

# Fiscal Challenges of Population Aging: The Asian Experience

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*Rakesh Mohan*

## **Introduction**

**I**

One of the most critical demographic events in the world today is population aging—the process by which the share of older individuals in the total population starts becoming larger. The aging phenomenon, which has been initially experienced by developed countries, is now steadily approaching the developing world. Projections show that over the next five decades, world median age will continue to increase, resulting in enhanced old-age dependency ratios in all parts of the world. Thus, population aging would be a major global public policy concern in the 21st century posing unprecedented challenges for fiscal, monetary, and overall macroeconomic management.

There is a general consensus that aging population reduces output growth, limits economic welfare, and lowers employment. One direct effect of population aging is labor shortages that are caused by declining birth rates and increasing life spans. This translates itself into a higher old-age dependency ratio (for example, proportion of population aged 65 and older to population aged 15 to 64). Consequently, with aging, the economy's capacity to sustain the elderly population would decline. An important consequence of this development is reflected in increasing fiscal pressures through higher government

spending on social security, health care, and other welfare programs for the elderly accompanied by lower tax buoyancy consequent to falling proportions of the productive labor force. Given the hard budget constraint for many developing countries, this could mean lower government spending for programs that primarily benefit the young. With public pension schemes coming under increasing pressure to raise contribution levels or cut the size of social safety benefits, the issue of fiscal sustainability is one of the principal challenges facing policymakers worldwide, particularly in the context of inter-generational equity.

The experience of the United States, western Europe, and other OECD countries suggests that substantial demographic changes have occurred in the past few decades. Improvements in life standards, health care, and nutrition have increased life expectancy. As a result, the old-age dependency ratio in OECD countries is projected to reach nearly 50 percent by 2050. As has been documented in this symposium, this is going to pose a huge fiscal burden in terms of social security, health care, pension, and other related expenditures. In this regard, an OECD exercise reveals a rise in old-age pension spending, on an average, by about three to four percentage points of GDP over the period till 2050. Expenditure relating to health and long-term medical care is estimated to increase by more than three percentage points of GDP over the same period. Overall, total age-related expenditures relative to GDP could rise on average by about seven percentage points over the period 2000-2050. In turn, this would imply an average decline of six to seven percentage points in the primary balance to GDP ratio.

The economic impact of the decline in dependency ratios is usually beneficial and is often referred as the “demographic dividend.” Many developing countries may temporarily experience increase in economic growth in the wake of a declining dependency ratio. Falling birthrates would increase female participation in the workforce, thereby increasing the supply of labor, resulting in higher economic growth. An additional benefit from smaller families is that parents

would invest more in the education of children. Almost a third of east Asia's growth in per capita income between 1965 and 1990 is attributed to the demographic dividend (Bloom and Williamson 1998). The impetus to economic growth arising from declining dependency ratios, however, also depends on government policy. However, many Latin American countries experienced declining dependency ratios during the past 40 years without enjoying the rapid economic growth of east Asian countries. It has been argued that recurrent financial crises and high trade tariffs in Latin America reduced the size of its demographic dividend (Bloom, Canning, and Sevilla 2001).

Given the experiences of the developed (OECD) and Latin American countries, it is interesting to compare those with the emerging scenario in Asia. At present, most of the developing countries in Asia are in the middle path of demographic transition and potentially in a favorable position on the economic front due to relatively large working populations. This demographic dividend or "demographic gift" may not last long, as the Asian population is aging at a faster rate than global population with rapid improvement in nutrition and health care (Williamson 2001). The policy options to handle this problem are wide and varied across countries due to them being in different stages of the demographic transition. In this context, it is important to examine whether (a) the experience of Asia will be similar to that of OECD countries and (b) whether the policy stance of the developed countries could act as a role model for the developing ones or a unique/country-specific approach is required.

Against the above backdrop, this paper focuses on the potential fiscal challenges of population aging in Asia. The impact of this demographic change is seen primarily from an economist's (and a central banker's) viewpoint. The rest of the paper is as follows. Section II is in the nature of a digression and presents the conceptual and theoretical issues. The main focus is on review of the literature on aging, impact on savings, social security, and pensions. Section III discusses the demographic profile of select Asian countries, excluding Japan and Korea, as they are covered under the OECD. Section IV

highlights the impact of aging on the fisc. The reforms of the pension system and health care carried out by various Asian countries are also covered in this section. The Indian experience would be discussed in a separate sub-section highlighting emerging fiscal developments, changing demographic profile, fiscal implications of growing pension payments and pension reforms, and health care. Section V sets out the policy perspectives in terms of demographic transition, including lessons drawn from developed countries. Instead of the concluding observations an approach to Asian aging is presented in Section VI.

## **Theoretical underpinnings**

## **II**

### *Demographic transition and aging*

Demographic transition is, in general, a process of change where society passes through the stages of high fertility and high mortality to low fertility and low mortality. Before the start of the demographic transition, life was short, births were many, growth was slow, and the population was young (Lee 2003). The shift from high to low levels of fertility and mortality has been explained through the different stages in the demographic transition theory.

The modern transition theory is explained in *four* stages. In Stage I, the birth rate was very high and average longevity of life was short; therefore, population growth was relatively slow and the population was fairly young. Significant medical advances, better health care services, higher nutritional standards over the years have resulted in a drastic decline in mortality in almost all countries and a noticeable increase in the longevity of life. With this, the transition enters Stage II. With increase of exogenous survival rates, parents' family-size decisions changed toward having fewer children. Besides, fertility rate is also influenced by how economic change influences the cost and benefits of childbearing. With the advancement of technology and rapid changes of family structure vis-à-vis the opportunity cost of child bearing and rearing, fertility decline follow subsequently and drift downward until it stabilizes at a much lower plane. This is tech-

nically Stage III of demographic transition. The fourth and final stage of demographic transition refers to low fertility and low mortality rates. While developed countries are already in Stage IV of demographic transition for more than three decades, Asian countries are passing through Stage II/Stage III, as evident from their trends in total fertility rates. For example, presently while Pakistan is in Stage II, India is in Stage III.

Low fertility and increasing longevity cause a dramatic change in the population age distribution. An increase in the old-age dependency ratio indicates a situation in which an increasing number of potential beneficiaries of health and pension funds are supported by a relatively smaller number of potential contributors. This obviously imposes heavier demands on the working-age population in order to maintain a stable intergenerational flow of benefits to the older people. Given the existing social security arrangements and policies, the transition toward more elderly people relative to the number of workers will have pervasive effects on factor and product markets and will substantially impact on public finances, with important distributional implications, both between existing retirees and the working-age population as well as between current and future generations (Visco 2001).

#### *Fiscal implications*

The fiscal impact of aging population is reflected through higher government spending on social security, health care, and other welfare programs for the elderly. With public pension schemes coming under increasing pressure to raise contribution levels or cut the size of social safety benefits, the issue of fiscal sustainability is one of the principal challenges facing policymakers worldwide, particularly in the context of intergenerational equity. In this regard, the literature on social security and pensions has assumed critical importance.

The principal rationale for mandatory social security programs is that some individuals lack the foresight to save for their retirement

years. Since the provision of social security benefits imposes real costs and acts as a fiscal burden on several generations, the optimal level of benefit requires balancing between the consideration of providing relief to the elderly and the deprived sections of society while minimizing the costs of distorted real resource allocation (Diamond 1977). The issue has been compounded at the present juncture on account of a variety of factors—namely, (a) increasing proportion of old people, (b) higher degree of urbanization and greater migration from rural to urban areas, (c) diminishing support for old people from families due to changes in family structure, (d) higher rearing cost of surviving children, and (e) old people require greater resources and need support for a longer period. As such, the key issue is whether such support is provided by private or public funding. It may be noted that the inability of private provision implies greater reliance on public funding, which is a burden on the fisc.

In the Asian context, this issue is of great relevance as aging is occurring at lower income levels. The redistribution of resources from younger to older generations has to be concerned with the incentive for savings, keeping in view the need for higher investment in sustaining the growth process. In addition to the redistribution of resources from young to old, there also have to be some resource transfers from the affluent to the less well off. While the redistribution from young to old has been traditional and would continue as long as possible for those who cannot provide for themselves, the transfer of resources from rich to poor affects incentives. One critical difference between developed and developing countries is that in the case of the latter, as income growth is higher, pace of change in the standard of living is also high, which may be difficult to maintain in old age on the basis of savings accumulated at a younger age. At the same time, since living standards are relatively low in developing countries, expectations about future standards of living are lower. Thus, more inter-generational resource transfers are warranted for developing countries.

In thinking about the fiscal challenges arising from aging, the first question that arises is: Why these problems now? It is true that

longevity has increased tremendously in the past few decades, but some old have always been with us. What is different now?

In developing countries, and certainly in India, until recently, the provision for pensions and care for the old was essentially privately provided and usually within the family. Why is this changing now?

- In rural areas, people essentially worked as long as they could. There was no retirement age and job content changed according to capacity to work as people aged.
- With urbanization, in the first instance, the old people get left behind and remittances provide for pension equivalents, encompassing inter-generational resource transfers.
- As urbanization proceeds, the issue of outside family provision arises and is heightened by labor mobility.
- Earlier, when the retired were essentially expected to live until the age of 65 to 70, the issue of within family care arose for five to 10 years. This was a feasible burden for the family. Now, with rising longevity, the within family care could extend to 20 or even 30 years, and with delayed marriage, perhaps throughout the son or daughter's full working life. This is difficult to sustain.

Thus, the problems of aging are upon us in developing countries as well, and certainly in Asia. We can clearly expect a shift from private to public provision in the years to come. The issue for public policy in Asia is how fast this transition will take place and at what pace should public social security and pension provisions be made, with the consequent burdens on already stretched fiscal systems.

It has been argued that the provision of social security, particularly public pensions, reduces the inducement to save, thereby having a damaging impact on a country's long-term growth prospects (Feldstein 1977). This view has been countered by the multigenerational

planning horizon theory of Barro (1978), which states that people making bequests is evidence enough that they derive some benefit from the well-being of future generations. Current generations will therefore find that they need to save less to finance their own old age, but need to save more in order to increase their bequest sufficiently to compensate successive generations for their tax liabilities. These two effects should cancel each other, leaving the savings rate unchanged. This issue is of particular importance for developing countries in Asia, which will continue to need high savings for investment and growth for quite some time.

Against the above background, let me now turn to the issues relating to aging and the consequent fiscal challenges in the Asian context.

### **Aging population profile: Select Asian country experiences III**

At present, the total fertility rate is below the replacement level in practically all industrialized countries. In the less developed regions, fertility decline started later but has proceeded faster than in the more developed regions. Over the last 50 years, the total fertility rate (TFR) declined globally by almost half, from 5.0 to 2.7 children per woman. Over the next half century, it is expected to drop to the replacement level of 2.1 children per woman. In this context, it is important to note that Asia is roughly 50 years behind the developed nations. Within Asia, a great diversity in terms of demographic transition is noticeable.

As per global estimates, currently the average annual growth of the older population (60+)<sup>1</sup> is 1.9 percent, which is noticeably higher than that of total population at 1.2 percent (Table 1). More significantly, the average annual growth rate of persons aged 80 years and over (3.8 percent) is currently twice as high as the growth rate of the population over 60 years of age (1.9 percent). Projected figures clearly indicate a much higher growth rate of older people in 25 to 50 years ahead. In terms of percentage, the aged constituted 8.2 percent of total population in 1950; this percentage rose slowly to 10 percent of world's population in 2000 and is projected to rise to 21.1 percent in 2050 (Table 2). During that time, world population of the aged is



expected to exceed the population of children in the age group 0-14 years (Table 3).

