenges. The fiscal burden of retirement and health-care programs is growing even as economic growth is slowing. Businesses have to cope with a deficit of young workers, while families have to cope with a surplus of frail elders.
- ❑ Even the global balance of power is shifting as the developed world shrinks demographically and economically relative to a faster-growing emerging world.

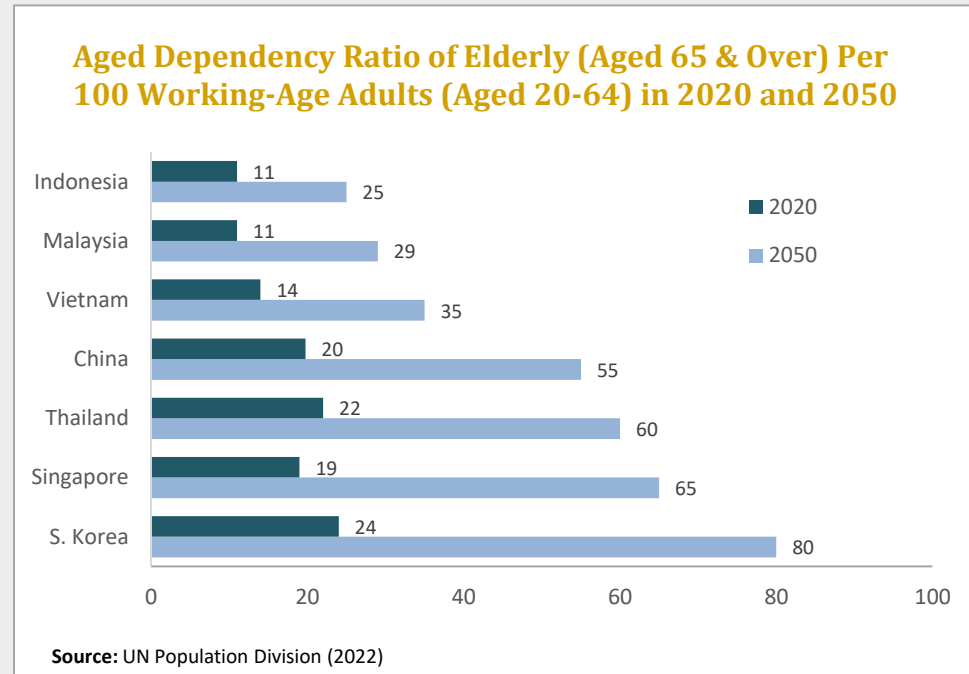


Emerging East & South East Asia: A Demographic Tipping Point

- While the developed world may be leading the way into humanity's graying future, most of the emerging world is also aging.
- Some Asian countries are traversing the entire demographic distance from young and growing to old and stagnant or declining at a breathtaking pace, far faster than today's developed countries did.
- As their populations age and grow more slowly or contract in coming decades, the countries of East and South East Asia will face many of the same economic challenges now confronting today's developed countries.



- ❑ Over time, lower fertility and higher life expectancy translate into a higher aged dependency ratio, which in turn translates into a greater old-age dependency burden on governments and/or families.
- ❑ Higher old-age dependency burdens may be partially offset by lower youth dependency burdens.
- ❑ However, the youth dependency ratio is projected to fall much less than the aged dependency ratio is projected to rise in most Asian countries.
- ❑ The old also tend to consume more per capita than the young. As countries develop, moreover, they usually socialize the cost of being old to a much greater extent than the cost of being young, which means that much more of the cost shows up in government budgets.