The Asian continent, with its large size, wide socioeconomic and demographic disparities is better understood and interpreted when

**Table 1**  
**Trends in Average Annual Population Growth Rate**

Regions/countries	1950-55	1975-80	2000-02	2025-30	2045-50
World	1.8	1.7	1.2	0.8	0.5
More developed regions	1.2	0.6	0.2	0.0	-0.2
Less developed regions	2.1	2.1	1.5	1.0	0.6
Least developed regions	1.9	2.4	2.5	2.0	1.4
Asia	1.9	1.9	1.3	0.7	0.3
Eastern Asia	1.8	1.4	0.7	0.2	-0.3
South central Asia	2.0	2.2	1.7	1.0	0.6
Southeast Asia	2.1	2.2	1.4	0.8	0.4
Western Asia	2.6	2.7	2.1	1.6	1.1
China	1.9	1.5	0.7	0.2	-0.3
<b>India</b>	<b>2.0</b>	<b>2.1</b>	<b>1.5</b>	<b>0.8</b>	<b>0.4</b>
Bangladesh	2.0	2.4	2.1	1.1	0.7
Sri Lanka	2.5	1.6	0.9	0.3	-0.1
Pakistan	2.0	2.9	2.5	1.7	1.0
Indonesia	1.7	2.2	1.2	0.7	0.3
Thailand	3.0	2.3	1.1	0.5	0.0
Malaysia	2.7	2.3	1.7	1.0	0.5
Philippines	3.0	2.7	1.9	1.0	0.5

Source: United Nations, "World Population Ageing 1950-2050," Population Division, Department of Economic and Social Affairs, 2002

**Table 3**  
**Trends in Proportion of Young People (0-14)**

Regions/countries	1950	1975	2000	2025	2050
World	34.3	36.7	30.0	24.3	21.0
More developed regions	27.3	24.2	18.3	15.0	15.5
Less developed regions	37.6	41.1	32.8	26.0	21.8
Least developed regions	41.1	44.7	43.1	37.9	29.1
Asia	36.5	39.6	30.2	22.9	19.5
Eastern Asia	34.1	37.8	23.9	17.9	16.1
South central Asia	38.6	40.7	35.2	25.7	20.8
Southeast Asia	38.9	42.1	32.4	23.5	19.8
Western Asia	38.5	41.7	35.9	30.2	25.0
China	33.5	39.5	24.8	18.4	16.3
<b>India</b>	<b>38.9</b>	<b>39.8</b>	<b>33.5</b>	<b>23.2</b>	<b>19.7</b>
Bangladesh	37.6	45.4	38.7	28.1	22.0
Sri Lanka	40.1	36.9	26.3	20.0	17.3
Pakistan	37.9	42.0	41.8	34.4	23.1
Indonesia	39.2	41.4	30.8	23.0	19.9
Thailand	42.1	42.6	26.7	19.6	17.1
Malaysia	40.9	42.1	34.1	23.6	19.8
Philippines	43.6	44.2	37.5	24.9	20.3

Source: United Nations, "World Population Ageing 1950-2050," Population Division, Department of Economic and Social Affairs, 2002.

**Table 2**  
**Trends in Proportion of Older People (60+)**

Regions/countries	1950	1975	2000	2025	2050
World	8.1	8.6	10.0	15.0	21.0
More developed regions	11.8	15.4	19.4	28.2	33.5
Less developed regions	6.4	6.2	7.7	12.6	19.2
Least developed regions	5.4	5.0	4.9	5.9	9.5
Asia	6.8	6.7	8.8	14.7	22.6
Eastern Asia	7.4	7.4	11.2	20.8	30.7
South central Asia	6.1	6.1	7.0	11.2	18.6
Southeast Asia	6.0	5.7	7.1	12.7	22.0
Western Asia	7.2	6.6	7.1	10.3	15.6
China	7.5	6.9	10.2	19.5	29.9
<b>India</b>	<b>5.6</b>	<b>6.2</b>	<b>7.6</b>	<b>12.5</b>	<b>20.6</b>
Bangladesh	6.2	5.5	4.9	8.4	16.0
Sri Lanka	7.3	6.4	9.3	18.0	27.6
Pakistan	8.3	5.5	5.7	7.3	12.5
Indonesia	6.2	5.3	7.6	12.8	22.4
Thailand	5.1	5.0	8.1	17.1	27.1
Malaysia	7.3	5.6	6.6	13.4	20.8
Philippines	5.5	5.0	5.6	10.4	19.6

Source: United Nations, "World Population Ageing 1950-2050," Population Division, Department of Economic and Social Affairs, 2002.

studied at country level. Accordingly, selected countries are categorized into *three* broad groups, as indicated below.<sup>2</sup>

1. Indian subcontinent (India, Pakistan, Bangladesh, Sri Lanka).
2. China.
3. East Asian Tigers (Indonesia, Malaysia, Philippines, Thailand).

The young-old balance of population is shifting throughout the world. The increasing proportion of aged people is accompanied by a falling proportion of young people. In developed countries, the proportion of older people already exceeds that of children, and by 2050 it is expected to be twice that of younger people. What is notable, however, is that the proportion of working-age people in developed countries has been roughly constant over the last 50 years at around 60 percent (Table 4), and has in fact increased slightly with the float over baby boom. The overall dependency ratio has therefore not increased (Table 5). The issue of concern in developed countries is that the proportion of working-age people is now expected to decline from these levels to about 50 percent by 2050, with the corresponding rise in dependency ratios: Hence, the heightened concern with aging in recent years in developed countries. What is most dramatic is the expected rise in old-age dependency (for example, those in the age 65 plus age bracket as a proportion of the working-age group 15-64 years). In developed countries it is around 21 percent now, rising to 33 percent by 2025 and as much as 46 percent by 2050 (Table 6).

The trends in Asia over the next 50 years will be more reflective of the past 50 years for developed countries, with significant variations across different countries. The proportion of old people in Asia (excluding Japan and Korea) today is around 8.8 percent and will reach 22-23 percent by 2050. However, similar to the developed country experience of the past 50 years, the working-age population in Asia is about 60 percent now; it will rise marginally by 2025 and then fall slightly by 2050. In the case of China it is now 65 percent

**Table 5**  
**Trends in Total Dependency Ratio**

Regions/countries	1950	1975	2000	2025	2050
World	65.2	73.7	58.4	53.2	57.7
More developed regions	54.4	53.8	48.3	57.0	73.4
Less developed regions	71.0	81.8	61.1	52.5	55.7
Least developed regions	79.7	91.5	86.0	71.4	54.9
Asia	68.3	78.0	56.5	49.0	56.8
Eastern Asia	62.9	74.1	46.2	47.8	66.0
South central Asia	73.4	80.1	65.9	49.5	51.4
Southeast Asia	74.4	84.0	58.9	46.7	56.1
Western Asia	75.2	85.3	68.5	59.0	57.1
China	61.3	78.2	46.4	46.2	63.9
<b>India</b>	<b>73.2</b>	<b>77.4</b>	<b>62.5</b>	<b>46.1</b>	<b>52.6</b>
Bangladesh	70.2	95.4	71.9	50.0	49.0
Sri Lanka	83.7	69.3	48.3	47.8	62.9
Pakistan	76.3	83.0	83.4	64.6	45.9
Indonesia	75.8	80.6	55.2	45.7	57.1
Thailand	83.1	84.4	46.8	44.8	61.9
Malaysia	85.0	84.6	61.9	48.4	54.4
Philippines	89.3	89.7	69.7	46.6	52.0

Note: The total dependency ratio is the number of persons under age 15 years plus persons aged 65 years or older per 100 persons in the category of 15 to 64 years. It is the sum of the youth dependency ratio and the old-age dependency ratio.

Source: United Nations, "World Population Ageing 1950-2050," Population Division, Department of Economic and Social Affairs, 2002

**Table 4**  
**Trends in Proportion of Working Age Population (15-59)**

Regions/countries	1950	1975	2000	2025	2050
World	57.6	54.7	60.0	60.7	58.0
More developed regions	60.9	60.4	62.3	56.8	51.0
Less developed regions	56.0	52.7	59.5	61.4	59.0
Least developed regions	53.5	50.3	52.0	56.2	61.4
Asia	56.7	53.7	61.0	62.4	57.9
Eastern Asia	58.5	54.8	64.9	61.3	53.2
South central Asia	55.3	53.2	57.8	63.1	60.6
Southeast Asia	55.1	52.2	60.5	63.8	58.2
Western Asia	54.3	51.7	57.0	59.5	59.4
China	59.0	53.6	65.0	62.1	53.8
<b>India</b>	<b>55.5</b>	<b>54.0</b>	<b>58.9</b>	<b>64.3</b>	<b>59.7</b>
Bangladesh	56.2	49.1	56.4	63.5	62.0
Sri Lanka	52.6	56.7	64.4	62.0	55.1
Pakistan	53.8	52.5	52.5	58.3	64.4
Indonesia	54.6	53.3	61.6	64.2	57.7
Thailand	52.8	52.4	65.2	63.3	55.8
Malaysia	51.8	52.3	59.3	63.0	59.4
Philippines	50.9	50.8	56.9	64.7	60.1

Source: United Nations, "World Population Ageing 1950-2050," Population Division, Department of Economic and Social Affairs, 2002

**Table 6**  
**Trends in Old-Age Dependency Ratio**

Regions/countries	1950	1975	2000	2025	2050
World	8.5	9.9	10.9	15.9	24.6
More developed regions	12.2	16.6	21.2	33.4	46.5
Less developed regions	6.7	7.1	8.2	12.8	21.8
Least developed regions	5.9	5.9	5.8	6.5	9.7
Asia	6.9	7.5	9.2	14.9	26.2
Eastern Asia	7.3	8.2	11.3	21.4	39.3
South central Asia	6.5	6.8	7.6	11.1	20.0
Southeast Asia	6.6	6.5	7.4	12.2	25.1
Western Asia	7.7	8.0	8.0	11.0	17.8
China	7.2	7.8	10.0	19.4	37.2
<b>India</b>	<b>5.8</b>	<b>6.8</b>	<b>8.1</b>	<b>12.2</b>	<b>22.6</b>
Bangladesh	6.2	6.8	5.4	7.8	16.2
Sri Lanka	10.1	6.7	9.3	18.2	34.7
Pakistan	9.4	6.2	6.8	7.9	12.1
Indonesia	6.9	5.9	7.5	12.2	25.8
Thailand	6.0	5.8	7.7	16.4	34.2
Malaysia	9.3	6.9	6.7	13.4	23.8
Philippines	6.8	5.8	6.0	10.1	21.1

Note: The old-age dependency ratio is the number of persons 65 years and over per 100 persons 15 to 64 years.

Source: United Nations, "World Population Ageing 1950-2050," Population Division, Department of Economic and Social Affairs, 2002

and will fall gradually to around 55 percent by 2050. India, Indonesia, and other Asian countries will remain between 60 and 65 percent until around 2050. The expected increase in old-age dependency is also dramatic: from about 9 percent now to 15 percent in 2025 and 26 percent by 2050, which would be a little higher than that in developed countries now. The Chinese, however, are aging faster with the old-age dependency ratio rising from about 10 percent now to an expected 19 percent in 2025 and 37 percent in 2050. For India and Indonesia, the rise will be much slower, whereas the situation in Sri Lanka and Thailand will be more like that in China (Table 6).

What is really different between developed countries and Asia is the expected trend in *total* dependency ratio (Tables 5, 6, and 7). The key fiscal problem of developed countries is the unprecedented rapid rise that is expected in the total dependency ratio (young + old as a proportion of the working-age groups) from about 48 percent now to 57 in 2025 and 73 in 2050. In 1950, incidentally, it was 54 percent. For Asia as a whole it was 66 percent in 1950, 56 now, falling to about 49 percent by 2025 and then rising again to 57 percent by 2050, with differences between countries as expected between China and other Asian countries. Countries such as India, Indonesia, and others will continue to reap the demographic dividend for at least another 25 years.

The total dependency ratio is a rough measure of potential social support needs.<sup>3</sup> The expected decline is due to the fact that young-age dependency ratio of all these countries is likely to decrease very rapidly due to sharp decline in total fertility rate during this period. However, the decline of young-age dependency ratio during the next 25 years, for example, 2025-2050 for most of the Asian nations, is expected to be relatively small.

In view of the declining dependency ratio in Asia, there is greater room for maneuverability in public finances in terms of social security expenditure. A critical issue is the relative emphasis on expenditure related to the next generation—namely, child rearing and education *vis-à-vis* expenditure on the earlier generation on account of medical and health care.

Old-age dependency ratio of China is likely to increase by almost four times during the next half century from 10.0 in 2000 to 37.2 in 2050 (Table 7). The other countries likely to have similar trends are Sri Lanka, Thailand, and the Philippines. In the case of India, old-age dependency ratio during 2000-2025 is going to increase by almost 1.5 times (8.1 in 2000 to 12.2 in 2025); however, the next 25 years is likely to witness a sharper increase of around 2 times (from 12.2 in 2025 to 22.6 in 1950) (Table 7).

**Table 7**  
**Trends in Young-Age Dependency Ratio**

Regions/countries	1950	1975	2000	2025	2050
World	56.7	63.8	47.5	37.3	33.1
More developed regions	42.2	37.2	27.1	23.6	26.9
Less developed regions	64.3	74.7	52.9	39.7	33.9
Least developed regions	73.8	85.6	80.2	64.9	45.2
Asia	61.4	70.5	47.3	34.1	30.6
Eastern Asia	55.6	65.9	34.9	26.4	26.7
South central Asia	66.9	73.3	58.3	38.4	31.4
Southeast Asia	67.8	77.5	51.5	34.5	31.0
Western Asia	67.5	77.3	60.5	48.0	39.3
China	54.1	70.4	36.4	26.8	26.7
<b>India</b>	<b>67.4</b>	<b>70.6</b>	<b>54.4</b>	<b>33.9</b>	<b>30.0</b>
Bangladesh	64.0	88.6	66.5	42.2	32.8
Sri Lanka	73.6	62.6	39.0	29.6	28.2
Pakistan	66.9	76.8	76.6	56.7	33.8
Indonesia	68.9	74.7	47.7	33.5	31.3
Thailand	77.1	78.6	39.1	28.4	27.7
Malaysia	75.7	77.7	55.2	35.0	30.6
Philippines	82.5	83.9	63.7	36.5	30.9

Note: The youth dependency ratio is the number of persons 0 to 14 years per 100 persons 15 to 64 years.

Source: United Nations, "World Population Ageing 1950-2050," Population Division, Department of Economic and Social Affairs, 2002

Globally, the aging index is going to increase rapidly and will triple over the next half century. Higher increase in the aging index during the 2000-2050 period is more significant for most of the Asian countries (see Table 8). This trend may lead to compelling demands for changes in the way a society's resources are shared between generations. The median age of all the Asian countries is expected to increase by 12 years during the first half of the next century (see Table 9).

#### *Economic characteristic and determinants of aging*

Labor force participation of the older people has declined worldwide over the last decades (see Table 10). In general, labor force participation of the older people of Asian countries is much higher

**Table 9**  
**Trends in Median Age**

Regions/countries	1950	1975	2000	2025	2050
World	23.6	22.0	26.5	32.0	36.2
More developed regions	28.6	30.9	37.4	44.1	46.4
Less developed regions	21.4	19.4	24.3	30.0	35.0
Least developed regions	19.5	17.6	18.2	20.8	26.5
Asia	22.0	20.3	26.2	33.1	38.3
Eastern Asia	23.5	21.5	30.8	39.8	44.3
South central Asia	20.7	19.5	22.6	29.4	36.1
Southeast Asia	20.4	18.7	23.9	32.1	37.9
Western Asia	20.4	18.9	22.1	26.6	31.4
China	23.9	20.6	30.0	39.0	43.8
<b>India</b>	<b>20.4</b>	<b>20.0</b>	<b>23.7</b>	<b>31.3</b>	<b>38.0</b>
Bangladesh	21.6	17.2	20.2	26.9	34.8
Sri Lanka	20.3	20.8	27.8	36.7	42.0
Pakistan	21.2	19.0	18.9	22.8	31.8
Indonesia	20.0	19.1	24.6	33.0	38.0
Thailand	18.6	18.3	27.5	36.6	42.1
Malaysia	19.8	18.6	23.3	31.2	37.8
Philippines	18.2	17.6	20.9	29.2	37.0

Source: United Nations, "World Population Ageing 1950-2050," Population Division, Department of Economic and Social Affairs, 2002

**Table 8**  
**Trends in Aging Index**

Regions/countries	1950	1975	2000	2025	2050
World	23.8	23.4	33.4	61.5	100.5
More developed regions	42.9	63.7	106.2	187.7	215.3
Less developed regions	17.2	15.1	23.4	48.2	88.6
Least developed regions	13.2	11.2	11.3	15.7	32.5
Asia	18.5	16.8	29.0	64.3	115.7
Eastern Asia	21.7	19.5	47.3	116.5	190.5
South central Asia	15.9	15.0	20.1	43.3	89.8
Southeast Asia	15.5	13.5	22.1	54.1	110.7
Western Asia	18.5	15.7	19.8	34.3	62.4
China	22.3	17.6	40.7	106.5	183.3
<b>India</b>	<b>14.4</b>	<b>15.6</b>	<b>22.7</b>	<b>53.6</b>	<b>105.0</b>
Bangladesh	16.4	12.2	12.8	29.8	72.9
Sri Lanka	18.3	17.2	35.3	90.2	159.5
Pakistan	21.7	13.1	13.8	21.1	53.8
Indonesia	15.9	13.0	24.7	55.8	112.1
Thailand	12.0	11.7	30.5	87.3	158.1
Malaysia	17.9	13.3	19.3	56.7	104.9
Philippines	12.7	11.2	14.8	41.7	95.9

Note: The aging index is calculated as the number of persons 60 years old or over per 100 persons under age of 15 years.

Source: United Nations, "World Population Ageing 1950-2050," Population Division, Department of Economic and Social Affairs, 2002



**Table 10**  
**Trends in Labor Force Participation (65+)**

Regions/countries	1950	1975	2000	2025	2050
World	31.9	24.6	19.9	18.8	17.9
More developed regions	23.3	15.0	9.1	8.4	7.7
Less developed regions	40.1	33.9	28.4	25.9	23.9
Least developed regions	NA	NA	NA	NA	NA
Asia	37.9	32.7	27.2	24.5	22.3
Eastern Asia	30.4	25.8	20.5	18.0	15.6
South central Asia	44.5	39.9	34.6	31.7	29.3
Southeast Asia	51.0	43.4	38.0	34.5	31.2
Western Asia	45.2	34.1	25.2	23.4	21.5
China	29.3	24.0	19.3	16.9	14.5
<b>India</b>	<b>44.1</b>	<b>41.1</b>	<b>34.8</b>	<b>32.1</b>	<b>29.6</b>
Bangladesh	62.5	60.9	50.9	46.6	42.9
Sri Lanka	52.0	30.3	18.7	15.6	13.4
Pakistan	52.3	41.8	33.7	30.1	27.5
Indonesia	58.2	47.0	39.8	35.2	30.8
Thailand	44.4	36.3	28.4	26.1	24.1
Malaysia	40.9	31.6	29.2	26.6	24.7
Philippines	37.0	42.7	42.5	39.1	36.0

Note: The labor force participation rate consists of the economically active population in a particular age group as a percentage of the total population of that same age group. The active population (or labor force) is defined as the sum of people in employment and unemployed people seeking employment.

Source: United Nations, "World Population Ageing 1950-2050," Population Division, Department of Economic and Social Affairs, 2002

than that of developed countries. However, disparity in labor force participation among Asian countries persists. Higher labor force participation of older ages in Asian countries clearly indicates that old-age support systems in the form of pension and retirement programs are relatively less prevalent in these countries (as compared with developed countries).

Fertility decline has been the primary determinant of population aging. Fertility of more developed countries with TFR is below replacement level since the last three decades. The TFR of less developed countries is twice that of developed countries, and this trend is expected to continue until 2030. The higher regional differences in fertility among Asian countries are expected to decrease (see Table

11). The projected fertility transition has been relatively smoother in India and the Philippines. These countries are, therefore, in a favorable position (and thus may enjoy the fruits of 'demographic dividend' for a relatively longer period) as far as the inflow of working-age populations is concerned.

Along with fertility decline, reduction in death rate, especially at older ages, assumes an increasingly important role in population aging. Over the last five decades, life expectancy at birth increased globally by almost 20 years, from 46.5 years in 1950-55 to 66.0 years in 2000-05 (Table 12). Among Asian countries, there exists a great degree of variation in life expectancy at birth. However, the extent of regional variations in life expectancy at birth among these countries is gradually narrowing.

#### **Aging population and its fiscal impact**

#### **IV**

In the last decade, both the IMF (Heller and others 1986, Chand and Jaeger 1996) and the OECD (1985, 1988, 1996, and 2001) have carried out a number of studies on the fiscal impact of aging of major industrial countries. An important objective has been to assess, *ex ante*, the potential impact on public expenditure from the provision or financing of social services and transfers. Normally, the baseline projections assume unchanged social insurance legislation and social sector policies by the government. Most studies have concluded that although outlays on education will decline as a share of GDP, this will be offset by rapid growth of government outlays on pensions and medical care. For most industrial countries, the government social insurance commitments appear to be inadequately funded. Financial sustainability will be achieved only by a combination of cutbacks in benefits or an increase in contribution rates.