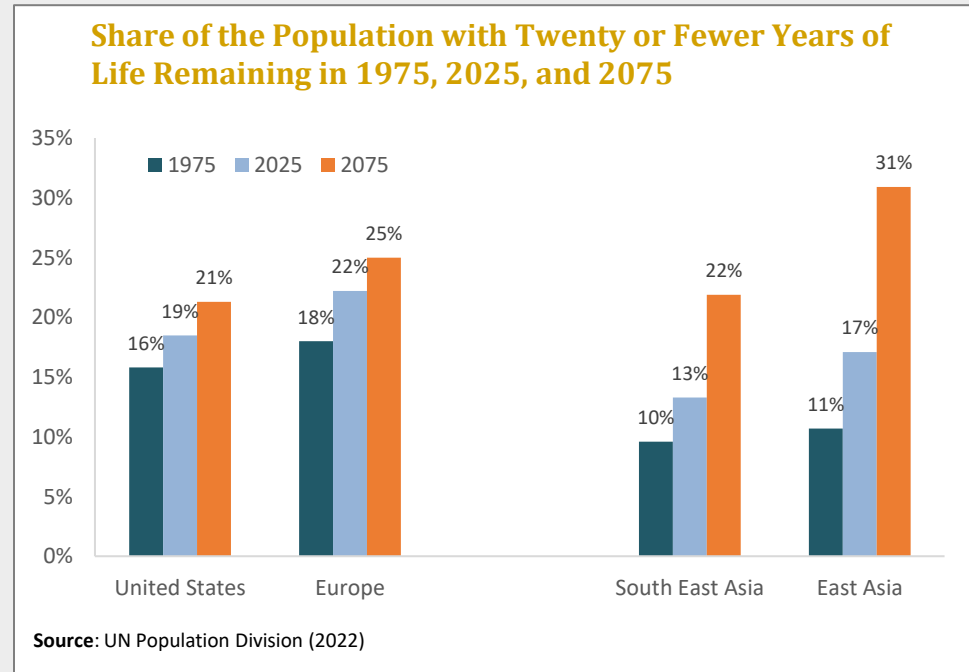
- ❑ Over time, lower fertility also translates into slower growth in the working-age population, which in turn translates into slower growth in employment and GDP.
- ❑ With the workforce growing more slowly or contracting, economic growth will increasingly depend on productivity gains. Yet, population aging may also put downward pressure on productivity.
 - Fewer new workers will mean less demand for capital-broadening investment and a slower turnover in the capital stock.
 - Aging workforces may become less flexible, less mobile, and less entrepreneurial.
 - Economies will be increasingly dominated by service industries resistant to productivity improvements (“Baumol’s Cost Disease”).
 - Rising fiscal burdens could lead to “crowding out” in capital markets and/or government budgets.

Average Annual Growth Rate in the Working-Age Population (Aged 20-64), by Decade, 1970-2050

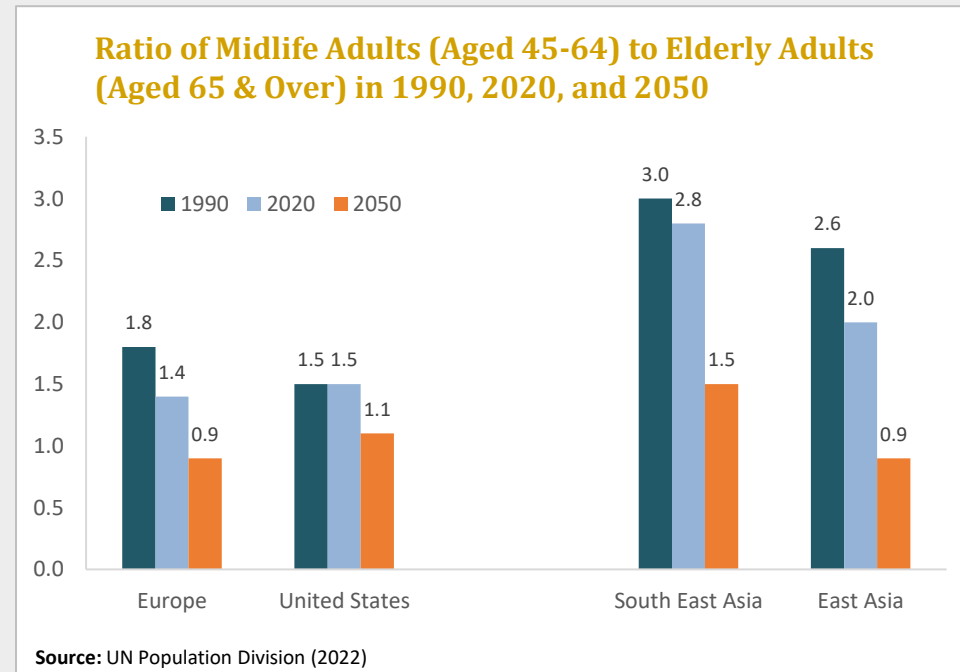
	1970s	1980s	1990s	2000s	2010s	2020s	2030s	2040s
China	2.7%	3.0%	1.8%	1.5%	0.3%	-0.3%	-0.8%	-1.2%
Indonesia	2.6%	3.0%	2.5%	1.9%	1.4%	0.9%	0.5%	0.1%
Malaysia	3.6%	3.8%	3.3%	3.1%	2.2%	1.1%	0.7%	0.1%
Singapore	3.7%	3.7%	3.5%	2.9%	1.2%	-0.6%	-0.7%	-0.8%
S. Korea	3.0%	3.0%	1.4%	0.7%	0.9%	-1.0%	-1.5%	-1.8%
Thailand	3.6%	3.7%	2.4%	1.3%	0.4%	-0.6%	-0.8%	-1.1%
Vietnam	2.9%	2.8%	2.9%	2.5%	1.3%	0.4%	0.2%	-0.3%

Source: UN Population Division (2022)

- ❑ Along with the economic dynamics of slow growth, there may also be psychological dynamics that put further downward pressure on economic growth.
- ❑ With the size of domestic markets growing more slowly, we may see more cartel behavior to protect market share and more restrictive rules on hiring and firing to protect jobs. We may also see increasing pressure to block foreign competition.
- ❑ Shifts in business and market psychology could be mirrored by broader shifts in the social mood. Slow-growth, aging societies may become more risk averse, have shorter time horizons, and be less willing to make investments with long-term payoffs.
- ❑ A robust statistical literature establishes that extremely youthful societies are often dysfunctional. Extremely aged societies may also prove dysfunctional in some ways, favoring consumption over investment, the past over the future, and the old over the young.



- ❑ Standard economic theory (Modigliani's "Lifecycle Consumption Hypothesis") assumes that people smooth consumption across their lifecycle, borrowing when young, becoming large net savers in midlife, then drawing down their savings in retirement.
- ❑ To date, there is little evidence of dissaving by the elderly. Possible explanations include:
 - Government old-age benefits
 - Rising life expectancy
 - Delayed retirement
 - Growing income inequality
- ❑ As large postwar generations more fully enter the retirement years, it is possible that some countries will reach a tipping point where savings rates finally fall.
- ❑ This is more likely to happen in emerging markets, where welfare states remain underdeveloped and the lifecycle motivation for savings appears to operate more strongly than it does in the developed world.



Interest Rates

- ❑ Slower GDP growth tends to reduce real interest rates, while a lower savings rate tends to increase them.
- ❑ Since population aging can both slow GDP growth (through its impact on employment and productivity) *and* lower savings rates (as more of the population enters the retirement years), the impact is uncertain. Aging could either pull interest rates down or push them up.
- ❑ To date, the growth effect has dominated, pulling interest rates down. In the future, the lifecycle effect may come to dominate, pushing them back up.

Inflation

- ❑ The traditional view: Aging is deflationary. The old consume less than working-age adults, depressing economic activity and prices.
- ❑ The new view: Aging is inflationary. Consumer demand will outstrip productive capacity, driving prices up.

SOLOW-SWAN GROWTH MODEL

Formula for the Equilibrium Real Rate of Return
in a Growing Economy

$$r = \alpha * \underbrace{\frac{n+g+\delta}{s}}_{\text{Marginal Product of Capital Stock}} - (\text{Risk Premium})$$

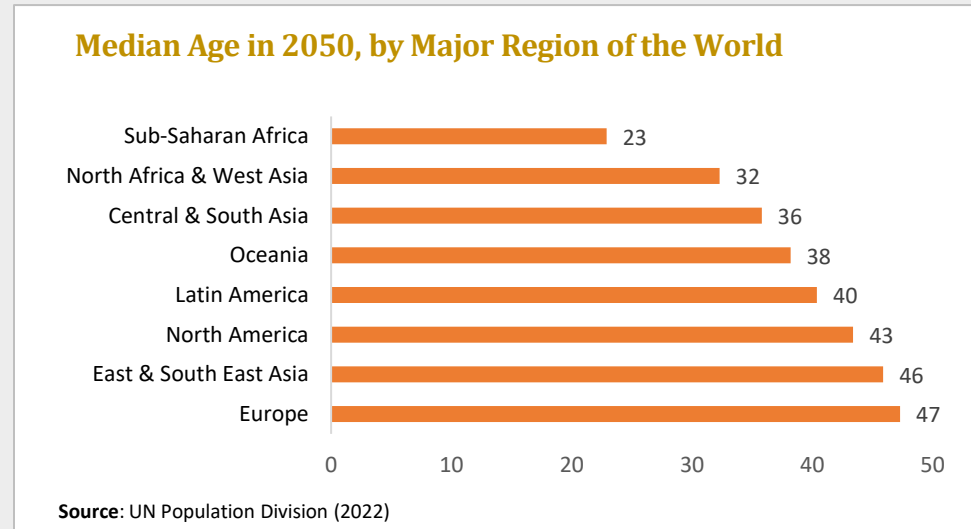
r = Real Interest Rate n = Employment Growth Rate