Many Asian countries suffer from the chronic malaise of fiscal imbalances: Expenditures are much higher than government revenue. As a large section of the population survives at low-income levels, the tax base is weak and tax revenues are grossly inadequate. Moreover, tax rates are distortionary and tax compliance is low. Current expenditures

**Table 11**  
**Trends in Total Fertility Rate**

Regions/countries	1950-55	1975-80	2000-05	2025-30	2045-50
World	5.0	3.9	2.7	2.3	2.1
More developed regions	2.8	1.9	1.5	1.7	1.9
Less developed regions	6.2	4.6	2.9	2.4	2.2
Least developed regions	6.6	6.4	5.2	3.6	2.5
Asia	5.9	4.2	2.5	2.1	2.1
Eastern Asia	5.7	3.1	1.8	1.9	1.9
South central Asia	6.1	5.1	3.2	2.2	2.1
Southeast Asia	6.0	4.9	2.5	2.1	2.1
Western Asia	6.4	5.2	3.6	2.8	2.4
China	6.2	3.3	1.8	1.9	1.9
<b>India</b>	<b>6.0</b>	<b>4.8</b>	<b>3.0</b>	<b>2.1</b>	<b>2.1</b>
Bangladesh	6.7	5.7	3.6	2.1	2.1
Sri Lanka	5.9	3.8	2.1	1.9	1.9
Pakistan	6.3	6.3	5.1	2.8	2.1
Indonesia	5.5	4.7	2.3	2.1	2.1
Thailand	6.4	4.0	2.0	1.9	1.9
Malaysia	6.8	4.2	2.9	2.1	2.1
Philippines	7.3	5.5	3.2	2.1	2.1

Note: The total fertility rate is the average number of children a woman would bear over the course of her lifetime if current age-specific fertility rates remained constant throughout her childbearing years (normally between the ages of 15 and 49). The current total fertility rate is usually taken as an indication of the number of children women are having at the present.

Source: United Nations, "World Population Ageing 1950-2050," Population Division, Department of Economic and Social Affairs, 2002.

**Table 12**  
**Trends in Life Expectancy (Years) at Birth**

Regions/countries	1950-55	1975-80	2000-05	2025-30	2045-50
World	46.5	59.8	66.0	72.4	76.0
More developed regions	66.2	72.3	75.6	80.0	82.1
Less developed regions	41.0	56.8	64.1	70.9	75.0
Least developed regions	35.5	45.3	51.4	62.8	69.7
Asia	41.3	58.4	67.4	73.9	77.1
Eastern Asia	42.9	66.4	72.3	77.3	79.7
South central Asia	39.3	52.5	63.3	70.9	74.9
Southeast Asia	41.0	54.6	67.0	74.0	77.3
Western Asia	45.2	60.5	70.0	75.7	78.5
China	40.8	65.3	71.2	76.3	79.0
<b>India</b>	<b>38.7</b>	<b>52.9</b>	<b>64.2</b>	<b>71.6</b>	<b>75.4</b>
Bangladesh	36.6	46.7	60.7	70.6	75.0
Sri Lanka	55.5	66.4	72.6	77.2	79.5
Pakistan	41.0	51.0	61.0	69.7	73.7
Indonesia	37.5	52.7	67.3	73.9	77.4
Thailand	52.0	61.4	70.8	76.8	79.1
Malaysia	48.5	65.3	73.0	77.4	79.7
Philippines	47.8	60.1	70.0	75.5	78.4

Source: United Nations, "World Population Ageing 1950-2050," Population Division, Department of Economic and Social Affairs, 2002.

are high, resulting in a paucity of resources for capital expenditure. Hence, deficits are an enduring feature of many Asian economies.

*Public finance in select Asian countries*

Based on the classification presented in Section II of select Asian countries, it may be noted that the average growth (over three years) in the Indian subcontinent was 4.2 percent, with India having the highest growth of 5.4 percent (Table 13). Among all the countries under consideration, China has the highest growth of 7.8 percent. Among the Southeast Asian Tigers, the average growth is 4.2 percent, with Indonesia recording the highest growth of 4.4 percent and the Philippines the least growth of 3.9 percent.

In terms of domestic savings rates, it is noticed that among the four groups, the Indian subcontinent has the lowest savings rates on average of about 17.5 percent. Among these countries, India has relatively higher savings rates of 23.8 percent, with Pakistan having the lowest rate of 13.7 percent. Among all the countries, Malaysia has the highest savings rate of 45.3 percent, with China coming a close second with 41.0 percent. The average savings rate of Southeast Asian countries is around 30.3 percent, with the Philippines having the least rate of 21.0 percent. Similarly, investment rates are very high for China and least for Pakistan.

On the fiscal side, the fiscal deficit of the government on average seems to be the highest for the Indian subcontinent (Table 14). The situation in the Southeast Asian countries is relatively better with lower levels of deficits.

Public expenditure on health and education as a percentage of GDP is among the lowest in the Indian subcontinent (Table 15). In this regard, it lags behind China and many of the Southeast Asian countries. Expenditure on education seems to account for a higher share in Malaysia and Thailand, while expenditure on health draws greater attention in China. Although available information on

**Table 14**  
**Major Fiscal Indicators of Governments in Select Asian Countries (Average of 3 Years: 2000-2002) (percent of GDP)**

Countries	Fiscal deficit	Current revenue	Total expenditure
India <sup>3</sup>	9.7	17.7	28.3
Bangladesh	2.8	9.3	12.7
Pakistan	5.7	16.1	22.0
Sri Lanka	8.7	17.0	25.3
<b>Average</b>	<b>6.7</b>	<b>15.0</b>	<b>22.1</b>
<b>China</b>	<b>2.9</b>	<b>7.2</b>	<b>10.9</b>
Indonesia	1.1	19.1	21.8
Malaysia	-0.5 <sup>1,2</sup>	24.8 <sup>1</sup>	24.5 <sup>1</sup>
Philippines	4.0	15.5	19.5
Thailand	5.4	16.5	20.9
<b>Average</b>	<b>2.5</b>	<b>19.0</b>	<b>21.7</b>

<sup>1</sup> Average for two years 2000 and 2001.

<sup>2</sup> represents a fiscal surplus.

<sup>3</sup> pertains to center and states adjusted for inter-governmental transactions.

Sources: budget documents of government of India, World Development Indicators 2004, World Bank

**Table 13**  
**Savings, Investment, and GDP Growth in Select Asian Countries (Average of 3 Years: 2000-2002)**

Countries	Domestic savings (percent of GDP)	Investment (percent of GDP)	GDP growth rate (percent)
India	23.8	21.9	5.4
Bangladesh	17.3	23.0	5.1
Pakistan	13.7	15.7	3.5
Sri Lanka	15.3	23.7	2.8
<b>Average</b>	<b>17.5</b>	<b>21.1</b>	<b>4.2</b>
<b>China</b>	<b>41.0</b>	<b>38.3</b>	<b>7.8</b>
Indonesia	24.3	16.3	4.4
Malaysia	45.3	26.3	4.3
Philippines	21.0	18.3	3.9
Thailand	30.7	23.7	4.1
<b>Average</b>	<b>30.3</b>	<b>21.2</b>	<b>4.2</b>

Sources: Economic Survey 2003-04, Government of India.; World Development Indicators 2004; *World Economic Outlook* 2004, IMF

**Table 15**  
**Public Expenditure on Social Sector in Select Asian Countries**  
**(percent of GDP)**  
**(Average of 3 Years: 2000-02)**

Countries	Health	Education	Pensions	
India	1.3	3.1	1.9	1992
Bangladesh	1.5	2.4	2.4	1996
Pakistan	0.9	1.8	0.9	1993
Sri Lanka	1.8	2.2	-	
<b>Average</b>	<b>1.4</b>	<b>2.4</b>	<b>1.7</b>	
<b>China</b>	<b>2.0</b>	<b>2.6</b>	<b>2.7</b>	<b>1996</b>
Indonesia	0.7	1.4	-	
Malaysia	1.6	7.1	6.5	1999
Philippines	1.6	3.7	1.0	1993
Thailand	2.0	5.2	-	
<b>Average</b>	<b>1.5</b>	<b>4.3</b>	<b>3.8</b>	

Source: Budget documents of central and states governments in India, World Development Indicators 2004, World Bank

pensions is dated, the pension burden seems to be quite high for Malaysia. All Asian countries in general have a low share of pension expenditure in GDP.

#### *Fiscal impact of aging*

How and when the problem of aging of Asian population manifests itself will have important implications for the structure of the social and fiscal policy choices confronting the Asian economies in the coming years. In terms of timing, the countries fall into three principal groups:<sup>4</sup> (i) the east Asian countries—the most demographically mature and developed in economic terms, including Korea and Taiwan, (ii) Southeast Asia, including Indonesia, Malaysia, the Philippines, and Thailand, which has recently experienced significant declines in fertility and increased life expectancy but where the further maturing of these indicators can be expected and where per capita income levels are still relatively low compared with east Asia,

and (iii) China and the Indian subcontinent, where the aging process is occurring somewhat later and is far less economically developed.

The demographic transition reflected in the aging population of Asia has resulted from the combined effect of successful public health campaigns and rising income levels. An additional consequence of these trends toward greater longevity and a broadly healthier population has been that there is increasingly a convergence in the morbidity and mortality profiles of the Asian populations toward those now observed in the industrial economies. These epidemiological trends will create pressures for increased spending on medical care in the coming decades. It will enhance the impact of the demographic trends, resulting in increasing financial pressure after 2010 in east Asia and somewhat later in the rest of the countries. In particular, India is expected to face greater fiscal stress after 2015 (Lee 2003).

In contrast to the dominant role of governments in the financing of the social sector in industrial countries, government commitment is far less comprehensive in Asian countries, with major segments of the population not covered by social security and many areas of effective social security are still in the private domain. Public pension systems exhibit considerable variety in Asia, but a principal characteristic is the absence (except Korea and Taiwan) of the kind of comprehensive coverage, defined benefits, pay-as-you-go public pension systems observed in western Europe and the United States. Some countries have introduced provident funds, but these are largely focused on workers in the formal sector.

The situation in the medical care sector is more varied. Some of the east Asian countries have introduced comprehensive and innovative health insurance reforms, with varying degrees of public sector participation, that have attempted to nationalize the financing of medical care. In others, medical insurance coverage is limited primarily to those in the formal sector, with others in the population obtaining medical care directly from government hospitals and health centers or from private sector practitioners. In the education sector, the govern-

ment's involvement has focused on the primary and secondary sectors; its provision of tertiary education has typically been quite limited. This suggests that the question of how much additional pressures for government expenditure will emerge from the aging of the Asian population may prove to be a question of whether government policies evolve in the direction of expanded coverage and enhanced social insurance policy commitments.

#### *Health and medical care*

In the context of OECD countries, it has been found that while the medical expenditure for the entire population would increase by 6.7 times between 1986 and 2025, that of the elderly population is expected to rise by 10 times during the same period (Dhar Chakraborty 2004). If the same cost pattern were assumed, there would be a tremendous shift of resources. In the context of Asian countries, the main difference is that the problem is likely to be more acute as aging occurs at lower per capita income levels vis-à-vis OECD countries because of the globalization of public health measures and the quality of health care. Moreover, Asian countries have to meet the dual need of funding higher investment to sustain growth and rising social expenditure on account of an aging population. However, as saving rates are expected to continue to be higher in Asian countries, it may not necessarily inhibit the process of capital formation.

In most Asian countries, long-term medical facilities cannot be met through regular market service providers. Provision of such services through community-based schemes will only add to the financial burden. Moreover, old-age family care schemes are an additional burden. In addition to the financial resources, population aging is likely to demand a great deal of human resources in terms of doctors, nurses, and other medical personnel and infrastructure on medical facilities to deal with an aging population. Moreover, shift in disease patterns further compounds the problem in Asian countries. In addition to infectious diseases, malnutrition, etc., Asian countries are also faced with the growth of noncommunicable diseases, which strain the



already scarce resources to the limit. Therefore, considerable expenditure on medical care is required to pursue efficient and effective health care programs to tackle both communicable and noncommunicable diseases.