g = Productivity Growth Rate s = Savings Rate

α = Capital Share of National Income

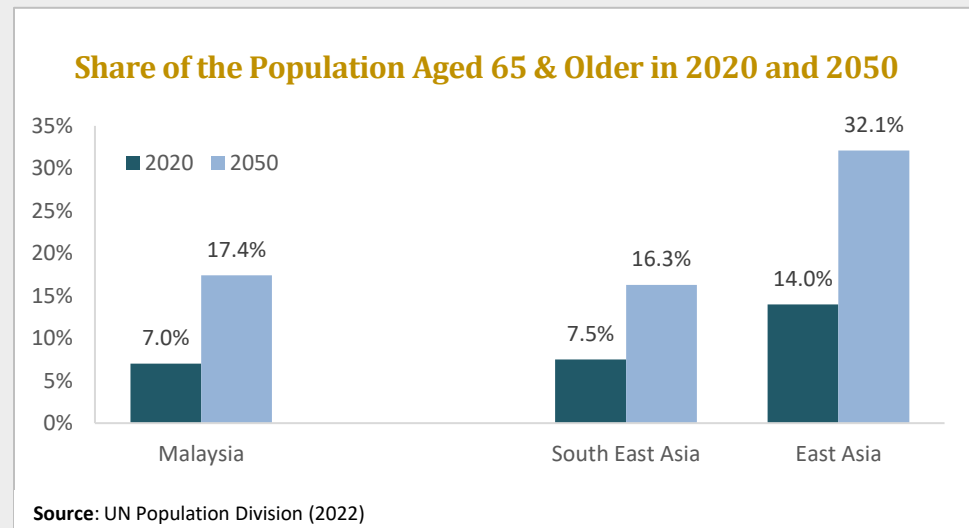
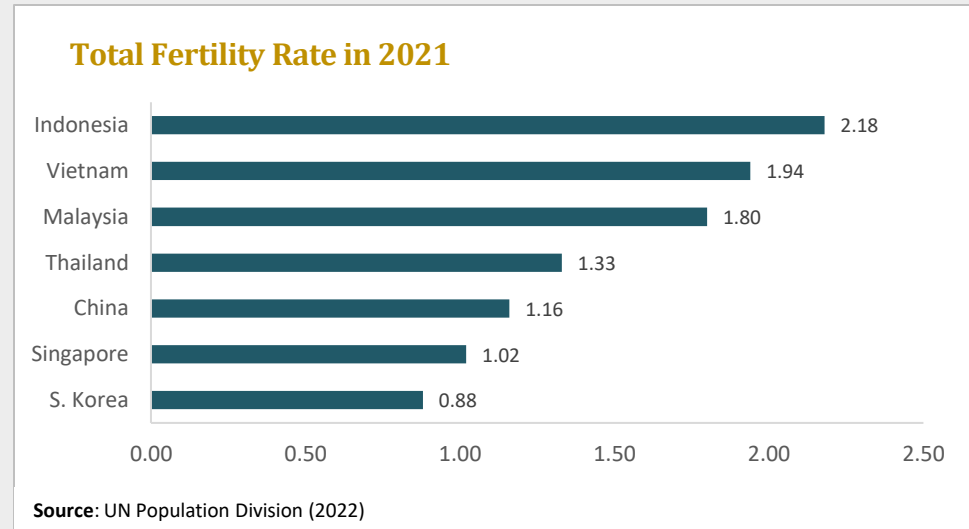
δ = Rate of Depreciation

- ❑ **Longer Work Lives**
As life expectancy and health expectancy rise, longer work lives could help to offset the economic drag of population aging on employment and GDP growth.
- ❑ **Capital Deepening**
While *capital broadening* investment will decline as populations age, labor scarcity creates incentives to increase *capital deepening* investment (technology/innovation/automation). This could help to boost productivity.
- ❑ **Globalization**
Globalization allows countries to escape the tyranny of their own demography. Open global labor markets can allow workers in countries where labor is abundant and capital is scarce to be matched with jobs in countries where just the opposite is true. Open global capital markets can similarly match savers with investment opportunities.
- ❑ **The Silver Economy**
Consumer demand by burgeoning elderly populations could become a driver of economic growth, particularly in the health-care, financial services, and personal services sectors.



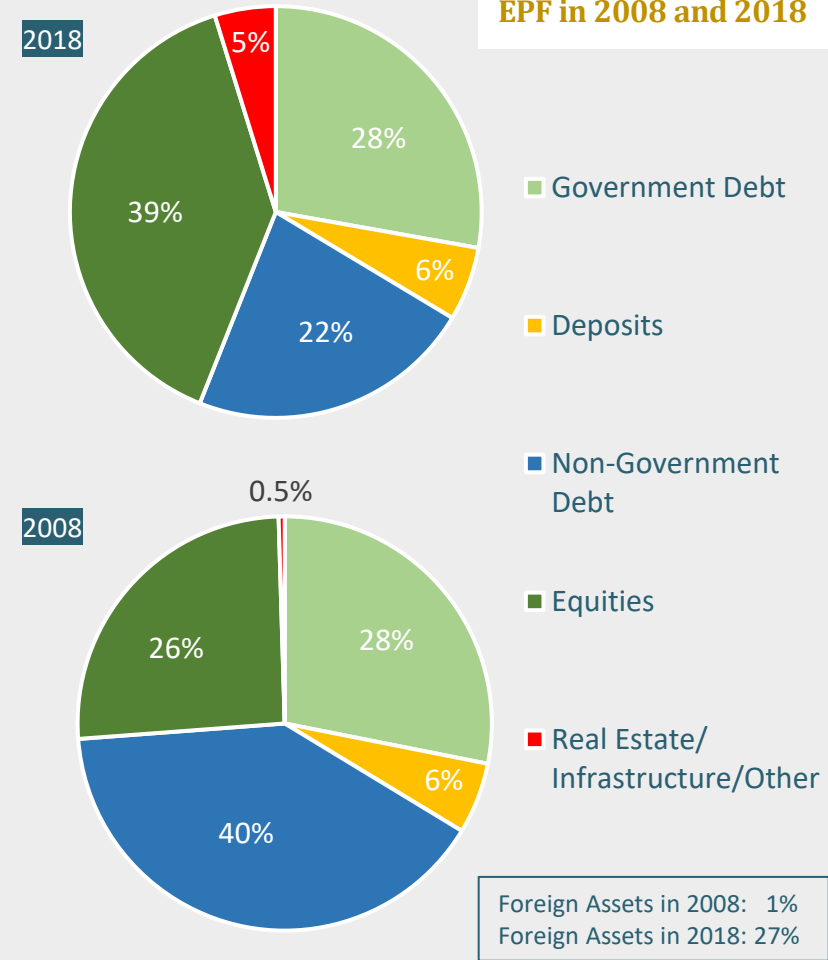
Aging and Retirement Security

- ❑ The fertility rate in Malaysia has not fallen as far as in most of East and South East Asia's other major economies. As a result, though Malaysia is due to age considerably over the next few decades, its population will remain relatively youthful by regional standards.
- ❑ This means that the drag of population aging on economic growth will be less in Malaysia than in countries like Thailand, China, or South Korea, where by 2050 there will be more people turning 90 each year than being born. It also means that the challenge of maintaining retirement security may be less daunting.



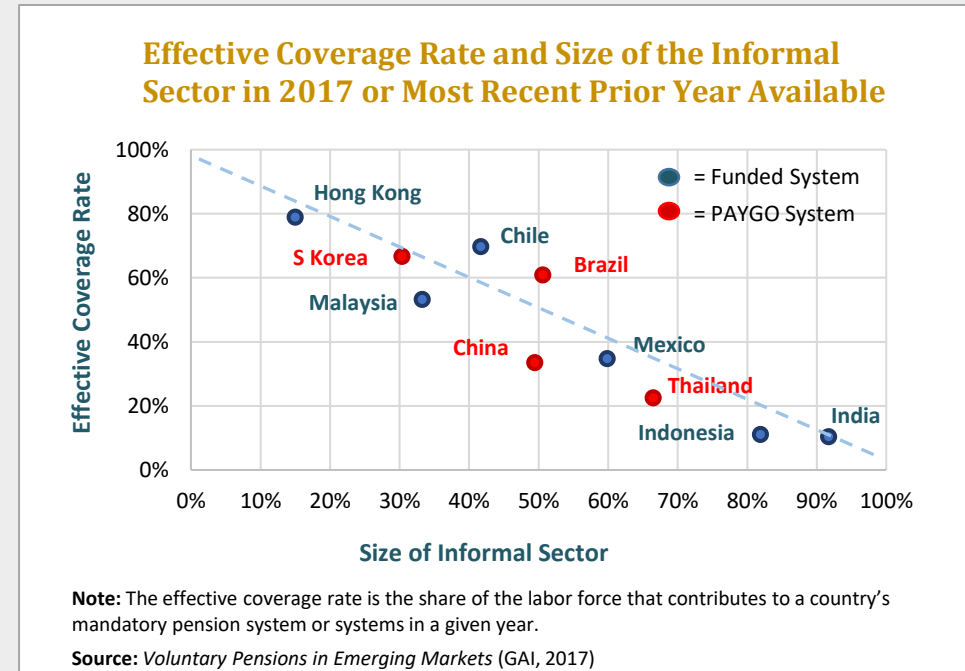
- ❑ Countries with funded state retirement systems enjoy important economic advantages over countries with pay-as-you-go (PAYGO) retirement systems.
- ❑ When countries are demographically young, funded systems can help to speed economic and financial market development. As they age, funded systems can deliver the same replacement rate at a lower contribution rate than PAYGO systems can.
- ❑ Several Asian countries with PAYGO systems have already slashed promised replacement rates as old-age dependency ratios have risen. Countries like Malaysia with funded systems do not have this problem.
- ❑ To realize its potential, a funded system must globally diversify its investment portfolio over time. If the funded system is also a government-managed provident fund, as Malaysia's EPF is, it must also gradually shift its focus from furthering development objectives to maximizing member returns. Unlike most Asian provident funds, Malaysia's EPF has successfully done both.