### *Reforms*

The role of the government in the health and medical care sectors of the Asian countries is quite varied. At present, most Asian countries spend about 5 percent of their GDP on health, as compared with 14 percent in the United States and other developed countries. Since aging is not yet a major issue, the developing countries of Asia are yet to develop special health care programs for the aged. Since government expenditure on health care is not adequate, most Asian countries have income elasticity of health care above one.

Most of the east Asian countries have introduced health insurance reforms that seek to rationalize the financing of medical care in order to cope with the changing pattern of medical demand and use market principles to contain costs. The medical insurance programs in Korea and Taiwan have nearly universal coverage, while it is substantial in Singapore. Funding is largely derived from a combination of employer and employee contributions, budgetary transfers, and direct co-payments by patients in both public and private sectors. Although most schemes are formally in the private sector, they involve some degree of public regulation or management. However, their financial operations are not included in the government's budgetary accounts. In China, on the other hand, medical insurance effectively covers about 20 percent of the population. Among these, the maximum benefit accrues to workers in the civil service mainly in the urban areas. However, no more than half of the urban population is under a formal medical insurance scheme. For 75 percent of China's population that lived in rural areas, only 5.4 percent were covered under collectively financed cooperative medical care systems in the early 1990s (Hsaio 1995).

Among the Southeast Asian Tigers, government has sought to provide medical services through government hospitals and health centers. Outlays have been financed directly from the budget and, to a lesser extent, from user fees. Fiscal restraint has resulted in inadequate medical facilities in urban centers and more limited primary care facilities in rural areas. Over time, the private sector has grown in significance. Only in Indonesia and the Philippines is a more extensive medical insurance system being gradually developed. In Indonesia, since 1993, a compulsory health insurance scheme is being introduced gradually for all workers, with contribution paid entirely by employers, although the coverage is restricted to civil servants and formal sector workers. In the Indian subcontinent, medical insurance and health care reforms is at a primary stage with the principal medical facilities located in the urban areas. Although there is a large contingent of private practitioners, they are mainly city based and the per capita availability of medical care in rural areas is quite low.

The financial effect of aging populations is significant in the medical care sector. Focusing initially on the east Asian countries, which are the most mature in terms of age distribution and health insurance system, demographic factors would suggest that gradual increases of about 10 percent might be expected per decade in the ratio of medical expenditure to GDP. While medical expenditure in Korea and Taiwan could rise to about 9 percent of GDP by 2025, China and Southeast Asia would not have a significant impact until at least 2020 (Heller 1997). In east Asia, government budget outlays would rise on average by only 0.2 percent of GDP by 2010 with somewhat more substantial increases in the successive decades. In China, pressure on government outlays would emerge after 2020 with the expenditure share rising by less than 1 percent of GDP by 2050. In Southeast Asia, government medical care outlays as a share of GDP would barely change over the next 50 years (Heller 1997).

### *Education*

In Asian countries, the government's involvement in the education sector has been most extensive in terms of primary schooling, where enrollment rates are virtually universal. It is also the principal provider of secondary education, though here the private sector plays a more significant role in some countries (notably, Indonesia, Korea, and India). Secondary enrollment rates, which typically range from 40 to 75 percent, while high by developing country standards, are significantly below the average rates of 86 percent observed in more developed countries. Government involvement is far lower in the tertiary sector (with the exception of Korea). Private sector involvement, either through private universities (so-called long-distance training), or the acquisition of education at overseas universities, is far more common at this level.

The absolute size of the school-age population is projected to grow by a limited extent in Southeast Asia (Heller 1997). In China and east Asia, this group will fall in size, suggesting the possibility of some fiscal savings. Since public spending on education is typically 2-4 percent of GDP, it is plausible that reductions in government expenditure are non-trivial. Projections suggest that government expenditure on education could fall by about 1 percent of GDP by 2010, with more modest reductions thereafter by 2025. In China, only modest reduction in government educational spending—less than 0.4 percent of GDP will be observed through 2010 and only slightly by 2025 and thereafter. If enrollment rates in higher education were to increase to 20 percent, overall government outlays on education is likely to increase. Overall, the potential reduction in education expenditure may be muted because of the elongation of time spent in education and greater emphasis on technical and professional education, improvement in the quality of education, all of which will be very necessary for the productivity growth that is necessary for economic growth and improved standards of living in Asia.

*Public pension system<sup>5</sup>*

Perhaps the most significant impact of population aging is on the pension system, in particular, and on the fiscal situation, in general. The choice of policies for stabilizing the fiscal situation is therefore important, especially if the governments decide to pursue a somewhat faster pace of consolidation to reduce its exposures to fiscal risks. While one option is to shift toward fully funded pension liabilities and more generally encouraging a diversified range of retirement income sources, another option is modifying public pension generosity and eligibility criteria by elongating the average numbers of years in the workforce or service. In this regard, the pension reforms have taken the form of both structural and parametric changes. The reforms in many countries have focused on the move from unfunded to funded arrangements in order to address the issue of growing pension liabilities. This has led to the creation of large sized pension funds, necessitating appropriate institutional frameworks to ensure safety of invested funds.

Public pension systems exhibit considerable variety among the Asian countries. Only Korea and Taiwan have defined benefit, pay-as-you-go, public pension systems with largely universal coverage of the workforce. Taiwan's scheme (which was expanded in 1983) results in a lump-sum benefit upon retirement, in contrast to Korea's more recently introduced scheme, which will result in a retirement annuity. Coverage is relatively comprehensive for the mandatory provident funds of Malaysia and Singapore. These are defined contribution schemes, which result largely in lump-sum withdrawal benefits upon retirement, but which allow earlier withdrawals for specified purposes (for example, higher education for dependents, major medical expenses, housing). The latter schemes are subject to government regulation or management (in terms of governance provisions and investment policies). The provisions of the systems suggest that the principal risks of inadequate savings (due to unanticipated inflation, poor yield on savings, or longer-than-expected-life spans) are almost wholly borne by the contributing populations (Heller 1997).

In the other Asian countries, the government's involvement in the pension sphere is presently much more limited, although some countries are considering or have recently implemented pension reforms that seek either to introduce new pension schemes or to strengthen the finances of existing schemes (for example, in Indonesia). Public pension systems, if they exist at all beyond the civil service, are typically restricted to the larger enterprises in the formal sector. Thus, overall public pension coverage of the labor force is still fairly limited and replacement rates are low. Where such schemes exist, they are managed by public enterprises and are financially not included in the central government budget. Private sector pension systems exist for the larger enterprises of some countries (notably, China, Indonesia, the Philippines, and Thailand), and most of these are in the form of provident funds.

There are few estimates of the impact of demographic trends on the pension outlays of the Asian economies. For those countries where pension coverage is relatively comprehensive, long-term actuarial projections are available for some of the pension schemes, and these indicate the financial pressures to which they may be subjected. In Korea, for example, actuarial projections show the emergence of operating deficits in the National Pension Fund as early as 2020 or sooner. For the provident fund-type schemes of Singapore and Malaysia, projections suggest that the aging of the population will also result in a net draw down on fund reserves. To the extent that these funds are classified in the private sector, these draw downs would have no impact on measured government fiscal balances (Heller 1997).

For other Asian Tigers, most of the public sector pension schemes cover only a limited share of the labor force. Thus, most long-term financial projections, where available, focus on the demographics of the specific work process associated with particular pension schemes and on the terms of eligibility for benefits in these schemes. The few available financial projections suggest the exhaustion of built-up reserves within the next decade or so, and mounting operating deficits thereafter.<sup>6</sup> In the absence of the governments being drawn

into their financing, the deficits of these schemes would, in principle, need to be financed either by higher contribution rates from future workers or by cutbacks in benefits. Obviously, developments in the size and demographic structure of the overall population are not useful for assessing the potential pressures on public outlays from these pension schemes. Indeed, one may observe operating deficits emerging in schemes, even where the overall demographic data for a country would not suggest any particular pressure in terms of rising overall elderly dependency rates.

An alternative perspective on the implications of demographic change can be gleaned by a simple assessment of the effect of an increase in the size of the elderly population rate on gross public pension outlays (Heller 1997). In east Asia, through 2010, the effects on government pension outlays are modest (1-2 percent of GDP), with the largest impact felt in Korea and Taiwan, and with far more limited effects in Singapore, Hong Kong, and China. Outlays in Taiwan and Korea could also rise substantially, by about upward of 4 percent of GDP between 2010 and 2025. By 2035, these expenditure shares could further increase as the elderly dependency rate becomes larger. Indeed, by 2050, one could observe pension outlays increasing by 8-11 percent of GDP in Korea and Taiwan relative to 1995 levels.

In China, the budgetary effects only emerge between 2010 and 2025, but still remain modest, with additional outlays of about 2 percent of GDP between 1997 and 2025. Thereafter, however, demographic factors alone could increase government pension outlays by 5 percent of GDP by 2035. For the Southeast Asian Tigers, again the budgetary impact would be negligible for most countries (an increase under 1 percent of GDP by 2025 and 2 percent by 2035), with the significant exception of Malaysia.

#### *The implications of enhancing pension coverage*

Beyond the obvious differences across countries as to when the elderly dependency rate will become burdensome, the key factor determining the impact on outlays are differences in the scale of the

government's budgetary involvement in the pension sector. However, the statistics also implicitly suggest significant differences across economic groups within a country in terms of their claim on formal pension incomes during retirement. The populations not covered under such schemes are typically those in the informal and rural sectors who are almost wholly reliant on intra-household transfers and savings. They are likely to be far more vulnerable to the financial risks of aging.

Were the governments of these countries to play a more active role in the pension sphere in terms of ensuring some minimal pension to all uncovered elderly, government pension outlays could become more substantial. For example, if in 2025 the government were to pay a pension equal to 30 percent of per capita income to each elderly person not covered under existing public pension schemes, then government pension outlays would rise significantly. In China, a further increase in outlays of 1.7 percent of GDP would be required as early as 2010, and the pressure on pension outlays would become increasingly heavy. In Southeast Asia, outlays would be higher than in the previous projection by about 1-1.5 percent of GDP by 2010, with further additional increase thereafter.

Two broad sets of issues are clearly on the public policy agenda. First, where existing schemes for public enterprise employees and civil servants (for example, in China, Indonesia, India, and Thailand) have been shown to be actuarially in need of remedial financial measures, the issue is whether the government will adapt these schemes to forestall such a situation or ultimately absorb the cost of operating deficits.

Second, and more important, are the problems posed by the aging of the populations of the Southeast Asian Tigers and China, with reduced support ratios in terms of the number of workers relative to the elderly population, and an increasing breakdown of traditional extended family support systems (particularly in the context of significant rural-urban migration and declining fertility rates). Will these societies decide to provide a more organized financial framework for

income support for the elderly than would emerge from voluntary household savings decisions and extended family support? To a significant extent, this is a distributional question. The policy choices made in this regard will have both fiscal and macroeconomic implications; both in the period before and after the elderly become an increasing share of the population. The choices will also determine the way in which the financial pressures from an aging population are distributed within the societies.

#### *The Indian scenario*

The case for fiscal consolidation in India is very strong, given that the existing nominal debt to GDP ratio is already very high compared with other emerging market economies. The burden is further aggravated when unfunded pension liabilities, contingent liabilities, government guarantees of state enterprise debts, and the prospects of re-capitalization of a number of state-owned financial institutions is taken into account. The combined fiscal deficit has been around 10 percent of GDP in recent years. The challenge facing India therefore is a renewed focus on fiscal consolidation, as is embedded in the objectives of the Fiscal Responsibility and Budget Management Act that has been enacted recently. As the fiscal challenges arising from aging will take some time to become evident, the opportunity of strengthening the fisc is new and needs to be pursued with great resolve.