Portfolio Allocation in Malaysia's EPF in 2008 and 2018



Source: Asian Provident Funds (World Bank, 2021)

- ❑ Despite the advantages of the provident fund model, Malaysia's EPF fails to ensure that most workers retire with adequate benefits. Part of the problem lies in the structure of the labor market, while part lies in the system's benefit rules and parameters.
- ❑ There are two basic dimensions to the adequacy of a state retirement system. The first dimension is its breadth, as measured by the share of the workforce that participates. In most emerging markets, only a fraction of the workforce contributes to the state retirement system, and Malaysia is no exception.
- ❑ The low coverage problem is almost entirely a function of labor-market informality. When informality is high, coverage is low, regardless of how the state retirement system is structured or financed. Conversely, when informality is low, coverage is high.



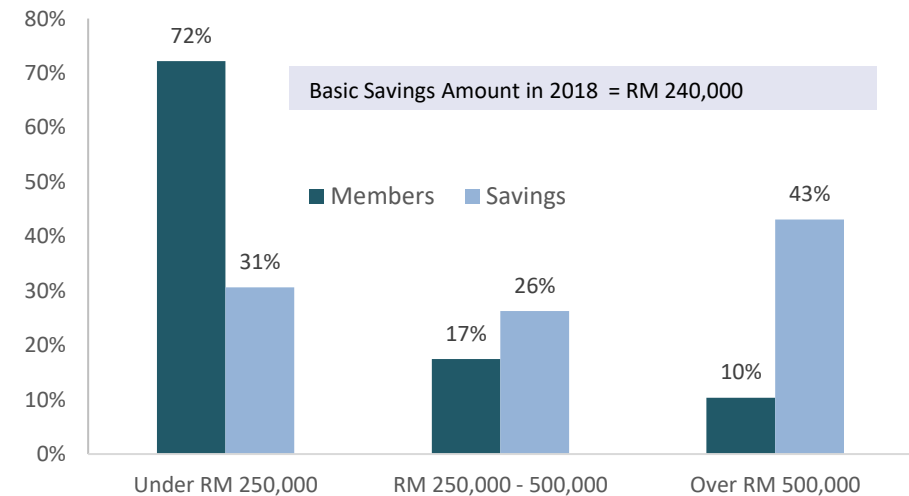
- The second dimension of a state retirement system's adequacy is its depth, as measured by the share of preretirement income it replaces. Most provident funds, including India's EPF, Indonesia's JHT, and Malaysia's EPF perform poorly on this dimension of retirement system adequacy:

INDIA: The average EPF balance at retirement is only sufficient to finance an inflation-adjusted annuity equal to 5 percent of preretirement wages.

INDONESIA: The average JHT balance at retirement is only sufficient to finance an inflation-adjusted annuity equal to 10 percent of preretirement wages.

MALAYSIA: Nearly three-quarters of EPF members reaching retirement age have saved less than the Basic Savings Amount needed to finance a poverty-level income equal to about two-fifths of the median wage. Nearly one-quarter have only saved enough to finance a poverty-level income for five years.

Distribution of Members and Savings in Malaysia's EPF at Age 54 at the End of 2018, by Size of Account Balance



Source: EPF data shared with the World Bank and GAI

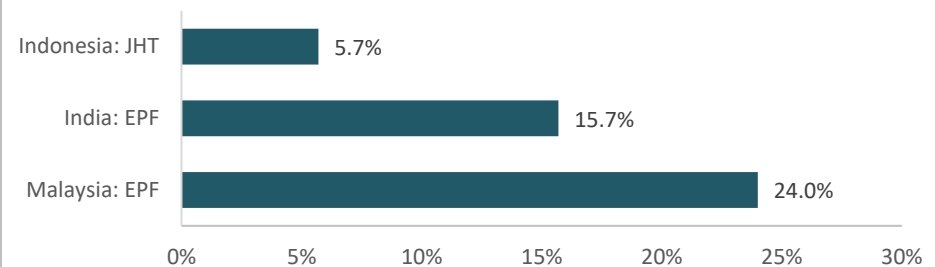
ACCUMULATION PHASE

- **Low Contribution Rates**
– *Indonesia*
- **Low Contribution Density**
– *India, Indonesia & Malaysia*
- **Nonretirement Withdrawals**
– *India, Indonesia & (to lesser extent) Malaysia*
- **Rapid Wage Growth**
– *India, Indonesia & (to lesser extent) Malaysia*

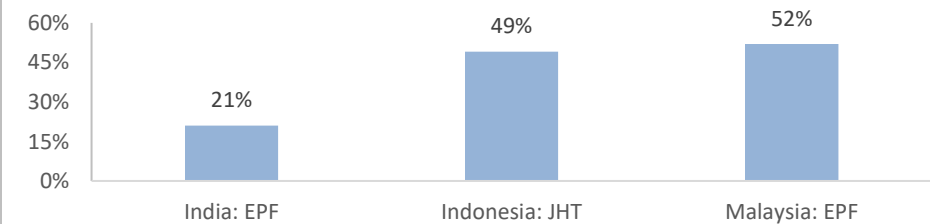
PAYOUT PHASE

- **Early Retirement Ages**
– *India, Indonesia & Malaysia*
- **Lack of Provision for Lifetime Income**
– *India, Indonesia & Malaysia*

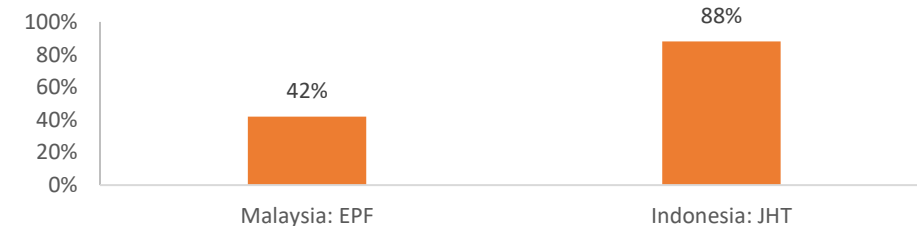
Standard Contribution Rate



Active Members as a Percent of Total Members in 2018 or Most Recent Prior Year Available

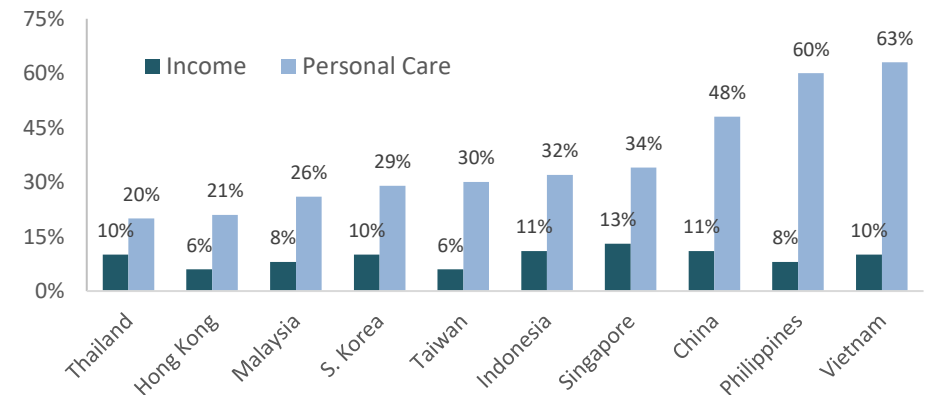


Nonretirement Withdrawals as a Percent of Total Withdrawals in 2018 or Most Recent Prior Year Available



- ❑ Until recently, governments throughout Asia could assume that those workers who reached old age without an adequate pension or personal savings would be supported by their extended families.
- ❑ This assumption is no longer valid. The traditional model of family-centered old-age support is already under stress from the forces of modernization, including industrialization, urbanization, and the spread of more individualistic “Western values.”
- ❑ In the future, family support networks will come under intense new pressure from declining family size.
- ❑ The countries of emerging East and South East Asia thus stand at an awkward moment in their economic and social development. Traditional family support networks are weakening, yet modern welfare states are not yet fully developed. The result is widespread retirement insecurity.

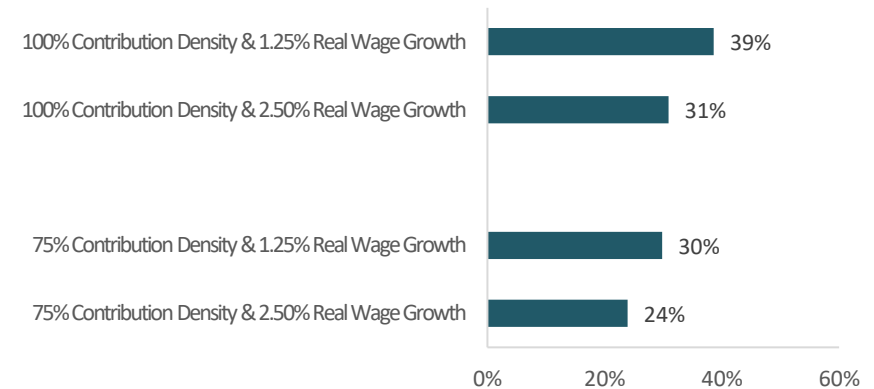
Share of Respondents Saying the Family Should, Ideally, Be Mostly Responsible for Providing Income and Personal Care to Retirees



Source: East Asia Retirement Survey (GAI, 2015)

- ❑ The adequacy of EPF retirement benefits may gradually improve over the next few decades:
 - As younger and better-educated workers climb the age ladder, contribution density may increase.
 - Slower wage growth will make it easier for account balances to grow faster than incomes.
 - Workers may even decide to preserve more of their savings for retirement because they cannot rely on the extended family for support in old age to the same extent that today's retirees do.
- ❑ Yet even under generous assumptions, future EPF replacement rates are unlikely to be high enough to ensure that most workers enjoy a decent standard of living in retirement. Major improvements in retirement security will require major reforms.