An overview of the combined finances of the central and state governments shows some improvement in 2003-04 on account of a lower growth rate in aggregate expenditure vis-à-vis non-debt receipts. The combined tax-GDP ratio registered an improvement of 0.5 percentage points over the previous year's level. Direct and indirect taxes registered improvements over the previous year's level; the improvement in direct taxes was, however, more pronounced as a proportion of GDP. There was also qualitative improvement in expenditure composition in 2003-04, as reflected in a shift in favor of the developmental component. In terms of GDP, the development expenditure of the center and states exhibited an improvement of one



percentage point over the previous year. The share of capital outlay in the total expenditure showed an improvement in 2003-04 by 2.6 percentage points. Containment of non-developmental expenditure was made possible through reductions in interest payments on account of the softening of interest rates enabled by the conduct of monetary policy. The impact of the lower interest rates was reflected in the decline in the ratio of interest payments as a proportion of revenue receipts.

India is undergoing the same forces of demographic transition that have been experienced in most other parts of the industrial and emerging market world, delayed by a few decades. Population will continue to grow in the next 50 years, *albeit* at a lower rate. The age structure will change dramatically, with a doubling of the share of aging population. In fact, India's population structure will, in 2050, mirror that presently found in the major industrial countries.

Fortunately, from the fiscal point of view, unlike in industrial countries, India does not have a "Beveridgean" social insurance system in place. Thus, India's demographics do not necessarily portend explosion in government social insurance outlays arising from underlying existing policy commitments. This being the case, the demographics still pose important challenges on social security for the government.

India's demographics have important ramifications for the approach taken to the provision of medical care and the structure of India's evolving social insurance policy framework. Although, they do not necessarily imply a dramatic expansion in the size of the government health care system, the need for a substantial strengthening of both this system and the regulatory framework in the sector cannot be over emphasized. Even without a national health insurance scheme, the level of primary care expenditure is grossly insufficient and would require at least a doubling of the share of this expenditure in GDP by 2010 (Heller 2004). Moreover, with an increasingly affluent population, the demand for medical care is expected to rise sharply.

Beyond the aggregate demographics of a country, the actuarial position of public and private pension schemes is primarily determined by a combination of the demographics of the insured population of the scheme and the nature of the policy parameters of the particular pension scheme. In the case of India, only about 11 percent of the current working-age population participate in mandatory, formal programs designed to provide income security during old age. The participants in these schemes—salaried employees in the formal private sector and government—are among the highest income groups in India. These schemes do not extend to nearly 85 percent of workers in the informal sector who have little ability or opportunity to save for old age. The formal programs consist of three funded programs, two of which are of a defined contribution nature (namely, the Employees' Provident Fund (EPF) for formal private sector employees and the government-wide provident fund—the Government Provident Fund) and one which is a defined benefit scheme (the Employees' Pension Scheme (EPS)). There is also one unfunded program—the Civil Servants Pension Scheme (CSPS), which is a non-contributory, pay-as-you-go pension system administered by both the central and state governments. For two of the schemes, the CSPS and EPS, the government is likely to face significant long-run contingent liabilities. The situation is difficult in the case of central government departments—namely, defense and railways. The pension bill is estimated to be about 25 percent above the wage bill, which represents a hidden cost.

Although the EPS is, in principle, funded, it is unlikely that it is going to be financially sustainable in the long run, as its defined benefit promises too high a rate of return on contributions. This rate of return is well beyond the feasible rate under the current restrictive investment regulations and approximates the rate that can be expected from a well-diversified portfolio in the most advanced financial markets. Increasing coverage simply increases the number of the workers accruing unaffordable benefits. As interest income and lump-sum withdrawals from provident funds is tax exempt, tax preferences in the current pension system add to the strain on government finances.

This problem is further compounded by administered interest rates on small savings, which are not in sync with market interest rates. While increasing attention was given by the monetary authority to explore alternative means of reducing the interest rate rigidities, sharp reductions in interest rates since 2001 following strong capital inflows raised concern about protecting real interest income of retirees and pensioners, particularly in view of inadequate coverage of social safety net in India. Therefore, while benchmarking of interest rates may be an interim solution, a medium-term objective could be to design fully funded pension schemes over a period of time to be independently managed by professional trustees with returns linked to the underlying assets of the fund. In order to address the immediate concerns of savers, it is necessary to limit the inter-year movement of interest rate fluctuations within tolerable levels. In fact, these concerns supersede the need for aligning the administered interest rates to market rates. Further, it is also envisaged to offer a higher interest rate to senior citizen/pensioners by benchmarking those securities with government securities (G-sec) of longer activity and adding a spread over the benchmark (government of India 2004).

A cursory review of India's social insurance framework (Box 1) suggests enormous gaps, both in coverage and in the regulatory structure. Unemployment insurance basically does not exist, adding to the factors that have made it difficult for enterprises to rationalize workforces. In the health sector, most of the population is covered at best by a limited and poorly staffed public health service. As a consequence, the bulk of health care is provided by the private sector. And finally, as discussed above, the various formal retirement savings schemes cover no more than about 11 percent of the labor force (Heller 2004). Looking ahead, India will need to develop a framework for provision of mechanisms for social insurance consistent with a modern economy. While the private sector has to play an important part in extending social security services, there has to be a dominant role of the public sector in both regulation of the private sector and in the targeting of the poorest groups.

The enduring message for Asian countries, based on the experience of developed countries, is that dependency and its concomitant fiscal impact is not necessarily toward old age but also for the younger generation. While the expenditure on education can be funded by private provisions, that of health and medical care of older people are likely to come from public spending on social security. Thus, aging poses serious challenges on the fisc, which require immediate policy responses. In this regard, public pension reforms and health insurance would play a key role in alleviating the fiscal burden.

**Box 1**  
**OASIS (Old Age Social and Income Security)**

The Ministry of Social Justice and Empowerment, government of India had commissioned a national project, titled “OASIS” (Old Age Social and Income Security) in 1999 to examine policy questions connected with old-age income security in India and create necessary institutional infrastructure and to make concrete recommendations for actions. The committee, which submitted its report in February 1999, was entrusted with the twin task of further improving existing provisions and to devise a new pension provision for excluded workers who are not capable of saving even modest amounts and converting this saving into an old-age income security provision. Major recommendations of the committee were:

To develop an institutional infrastructure through which individuals can prepare for old age while they are in the labor force is an efficient pension system. As most individuals in India are outside the organized sector and face temporary unemployment, a pension system for India should thus be flexible and useful to the unorganized sector. Government dole is not sustainable on a significant scale and old-age economic security should necessarily result from sustained lifelong contributions by emphasizing self-help and thrift, and for sound pension planning, there should be sound fund management to achieve the highest possible rates of return.

**Box 1 (cont.)**

The committee recommended a simple and convenient pension system where a person opens a single Individual Retirement Account (IRA) at as early a point in his or her life as possible with a minimum of Rs.100 per contribution and Rs.500 in total accretions per year. No limit on the frequency of accretions or fixed monthly contribution.

The pension system would work through a myriad Points of Presence (POPs), which would be located all over India, including banks, branches, the post office, etc, with full portability across job changes and across geographical locations. It would be a two-tier system where POPs with good information technology and telecommunications facilities would offer better services than other technologically constrained POPs and in turn would reduce administrative and transactions costs.

Six professional pension fund managers (PFMs) should be selected to manage the retirement funds under this system. The pension system would offer three styles: safe income, balanced income, and growth. Each of the six PFMs would run one scheme each in the three styles, giving 18 schemes in all, which individuals can choose from.

An additional safety net in the pension system is that if the final pension of a participant is smaller than the sum total of all contributions, then the insurance cover would reimburse this difference for individuals who have contributed for at least 10 years. To a significant extent, the government can purchase this insurance from insurance companies.

The design of the pension system should also include a self regulatory organization (SRO) that will be registered with the Indian Pension Authority. The pension system relies on annuity providers who convert the lump sum of assets (attained at retirement) into a regular monthly pension (or a variable annuity) until death.

**Box 1 (cont.)**

The tax-free limit for accretions into the IRA should continue to be a maximum of Rs.60,000 per year. Premature withdrawals as well as the terminal accumulations withdrawn as a lump sum from provident funds should be taxable at the rate of long-term capital gains rate. However, the amount that is used for buying annuities should be tax-free.

The income earned on funds held in trust by PFMs and annuity providers, on behalf of contributors, should be exempt from any taxes. There is a strong case for integrating a micro-credit facility into the pension system whereby individuals can have access to funds in the form of a loan against their pension savings.

**Policy response and lessons from developed countries****V**

Population aging has many serious developmental linkages with a potential to jeopardize economic and planning strategies. Normally, the subject is viewed as a problem in the very long run; therefore, policy initiatives receive only peripheral attention. However, while addressing the magnitude and timing of the adverse demographic fallout, there is a need to reflect on the likely direction and effects of critical policy choices in the social sectors, many of which initially have only a limited relationship with long-run demographic pressures. These pressures later will eventually play an important role in determining longer-term fiscal effects. In reflecting on the options faced by the Asian countries, it is useful to look at the debate in industrialized countries, where the focus has largely been on three broad sets of options. These are:

1. Measures for fiscal consolidation in the period before the full impact of aging commences, thus improving the base level of national savings and public debt. Actions to lower expenditures and raise primary budget surpluses in the non-age-sensitive areas of budgets are clearly seen as strengthening this fiscal position.

2. Fundamental changes in policy design, particularly in the health and pensions sphere, in order to contain the cost of the public sector's social insurance commitment to the elderly population and to contain systemic cost-augmenting pressures in the medical sector; and
3. Measures designed to at least partially redress the influence of demographic trends on the workforce and thereby enhance growth rates and the government's revenue potential.

The position of the Asian economies in the face of these choices of policy design in the key social sector differs in some important respects. For the industrial countries, the scope for significant policy changes is restricted by the maturity of their pension and health systems and the consequent difficulties of changing them. In contrast, the social service systems of many of the Asian countries are still in a formative stage. This is particularly true for India and China, where fundamental reforms to both the health insurance and pension systems are now under consideration.

There are both advantages and disadvantages in this situation. On the one hand, the problem of aging is a bit premature for many Asian economies (for example, India, Pakistan, and Bangladesh) while for some it is getting too late (for example, Korea and China). There is a need to ensure that stable systems are put in place by the early part of this century; but, at the same time, these systems have to be sufficiently flexible and moderate in their commitments on pension benefits. Secondly, in designing present policies, the longer-term demographic developments have to be borne in mind, although there may be more pressing fiscal problems at hand. Third, in view of the rapid pace of transformation of an aging population, there is a need for policymakers to adequately modulate the speed of adjustment of reforms. Finally, although policy strategies are highly reliant on private sector initiatives, the public sector has to play an important role in overcoming sources of market failure.

Many of the issues that will confront public policymakers are essentially distributional in character. For example, should there be a minimal income level for the elderly and who should finance such transfers? There has to be some reassessment of the generosity of some existing pension schemes and measures to alleviate the gender bias inherent in some pension schemes. In the area of medical care, policies have to address the issue of whether access to medical care should be governed by financial ability. Finally, the question of whether to broaden social security coverage beyond the formal sector to the informal economy, the rural sector, and the foreign workers communities will be a significant policy issue for most of the Asian countries during the next few decades.

In terms of allocation of scarce resources, expenditure within the social sectors needs to be prioritized to take account of the changing structure and level of demand in education and medical sectors. While some levels of education need to see expansion, others will need downsizing. Similarly, medical facilities have to be upgraded, which calls for heavy capital outlays.

One issue that will influence social insurance system design is the capacity of the government or the private sector to extend the administration of collections of payroll-related contributions or taxes to the rural and urban informal sectors of the economy. The administrative complexity of taxing or realizing mandatory contributions from such groups will thus inevitably bias policy choices away from the notion of benefit systems that are tied to individual contributions and more toward the provision of publicly financed services in the medical care sector and rough means-tested safety net transfers for the elderly. In effect, cross subsidization from the general taxpayer to these groups, which are not an insignificant share of the population, may be inevitable for the foreseeable future in Asia. This may reinforce the bias toward dualistic systems, which effectively differentiate between workers in the formal and informal sectors. Allowing for optional participation in public pension and private or public medical insurance schemes is also an obvious option, but does not address the fundamental difficulty of limiting the extent to which there is a



segmentation of the population in terms of the standard at which pension and medical care needs are addressed.

A second issue is whether the Asian countries need to alter their fiscal stance in light of emerging demographic trends. In the pension sector, this would imply whether it would be desirable to prefund higher outlays associated with pension, as in Singapore and Malaysia or as with Medisave in Singapore for medical care. Ultimately the question relates to whether a higher national savings rate is desirable, and the extent to which this should be an explicit goal of policy. This is particularly true for east Asia where the aggregate and public sector savings rate are quite high and where even higher investment rates have fueled higher economic growth and rising per capita income. For the less developed Tigers, the financial implications of aging population are less daunting for the foreseeable future. For these countries, achieving high rates of savings would appear an important policy objective, but more so in order to achieve the rapid growth necessary for raising per capita income levels. In effect, achieving rapid growth is one form of “prefunding.”

Yet another issue is the availability of life insurance and private pension schemes in Asian countries. Asian countries, particularly in the Indian subcontinent, suffer from scarcity of capital, which restricts their capacity for large capital outlays in infrastructure. Pooled savings of pension and insurance schemes can be channelized for productive investments, thereby increasing the potential for higher growth. Higher growth would enable higher investments in social security, as the scope of additional mobilization of resources through higher taxes is limited. These measures would facilitate the burden of an aging population without inhibiting the development process, while maintaining inter-generational equity.

In order to postpone the burden of pension funding, another policy option may be to increase the retirement age for existing employees (for example, Japan), thereby keeping elderly people employed for a longer period. In this regard, incentive schemes for early retirement may be withdrawn or discontinued. However, while this may be a

feasible solution in developed countries with low growth rates of population, such measures in Asian countries, experiencing high population growth, would result in increased unemployment, as more job seekers would remain unemployed for a longer duration.

### **Pension reforms**

In the context of growing pension liabilities, several countries have initiated modifications in the civil service pension schemes. Many countries have, accordingly, taken measures to reduce the pension liabilities by introducing higher retirement ages and/or longer service periods, increasing required employee contribution rates, lowering rates of benefit accrual, and changing the post retirement indexation policy. Illustratively, Korea has increased the employee share of contribution, shifted from wage to price indexation, and reduced the benefit levels to new employees. Italy also shifted from wage to price indexation and introduced limitations on early retirement. Brazil, Greece, and Portugal have also reduced the benefit accrual rates. A number of countries have also realized the need to achieve some level of advance funding of benefit obligations.

Pension reforms being undertaken by various countries follow different forms. The multi-pillar system adopted in several countries consists of an unfunded mandatory pillar, a funded mandatory pillar, and a voluntary private pillar. The design of the pillars has varied across the countries. There are, however, three major types of pension reforms across the world. At the one end of the spectrum is the Latin American (individual account) model, with only one DC pillar established by Chile in 1980 and now followed by Argentina, Mexico, Peru, Bolivia, and Uruguay. While the other two models are the OECD (employer sponsored) model adopted by Australia, Switzerland, Denmark, and the United Kingdom, and the national defined contribution (NDC) system, which originated in Sweden and was adopted in Italy, Latvia, and Poland.

Given the wide variety of demographic experience in Asia, the sequencing of pension reforms has to be in sync with the changing profile of dependency ratio while addressing the fiscal challenges and this needs to be seen from an overall perspective. In this regard, pension reform in two Asian countries, namely India and China, is discussed briefly.

### **India**

In India, initiatives toward pension reforms have been somewhat nascent at both the central and state government level (Box 2 and 3).

### **China**

Old-age security is one of the first components of the social security system in China to be selected for reform. Originally, China's social security system was designed to deliver many of the social services and benefits to the population through state-owned enterprises. In the process of reform of the social security system, government has made clear the need to shift responsibility for providing social services and benefits from enterprises to a combination of the government, enterprises, community, and individuals.

The weaknesses and limitations of the old-age pension system established in the 1950s became apparent as China shifted toward a market-oriented economy in the early 1980s. The enterprise-based system was increasingly unable to meet present obligations, and pay-as-you-go financing clearly would be unsuitable to meet the challenge of the next century with an aging population. Various reforms of the pension system were under way on a trial basis in a number of cities by the mid-1980s. Pension reform gained momentum in the early 1990s when experiments became more widespread, and social security reform began to focus on expanded coverage and uniformity in design details.

China has taken rapid strides in laying the foundation for a more stable old-age security system. The new system includes multiple

**Box 2****New Pension System for the Central Government of India**

In February 2002, the *High Level Expert Group on New Pension System* submitted its report suggesting modifications in the pension system for central government employees. In August 2003, the Union Government approved the proposal to implement the budget announcement of 2003-04 relating to the introduction of a new restructured defined contributory pension system for new entrants to central government services, except to armed forces. An independent Pension Fund Regulatory and Development Authority have also been set up to regulate and develop the pension market.

It is important to note that pension schemes for government employees in India are non-contributory and unfunded. As such, these are to be met through the government's current revenues. Traditional fiscal indicators based on cash flow accounting do not capture the implications of pension liabilities. Hence, size of the debt-based cash flow deficit does not fully reflect government's liabilities. Any realistic assessment of the fiscal situation would also need to address the issue of pension liabilities.

In the context of the new contributory pension scheme for central government employees, an important issue is funding of existing pension liabilities and pension fund management. The pension reforms announced for the central government employees will yield positive returns only in the long run. During the transitional period, the burden on the government finances will, in fact, increase as the government will have to contribute to the pension fund and also meet the pension liabilities of the existing employees and pensioners. This calls for some funding arrangement for existing employees as well. Appropriate regulatory framework for pension fund management is another important aspect crucial for enhancing the credibility of the funded pension schemes.

**Box 3****Pension Liabilities of the State Governments in India**

At the state government level, the issue of increasing pension liabilities has also assumed critical importance since their unfunded and non-contributory nature has proved to be a mounting burden on the state budgets. So far, however, only a few state governments have initiated measures toward the introduction of a contributory pension scheme. *A Group to Study the Pension Liabilities of the State Governments* submitted its report in February 2003, which was published in February 2004.

Some of the major recommendations of the group are: introduction of contributory pension scheme/s which should be mandatory for all new employees of the state governments in place of the existing non-contributory defined benefit pension scheme. The recommended alternative pension models are:

1. Pure *defined contribution* (DC) scheme in which the new employees and the government each would contribute 10 percent of the basic pay and dearness allowance to an individual account. The contributions will be vested in a fund, which will be invested in accordance with specified guidelines. The employee at the time of retirement will get an amount that will be the aggregate total of the employee's contribution, government's (employer's) contribution and the earnings (on investment made by the fund) attributed to the employee's account;
2. A *defined contribution-defined benefit* (DC-DB) scheme—a contributory scheme with guarantee of an appropriate level of pension fixed by individual State Governments; and
3. A *two-tier scheme* (for example, a DC-DB scheme plus a second tier of DC scheme)—the defined benefit in the first tier of DC-DB scheme could be reduced from the present level of 50 percent to an appropriate level of say 30 percent

**Box 3 (cont.)**

and supplemented by a mandatory DC scheme, wherein both the employees and the state governments make contributions.

To have some immediate and medium-term effect on state finances, a few parametric changes in the current pension scheme for both the existing employees and pensioners become inevitable. These include immediate withdrawal of fixing of pensions on the basis of only last one month's pay, wherever applicable; eliminating wage indexation, wherever applicable; and maximum permissible commutation amount to be brought down from 40 percent of basic pension to 33 $\frac{1}{3}$  percent.

In order to at least partially meet the pension burden of the existing employees and pensioners, there is a need for setting up a "dedicated pension fund" through levying access on/collecting contributions from all the existing employees, retaining a portion of increased salary and dearness allowance (DA) arising from the revisions in salary and DA, and taking steps to augment the fund.

pillars, although attention thus far has focused on the social or public pillar. The financing burden is being shared by employees, employers, and the government, rather than being borne exclusively by the individual work unit. The framework is in place for a defined contribution plan, which can become funded, and a defined benefit plan, which may remain pay-as-you-go. Also, pensions are being indexed to control the erosion of pension value by inflation.

Pension reform is incomplete, however, and a number of important issues remain to be tackled. It is critical that regulations and supervision catch up with the new system. Contributors and beneficiaries alike need to be assured that funds are properly managed. In addition, if pension reform is to be successful, it is imperative that state-owned enterprise reform proceeds. There are many aspects to state-owned enterprise reform, including the establishment of unemployment

insurance, housing reform, and a determination of how to value and sell off state assets while preserving a portion of assets from bankrupt enterprises to cover pension obligations. Delay in completing state-owned enterprise reform runs the risk of the reformed pension system unraveling if the current need to bail out state-owned enterprises and excuse their pension contributions continues indefinitely.

Growing pension liabilities, globally, have resulted in significant reforms in pension schemes. Measures include the introduction of higher retirement ages, increased employee contribution rates, lowering benefit accrual rates, and changing the post retirement indexation policy. A number of countries have also realized the need to achieve some level of advance funding of benefit obligations. In Asia, pension reforms can be characterized as diverse, ranging from the advanced modern systems as prevalent in Singapore, Korea, and Malaysia to the relatively less advanced systems in most other countries. In this regard, medical and health insurance are quite comprehensive in the east Asian countries. China and India have only recently embarked on the path of pension reforms, although the coverage is still confined to the organized sector. Medical insurance continues to be based on private funding in India. Pension schemes have got to be from both the public and private sector and, in this context, the development of robust debt markets, in particular, and financial markets, in general, is a necessary prerequisite that would facilitate the mobilization and channeling of savings in high-return yielding assets. This, in turn, would make pension funds viable and capable of withstanding the economic pressures of population aging.

### **Approach to Asian aging**

### **VI**

As in other parts of the world, Asia is also undergoing rapid aging of its population as a result of much increased longevity in the lives of most people. The emerging process will be similar to that being observed in developed countries already, but the onset of fiscal pressures will perhaps be delayed by 25 to 50 years in different Asian countries. The existence of a large proportion of rural farm-based populations, lower life expectancy, and the tradition of family support

systems has so far masked the problems of aging in Asian countries. With increasing urbanization, life expectancy, and breakdown of family support systems, the pressures for public funding for health care and support of the aged are bound to increase in Asia in the years to come.