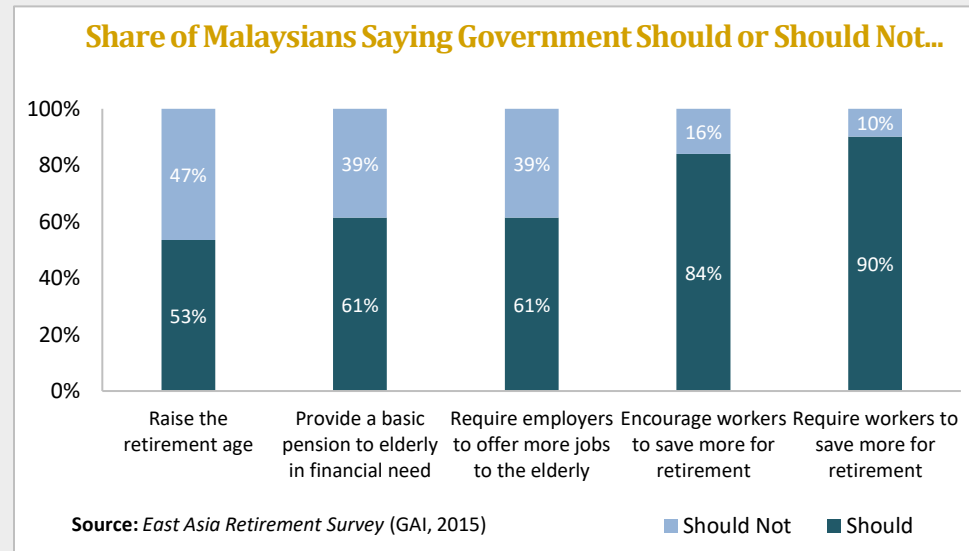
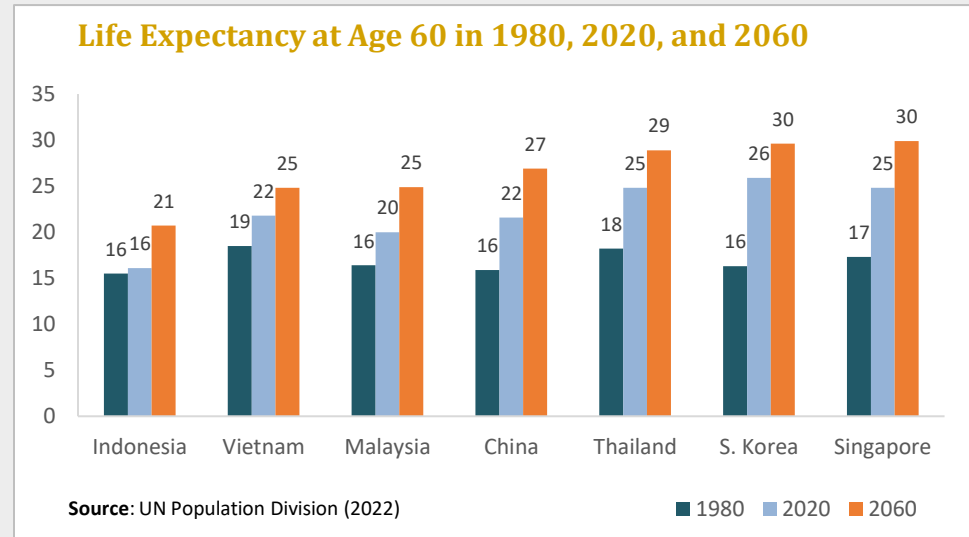
Gross Replacement Rates for EPF Members Entering the Workforce Today under Different Scenarios



Note: Projections refer to workers who enter the workforce at age 20 and retire at age 55. Account balances are converted into inflation-adjusted annuities using the UN Population Division's (2019 Revision) unisex life tables. All scenarios assume a 3.0% real rate of return and a 2.0% real discount rate.

Source: GAI calculations

- ❑ Raise the EPF retirement age.
- ❑ Institute provisions for lifetime income.
- ❑ Explore ways to increase EPF coverage and contribution density.
- ❑ Encourage voluntary retirement savings in both the formal and informal sector.
- ❑ Strengthen the old-age safety net.
- ❑ Improve financial education.
- ❑ Invest in the health of the elderly.





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