Among the key differences with the developed world are:

- Aging is taking place at much lower income levels and, hence, capacity to fund social welfare is lower.
- There continue to be huge demands for funding of both physical and social infrastructure in growing Asian economies.
- Some countries have constrained fiscal situations.

Our key advantage in Asia is that we know the future: We can see it in the emerging demographic challenges of the developed countries. What then are the lessons for us:

- *Do active fiscal consolidation before these new fiscal challenges emerge.*
- *Pay serious attention to policy design for both health care and pension/social security systems.* As far as possible, reduce the weight of defined benefit pension systems and move toward fully funded systems or a judicious fiscally responsible combination of the two. In the case of health, with vaulting technology, it is essential to keep a strict watch on health costs and to design sustainable health insurance systems with an eye to future aging related liabilities.
- *Pay attention to policy implications of aging:* A key component of this is to slow down the shift from private to public provision of both social security and health care. Serious thought can be given to appropriate incentive mechanisms that encourage family provision caring of the aged. Social security systems in Asia are at a formative stage, and care can be taken to not go the way of developed countries in terms of universal public coverage.



- *Provide for flexibility:* Although the demographic future is relatively clear, unexpected economic and other changes do take place. Thus, there is great need for building in flexibility in policy design in terms of social security expenditure. As the total dependency ratio is not projected to increase, the gradual transformation to an aging population would imply a shift in social security expenditure pattern from education to health care and pensions. While expenditure on medical and health care would be a mix of public and private expenditure, that on education may have a greater component of private provision. Thus, policy design will need to look ahead at the pattern of demographic change in a detailed manner to provide for flexibility in the public/private components of potential social expenditures.
- *Focus on those who cannot help themselves:* In view of the relatively lower levels of incomes in Asian countries and fiscal constraints, more care can be taken on focusing public social expenditures on the relatively less well off, and avoid the perils of universal applicability of social security. This would clearly imply a measure of income redistribution: How much is feasible without significant impact on savings and work behavior?

There are a number of positive features in the current Asian economic scenario that can mitigate the expected fiscal challenges of aging. Let me turn to some of them.

### **Role of migration and remittances**

Remittances play a critical social insurance role and this has significant impact on both poverty and equity (Kapur 2003). Remittances for some Asian countries, especially for south Asia, are very high, constituting about 63 percent of total net inflows. Remittances finance consumption, land and housing purchases, and philanthropy, and they are an important source of social insurance in lower income countries. The effects of remittances are complex and are a function of the characteristics of migrants and the households they leave behind, their motivations, and the overall economic environment. In

Asian countries, particularly in the Indian subcontinent, remittances are a steady source of resources at low-income levels, which are invariant to market conditions. As such, these flows seem to be unaffected by changes in interest rates, country ratings, etc.

Projections show that the median age of developed countries would be about 46 years around 2050. This is indicative of an aging population, which is clearly unsustainable from the point of working-age population. One solution for lowering the fiscal burden would be either by encouraging large-scale migration or increases in existing birth rates. Historical evidence, however, does not support the possibility of higher fertility once fertility dips below replacement level. Migration would facilitate the problem of aging in both the developed countries and the poorer ones. In developed countries, it would add to the younger workforce, thereby increasing productivity, and generate higher tax revenues and social security contributions. On the other hand, continuous flow of remittances from migrant workers would add to the private provisions supporting the old, thereby reducing the fiscal burden of both the countries. It may be noted that India and the Philippines have recorded relatively high remittances during the last decade, which are now in excess of 3 percent of GDP of these countries.

Thus, migration has to be part of the aging story. It is good for recipient countries, reducing dependency ratios, increases tax resources, and increasing growth.

It is good for sending countries, reducing the pressure for job generation; a good source of funding for family retention of the old; and good for on-the-job training.

### **Economic growth**

Unlike developed countries, where economic growth is now constrained by the limits to productivity growth, Asian countries will continue to exhibit high rates of growth for some time to come. First,

as incomes grow, India, Indonesia, and others will continue to exhibit high savings rates. Second, as latecomers, technology adoption is cheap; productivity improvement and consequent economic growth can occur at a fast pace. But third, to get these benefits employment generation is essential and a key problem for policy design. However, it is continued high economic growth and savings rates that can do much to enable Asian countries to provide for the fiscal challenges that will emerge from aging.

### **Financial markets**

If we are to avoid the trap of public provision of welfare except for the needy, the development of a healthy privately funded system will depend crucially on the adequate development of financial markets. As financial savings increase and health, insurance, and pension funds are to provide adequate returns, they need to be invested in productive activities providing adequate returns.

The first need is the maintenance of prudent macroeconomic management, accompanied by monetary stability, with low and stable inflation. Second, confidence in equity markets needs to be developed. Hence, there is a need for continued improvements in regulation. Third, bond market development is in its infancy in Asia. This needs to be nurtured and developed consciously to provide adequate depth and breadth for fixed income instruments necessary for investment of social security funds.

### **Infrastructure**

We have great opportunities in this direction for the efficient intermediation of funds for productive uses. The 21st century is Asia's urban century. Large resources will continue to be needed for different segments of infrastructure: urban infrastructure, particularly water, sanitation, and sewerage; power; ports; airports; railways; roads; and the like. The telecom sector has provided an example of private funding of infrastructure where appropriate financial return

can lead to large and rapid investment. The levy and collection of appropriate user charges is essential and a certain degree of financial engineering, include public partnership, is required for providing adequate and relatively large returns.

The current availability of high savings in Asian countries can therefore be married to the development of adequate financial and capital markets to avoid the potential fiscal challenges of aging in Asia.

Low and sustainable inflation is key to macroeconomic stability. Monetary authorities, by emphasizing price stability, can anchor inflation expectations, thereby facilitating the emergence of a smooth term structure of interest rates. This would not only strengthen monetary and fiscal coordination but also develop the debt market. Thus, the enduring message for the Asian countries is that they ought to adopt an integrated policy framework on population aging covering demographic transition and reforms in the fiscal and financial sectors.

### **Conclusion**

- Asian countries have the advantage of seeing what is happening in the West.
- We can avoid the follies of excessive social welfare states.
- We need to develop funded health and pension schemes.
- We need to consciously delay the shift from private welfare provision to public welfare provision.
- The indications are that we will probably succeed.

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## Appendix

### *Concepts and Measures*

Conceptually, population aging is different from individual aging. Individual aging is a continuous process; a person ages inexorably from the time of birth to the moment of death, whatever the form of the life cycle or stages. Populations, however, can become older or younger, depending on the age structure composition of the people. The age of a population can be determined in several ways. Although proportions of those aged 60 years and above are generally used as an index of aging, there are several other measures of aging each having its own advantages and disadvantages. Broadly, however, these are categorized as traditional and alternative measures that are discussed, in brief, in the following paragraphs. The various traditional measures of population aging that are frequently used are the proportions of persons aged 60 or 65 years and above, mean age, median age, proportion of children under 15 years of age, and age-child ratio.

Among these, the most commonly used measure is the proportions of aged 60 or 65 years and above due to its simplicity and easy comprehensibility. This statistic measures aging through the proportion of people aged 60 (or 65) and above in the total population. A population is said to be aging when the proportion of people aged 65 plus is rising. According to the United Nations (UN), a 7 percent is enough to make the population aged. Usually, the UN has recommended the age of 60 as the age marking the onset of aging. The second measure, the mean age of a population has been defined as the number of persons in each age group, which, though theoretically useful, has not been of much use. Third, the median age has been defined as the exact age that divides the age distribution in two equal halves. A typical aging population has its median age at 30 years or more. When the median age varies between 20 and 29 years, a country is in the intermediate stage of the aging process while a median age below 20 years indicates a young population. The fourth measure is the proportion of children under 15 years of age to the total population. Any proportion below 30 is typically regarded as

old. By this measure, India is projected to reach such a level by 2010. Finally, the ratio of the number of elderly persons to the number of children, called the aging index, is the fifth measure that takes into account the size and changes at both ends of the age distribution. By this measure, a value of over 30 indicates an aging population.

Besides the traditional measures, there are other dependency measures of aging. These measures are not used for measuring the aging of population per se, but have been used as an approximation of the social and economic dependency created by the aging of populations. Various forms of this measure are: (1) old-age dependency ratio, (2) potential support ratio, (3) parent support ratio, (4) youth dependency ratio and (5) total dependency ratio. The old-age dependency ratio is the ratio of those aged 65 years and above to those aged between 15 and 64 years of age. The potential support ratio is defined as the number of persons aged 15-64 years per every person aged 65 years or older. The parent support ratio is defined as the number of persons aged 85 years and above per 100 people in the age bracket 50-64 years. The youth dependency ratio is defined as the number of people aged 0 to 14 years per 100 people in the age group of 15 to 64 years. Finally, the total dependency ratio is the number of people under age 15 plus people aged 65 or older per 100 people aged 15 to 64.

In contrast to these traditional measures, there are other alternative measures that have been discussed in the theoretical literature. These are (1) Ryder's alternative measure, (2) P-Index of aging, and (3) slope of the population pyramid. The first one proposed an alternative measure by designating the entry into old age in terms of the number of years remaining until death. Accordingly, old age is considered the last 10 years of life. Under this criterion, the population of aged is the proportion of people above the age corresponding to a life expectancy of 10 years. Second, the P-Index of aging has been suggested to introduce more refinements in aging estimation based on Sen's P-Index of Poverty, which takes into account both proportion of aged and extent of oldness. Finally, the slope of the population pyramid has also been used as a single summary index of population aging. As the slope becomes steeper, the population is said to be aging. Despite the avail-

ability of various alternative measures, the traditional measure of proportion of aged population has been most commonly used in the literature due to several reasons. First, while it is a convenient measure for calculation, this technique is easily comprehensible. Additionally, the internationally comparable aging data (for example, UN data) for most countries is based on this method.

**Endnotes:**

<sup>1</sup>Following the UN classification, the aging indicator has been taken as 60 years and above.

<sup>2</sup>*Japan* and *Republic of Korea* have been excluded, as they are classified as OECD countries.

<sup>3</sup>However, it must be recognized that the dependence ratio gives no more than a rough approximation of the burden of dependency. Not all young and old people require support, nor do all working-age people actually provide direct or indirect support. On the contrary, older people in many societies are providers of support to their adult children. Thus, although a useful indicator of trends in the level of potential support needs, the dependency ratio, and particularly the old-age dependency ratio, should be used cautiously (United Nations 2002).

<sup>4</sup>Since this categorization is done from the viewpoint of the fiscal impact of population aging, this is different has been followed in Section III.

<sup>5</sup>The discussion in this section draws on Heller (1997) and West (1999). The Indian experience is drawn from various reports on pension reforms.

<sup>6</sup>In China, the pressures begin to emerge in 2010, but become particularly severe after 2025; In Indonesia, the civil service pension scheme begins to operate in deficit after 2006 (Asher 1997), and the pressures are further exacerbated by liabilities with respect to post-retirement health costs. In Korea, operating deficits emerge after 2020, ultimately eliminating the financial reserves that will have been accumulated. In Thailand, civil service pension deficits begin to emerge in 2020 and reserves have been projected to deplete by about 2027 (Heller 1997).



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